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Utilization of Plastic Waste as a Medium for Weaving Crafts: An Expressive Study in Grade VII at SMPN 4 Cikarang Barat

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ABSTRACT

The purpose of this research is to investigate in depth how seventh graders at SMPN 4 Cikarang Barat use plastic trash as a medium for weaving crafts as part of their expressive learning. An ecologically conscious and contextually aware art education is the impetus for this study's foundational work. Students' comprehensive understandings and experiences with recycled craft methods were investigated using a qualitative methodology based on a case study type. Fifteen students and two teachers participated in semi-structured interviews, while visual documentation of students' woven products (carpets, bags, and baskets produced from recycled plastic) and participatory observation during the crafting process completed the data collection. The thematic analysis yielded three primary conclusions: (1) the creative process encourages collaborative and contextual learning, (2) crafts become a means of self-expression that reflect students' identities and personal experiences, and (3) the growth of ecological awareness through meaningful recycling practices. These findings reinforce the theory of social constructivism and eco-literacy, and affirm that recycled crafts are not merely technical skills, but rather media for symbolic expression and the transformation of environmental values. This research contributes to expanding the understanding of crafts as a multidimensional educational medium and provides practical implications for the development of sustainability-based art curricula. In order to provide a more in-depth examination of the symbolic characteristics of crafts or to apply a comparable method in various cultural contexts and educational levels, further research is necessary.

KEYWORDS

Culture
Plastic waste, Weaving craf, Expressive learning, eco-literacy

INTRODUCTION

Art is a fundamental expression of human creativity that communicates the experiences and identity of a society (Sumarsono et al., 2024). Artistic activities also serve as a form of environmental education, especially when integrated with practices such as recycling used materials and utilizing plastic waste in cultural art education. This not only provides solutions to environmental issues but also serves as a means of aesthetic expression and character education (Nurasyid et al., 2024). Art-based recycling practices are contextual learning efforts that instill environmental values through creative activities (Putra, 2024). Art is not only a visual work but also a medium for transforming cultural values that reflect the depth of thought (Wenda & Sinaga, 2025). Art is not only a visual work but also a medium for transforming cultural values that reflect the depth of thought (Sari & Zaini, 2025).

As a learning tool that focuses not only on the final product but also on the process of character development and social awareness, art has the potential to become a learning tool (Hesti et al., 2024).

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In the context of 21st-century art education, strengthening collaborative values, environmental awareness, and creative innovation are top priorities (Proborini et al., 2024). Therefore, plastic waste-based craft practices can be used as an alternative learning method that aligns with the principles of sustainable education and character education (Sumarni et al., 2024). Project-based and locally contextualized art education can foster social empathy and enhance students' aesthetic sensitivity to environmental issues in their surroundings (Tulis, 2024).

To master SBK, one must possess the necessary skills and creativity. Cognitive abilities, motivation, personality, and intelligence are innate human qualities; creativity is no exception (Setyaningrum & Hutami, 2021). These three factors work together to explain creative behavior. Creative thinking is a powerful tool for individuals and organizations seeking to innovate (Poppy Indriyanti, 2021). Especially in densely populated areas, the environment has been severely impacted by the exponential growth of improperly managed plastic waste. Indonesia produces over 65 million tons of waste annually, with plastic waste accounting for approximately 17% of the total, according to statistics from the Ministry of Environment and Forestry (Khaerunnisa & Cininta, 2023). The establishment of waste banks is one of the steps taken to prevent waste accumulation. The term “bank” refers to a temporary collection site where recyclable waste can be collected by third parties (Mitan et al., 2022). Therefore, the implementation of the reduce, reuse, recycle (3R) concept is very important to be introduced from school age through active and participatory learning approaches (Jusuf et al., 2024).

Using recycled materials can be beneficial because it does not require spending money, allows children's creativity to develop freely, enables continuous learning, teaches children about environmental stewardship, and, of course, reduces the amount of waste produced (Ratna Dewi Purwati et al., 2023). Respecting the environment is not only the primary responsibility of schools, but understanding the consequences of environmental management itself is an integral part of the educational process (Mawarni et al., 2024). One development project aimed at helping children effectively learn about art and culture is the effort to preserve the environment by utilizing plastic waste (Afendiyanto, 2015).

In urban areas, plastic waste has become one of the most pressing environmental issues (Helmy Syakh Alam et al., 2025). Therefore, collective efforts from all parties, including educational institutions, are needed to introduce and encourage environmentally friendly practices from an early age. One approach that can be taken is to integrate the concept of green creativity into school learning activities (Riyanti & Ismiasih, 2025). A creative approach to utilizing plastic waste for crafts is a sustainable solution for waste management while also opening up economic opportunities for the community and helping to foster creativity among students (Dalimunthe et al., 2024). The goal of every empowerment effort should be to help community members become more confident and aware of their own abilities so they can make the most of the resources and opportunities available to them (Trimerani et al., 2024). To increase public and student interest in recycled plastic craft products, an attractive product design process that aligns with user preferences is necessary (Hermansyah & Santoso, 2020).

As an applied art form, craft emphasizes manual skills, functionality, and aesthetics. The cognitive, emotional, and psychomotor components of craft activities are just as important as the technical components (Apriliani & Heraerah, 2024). Students involved in recycling projects demonstrate improvements in creativity, social responsibility, and emotional engagement with environmental issues. This underscores that crafts made from plastic waste can serve as a vehicle for internalizing social and ecological values (Atmojo et al., 2024). n an educational context, craftsmanship is not merely viewed as mastering techniques but also as a medium for expression, self-reflection, and a means to cultivate character and creativity among students (Falasifah et al., 2024). One popular and easily applicable form of craft in schools is weaving, which involves arranging or assembling flexible materials (such as plastic, bamboo, or rattan) into specific patterns to form functional objects like bags, carpets, or baskets (Nur Aini Tarigan & Rakhmawati, 2024). The use of plastic waste-based weaving techniques provides space for innovation in cultural arts education while developing students' visual-spatial skills and environmental awareness (Hanif et al., 2024).

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Research highlighting the narrative, expressive, and symbolic dimensions of craft practices using waste materials, particularly in the context of cultural arts education at the junior high school level, remains limited. Furthermore, craft is often positioned solely as a technical skill, without exploring its role as a medium for personal expression, social reflection, or a means of fostering students' ecological awareness. However, art education has great potential to foster emotional connections between students and environmental issues through contextual and experience-based approaches. Considering the information presented above, the objective of this study is to conduct further research on the potential utilization of plastic waste as materials used in weaving crafts in the cultural arts subject taught to seventh-grade junior high school students. Furthermore, this study aims to reveal the functions of these activities in fostering ecological awareness, individual expression, and creative processes. This study aims to contribute to the development of sustainable, reflective, and contextual art education through its qualitative approach, informed by social constructivism and eco-literacy. The development of a sustainability-based curriculum emphasizing ecological literacy, self-expression, and 21st-century skills through creative art activities should be a top priority for educators in the context of 21st-century education (Putri et al., 2019). Therefore, a project-based learning approach using waste materials as a medium is a relevant means of shaping students who are creative, environmentally conscious, and reflective.

Although many studies discuss craftsmanship or environmental education separately, there is still little research that integrates plastic waste-based craftsmanship as a vehicle for expressive and ecological learning simultaneously, especially at the junior high school level. Seventh-grade students at SMPN 4 Cikarang Barat will be the focus of this investigation into the creative use of plastic waste as a material for woven crafts and expressive learning.

METHOD

In this study, which used a qualitative case study approach, seventh-grade students at SMPN 4 Cikarang Barat were studied from April to May 2025. The students were asked to use plastic waste as a material for weaving crafts as a means of expressive learning. Using a snowball sampling strategy, the research team recruited 15 students randomly, plus 2 instructors and 1 administrator who served as additional informants.

Data was collected using various methods, including semi-structured interviews, participant observation, reflective journals, and visual documentation of students' work. Interview guides and observation sheets were used as tools. Thematic analysis developed by Miles and Huberman was used to conduct the data analysis process, which included data reduction, data presentation, and drawing conclusions (Qomaruddin & Sa'diyah, 2024). Data validity was strengthened through triangulation of methods and sources, as well as member checking to ensure the accuracy of the information.

RESULT AND DISCUSSION

This study identified three main themes that characterize student engagement in weaving activities using plastic waste, based on information gathered through visual recordings of student activities, semi-structured interviews, and participatory observation. The three themes are: (1) the creative process as a means of collaborative and contextual learning, (2) expression of identity and experience through craft products, and (3) increased ecological awareness through functional recycling practices.

1. Measurements The Creative Process as a Means of Collaborative and Contextual Learning

The entire process of crafting, from sorting plastic, cutting, to weaving, involves students in active and collaborative learning. This activity reflects the principle of contextual learning, where knowledge is built through real-life experiences and social collaboration. One student stated, "When making a carpet, we have to work together because the plastic is long. We divide the tasks—some cut, some weave." This demonstrates how craft activities encourage student interaction, joint decision-making, and balanced role distribution. Recycling-based craft training can enhance students' creativity and foster collaboration in the learning process at the elementary school level (Yuningsih & Jaizul, 2025). Additionally, research conducted at SDN Keruak shows that students' creativity and

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knowledge of environmental issues increase when they can manage plastic waste through crafting, supporting the social and pedagogical functions of this method (Fujiaturrahman et al., 2025). Handicrafts made from recycled plastic are a practical way to reduce waste while creating something new and beautiful. This can help children develop an entrepreneurial spirit from a young age (Ayunis et al., 2024). Recycling-based crafts can help students develop technical skills while improving their social and collaborative abilities. These skills are taught in the context of cultural education.

Figure 1. Work of Grade 7 Students

2. Expressing Identity and Experience through Handicraft Products

Although the resulting works have functional value, such as bags, carpets, and baskets, each product reflects the students' personal preferences and symbolic values. One student made a bag with a red-black color combination and explained, “I like those colors because they resemble the flag of my favorite soccer club.” Another student designed a basket with a floral motif, inspired by her grandmother's garden. In project-based learning, recycled crafts provide opportunities for students to integrate life experiences, cultural symbols, and emotional meanings into the products they create (Setianto, 2024). Ethnomathematics-based weaving practices also reflect local cultural identity and can foster appreciation for cultural heritage and aesthetics (Nur Aini Tarigan & Rakhmawati, 2024). Students can express themselves, their emotions, and their cultural values through crafts. By incorporating recycled materials into their projects, students gain confidence in expressing themselves creatively and personally through the Project-Based Learning approach (Putri et al., 2019).

3. Fungsional The Growth of Ecological Awareness through Functional Recycling

The results of interviews and students' reflective journals show that craft activities can foster environmental awareness. One student said, “I used to just throw away coffee packaging, but now I collect it and use it to make rugs for my home.” Some students even gave their work to their parents as a token of appreciation. This process reflects a transformation in understanding waste, from mere trash to a resource with practical and aesthetic value. Research by (Yao et al., 2024) reinforces this finding by showing that integrating plastic recycling into the art curriculum at the higher education level enhances environmental awareness through creative practices based on observation and visual reflection. Managing plastic waste through a creative arts approach has proven effective in enhancing environmental awareness and fostering environmentally conscious behavior among elementary

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school students. This process encourages a paradigm shift in students' perception of waste as a resource with both functional and aesthetic value (Fujiaturrahman et al., 2025). The ability to develop students' abilities, interests, and imagination is a crucial skill that educators must possess (Khairunnisa et al., 2024). Therefore, teachers need to find ways to encourage students to think creatively (Julfatujahra et al., 2022). Teachers can do several things, including finding ways to integrate learning with what students already have (Karthikeyan et al.,2023). In this effort, weaving crafts from plastic waste become a strategic medium that not only hones students' technical skills but also touches on affective aspects such as social awareness and love for the environment (Sofiana & Dewojati, 2022). Art and craft activities with an environmental approach can enhance students' responsibility toward global issues through creative and functional waste management (Khoironi et al., 2024).

CONCLUSION

The use of plastic waste as a weaving medium in cultural arts education in Grade VII at SMPN 4 Cikarang Barat not only contributes to the development of technical skills but also provides students with an opportunity to express their unique identities and experiences. This is demonstrated by the findings of this study. The creative process, which involves group work and visual exploration, encourages collaborative and contextual learning, in line with the principles of social constructivism. This activity also fosters ecological awareness among students through meaningful and reflective recycling practices, reinforcing their understanding of the importance of plastic waste management.

Recycling crafts have proven to be a multidimensional learning medium combining cognitive, affective, and psychomotor aspects and have the potential to be transformed into a sustainable pedagogical approach. The results of this study reinforce the relevance of project-based learning models and environmentally conscious art approaches in the context of 21st-century education. Therefore, it is recommended that arts and culture teachers integrate waste-based crafts into the curriculum as a strategy to simultaneously develop students' creativity, character, and ecological literacy. The policy implications of these findings emphasize the importance of promoting arts and environmental education programs based on hands-on practice and local materials, including recycling. By integrating waste-based crafts into the curriculum, schools not only support students' creativity but also foster sustainable social and environmental awareness.

As a suggestion, further research could expand its focus on the semiotic and symbolic aspects of students' craftwork, as well as explore differences in expression between genders or cultural backgrounds in the use of waste as an art medium. Comparative research between schools or regions could also provide broader insights into the variations in the application of environment-based crafts in Indonesia.

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