

## IMPLEMENTING THE PAPER CORE CREATIVE CYCLE IN THREE-DIMENSIONAL ART LEARNING FOR JUNIOR HIGH SCHOOL STUDENTS

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**Abstract.** This study explores the creative recycling of paper core waste as an alternative medium in three-dimensional art learning for ninth-grade students at SMP Negeri 1 Pabelan, Semarang Regency. The use of environmentally friendly and easily accessible materials like paper core serves not only as a medium for artistic creation but also as a tool to instill educational values. The study aims to describe the implementation process of using paper core in three-dimensional art projects, analyze the resulting student artworks, and identify the educational values fostered through this learning activity. Employing a qualitative descriptive approach, data were collected through observations, interviews, and documentation. The findings reveal that the learning process was conducted in collaborative groups, where students designed, constructed, and decorated three-dimensional artworks such as pencil holders, piggy banks, and vases from paper core. The resulting artworks demonstrated originality, creativity, and aesthetic quality, reflecting the students' imaginative engagement with the material. Furthermore, the learning process successfully embedded values such as environmental awareness, collaboration, independence, and creative thinking. This study shows that the creative use of paper core waste in art education not only enhances students' artistic skills but also promotes sustainable practices and character development. The integration of local materials and recycled media in formal education offers a meaningful and innovative approach to teaching visual arts in schools.

**Keywords:** art education, paper core, three-dimensional art, creativity, environmental education

### 1. Introduction

Education has a very important role in shaping individuals who are able to think critically, act creatively, and have ethics in social life (Salahuddin & Nurhalin, 2021); (Febriana; dkk, 2025). In Law Number 20 of 2003 concerning the National Education System, education is defined as "a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, and skills needed by themselves, society, nation, and state" ([5]).

Fine arts education is one of the educational paths that is able to develop students' potential as a whole, including the cognitive, affective, and psychomotor realms (Siti; dkk, 2024); (Nur & Ahmad, 2023). Unlike other subjects such as natural sciences or mathematics which tend to emphasize aspects of knowledge and skills only, art education encourages the development of emotions, aesthetic appreciation, and the ability to express oneself (Shoif Auliyauddin, 2025). The art learning process includes appreciation and creation activities, which provide space for students to understand the artwork while creating works based on observation and imagination (Lita, 2018).

In learning fine arts, students are invited to understand visual elements such as points, lines, shapes, colors, and spaces, as well as artistic principles such as unity, balance, and rhythm (Maulidiyah & Syafii, 2021). This process not only hone technical skills, but also strengthens students' aesthetic sensitivity. On the other hand, the existence of creative and relevant learning media also determines the success of art learning.

One form of innovation in fine arts learning is the use of waste as an alternative medium. Waste that is often considered worthless can be processed into environmentally friendly and educational media for work. Paper core or paper tubes are a type of production waste from the fabric, carpet, and yarn industry that has great potential to be used as a medium in three-dimensional works of art. Its cylindrical shape and sturdy material structure make it possible to be processed into a work that is not only aesthetic, but also functional. Oktarani, (2017) stated that the use of waste as an art medium can increase students' creativity and foster an attitude of caring for the environment.

SMP Negeri 1 Pabelan in Semarang Regency is one of the schools that has implemented art learning by utilizing paper core waste. In practice, grade IX students create three-dimensional works such as flower vases, pencil cases, and piggy banks using these materials. The learning process is carried out in groups, starting from planning ideas, choosing shapes, to coloring and finishing. Through this activity, students not only produce unique and interesting works, but also learn about cooperation, responsibility, and concern for the environment (Researcher Observation Report in [5]).

Based on this background, this study aims to examine how the three-dimensional art learning process is carried out by utilizing paper core waste as an alternative medium, how the form and quality of the work produced, and what educational values can be instilled through this learning activity in grade IX of SMP Negeri 1 Pabelan.

## 2. Results and Discussion

### 2.1 Overview of Research Locations

This research was carried out at SMP Negeri 1 Pabelan, Semarang Regency, Central Java. This school is located in a strategic area with social conditions that are quite supportive of recycling practices. The school's access to the neighborhood, home industrial villages, and fabric shops makes it easier to collect *paper core* waste as the main raw material for three-dimensional art learning activities. This allows the implementation of environment-based learning (contextual learning) that is relevant to the reality around students.



**Figure 1.** Location of SMP Negeri 1 Pabelan

Physically, SMP Negeri 1 Pabelan has supportive learning facilities, such as classrooms that can be adjusted for group work, project-based learning equipment, and human resources in the form of experienced cultural arts teachers. Teachers at this school are active in making learning innovations, including utilizing recycled materials in fine arts learning, in accordance with the spirit of the Independent Curriculum which provides space for contextual exploration and strengthening student character through project-based activities (Ministry of Education and Culture, 2022).

A school environment that is open to creative and innovative approaches is an important foundation in the implementation of this learning. In accordance with the opinion of Kristanto (2017), art education developed contextually can be an effective medium in shaping the character of students who are environmentally conscious, responsible, and creative.

## 2.2 Learning Activities

Learning activities are carried out through 4 meetings, namely: designing, cutting papercore, coloring with paint and assembling/finishing. Teachers use the principle of *project-based learning* with an exploratory approach to waste materials as the main medium. This art learning is directed to improve students' competence in creating three-dimensional works by paying attention to aesthetic elements, functions, and sustainability values.

### **The Process of Utilizing *Paper Core* as a Creative Media in Three-Dimensional Fine Arts Learning in Class IX of SMP Negeri 1 Pabelan**

Based on data obtained by the researcher from the results of an interview with Mrs. Novia Puri Wahyu Kemuning S.Pd., as a fine arts teacher, one of the creative learning activities carried out during three-dimensional art learning is the use of *paper core* waste. The waste is used as a creative medium in the three-dimensional art learning process. At SMP Negeri 1 Pabelan, the creative learning process in grade IX is carried out for four meetings, each meeting has a time of 3 x 40 minutes or three hours of lessons.

The first meeting of three-dimensional art learning with *paper core media* was held on Wednesday, February 26, 2025 at Class IX D SMP Negeri 1 Pabelan. Learning begins with preliminary activities in the form of perception, the screening of examples of sculptures from *paper cores*, and the presentation of learning objectives by the teacher. Students seemed enthusiastic when the teacher showed the work and asked the sparker questions.



**Figure 2.** Teacher activity shows revrenation

In the core activity, the teacher delivered material on the definition, characteristics, and steps of making three-dimensional art. Students are divided into groups to search for information, create infographics using the Canva app, and present the results in front of the class. Teachers actively provide direction, strengthening, and motivation during the activity.

The closing activity was filled with making joint conclusions, re-airing examples of *paper core* works made by teachers, and technical explanations of the making of works. The teacher also conveyed a list of tools and materials that students must bring for practice at the next meeting. The entire learning series went smoothly and students showed interest in the material presented.

The second meeting was held on Wednesday, March 12, 2025 at Class IX D SMP Negeri 1 Pabelan. In this activity, teachers collaborate with researchers in the learning process of creating three-dimensional art using *paper core media*. The activity began with an insight and a question and answer to review the material of the previous meeting. Teachers also check the readiness of tools and materials brought by students, as well as provide solutions for groups that have not brought equipment.



**Figure 3.** Student activity sketching

In the core activity, students are guided to determine the design of the sculpture, make an initial sketch, count the number of pieces of the shape (whole, half, quarter circle), and cut the *paper core* according to the design. Teachers also provide inspiration through examples of works and pattern prints. During the process, students seemed serious and focused, while the teacher actively provided guidance, motivation, and reinforcement so that the work was neat and according to plan.



**Figure 4.** Student activity is making a cut

The closing activity was filled with instructions to tidy up the tools, bring additional materials for the next session, and end the learning with a prayer. Learning runs smoothly and students show enthusiasm and active involvement in the process of working.

The third meeting of three-dimensional art learning in Class IX D SMP Negeri 1 Pabelan was held on Wednesday, March 19, 2025. At this meeting, students continued the creative process from the previous *paper core pieces*, focusing on the coloring and assembly stages of the sculpture according to the design of each group. The activity began with an examination of the readiness of tools and materials, as well as perception to recall the steps that have been taken. The teacher emphasized that coloring needs to be done before assembling so that the work is neater and more attractive.



**Figure 5.** Student activities are strung together

In the core activity, students began to color pieces of *paper core* using acrylic paint or posters according to the group's creativity. The process was carried out collaboratively, some students also tried to assemble the shape of the sculpture to test the composition before coloring. After the coloring process is complete, students continue the assembly stage using Chinese glue carefully so that the shape of the sculpture is as planned. Teachers actively provide technical guidance and motivation,

including demonstrations of coloring with geometric patterns to make the work look aesthetic.



**Figure 6.** Student activities are coloring

The activity was closed with instructions to clean tools and materials and bring unfinished work to the next meeting. The teacher reminded that next week is the last session and asked students to complete work in groups, including homework if needed. The learning was closed with a joint prayer and greetings.

In the third meeting, the focus of learning was the coloring process. Once the basic structure of the work is formed, students begin to paint the surface of *the paper core* using acrylic paint. Coloring is carried out thoroughly according to the design and character of each group's theme. Students also add visual motifs, textures, and color gradations to reinforce the aesthetic value of the work. This process trains visual sensitivity, precision, and an understanding of the elements of color and their composition in the fine arts. The teacher reminded the importance of neat and harmonious coloring, as well as providing technical direction in the use of brushes and color mixing.

The fourth meeting was held on Wednesday, April 9, 2025 at Class IX D of SMP Negeri 1 Pabelan. In this meeting, students continue the final stage of the process of creating three-dimensional artwork with *paper core media*, namely the finishing stage and assessment of the work.

Learning begins with greetings, attendance checks, and checks of assignments that have been done by students. The teacher asked about the progress of each group and instructed them to finish their work immediately. The core activities are focused on the finishing process, including improving the coloring and tidying up the arrangement of the sculptures. Students work in groups, although some seem less active and the classroom atmosphere is a little rowdy.

After the work time is complete, the teacher asks the representatives of each group to submit the work to the class for assessment. The assessment is carried out directly by the teacher, accompanied by a note of the names of the group and its members. After all the work is collected, the teacher compiles the students' work in front of the class and facilitates an appreciation and reflection session. The teacher shows the best work and asks students to respond, then invites students to discuss the challenges during the creation process. Some students expressed difficulties, especially when cutting *paper cores*.



**Figure 7.** Three-dimensional art creation works class IX D

The activity was closed with the conclusion of the lesson, a joint prayer, and the packaging of tools and works to take home. The learning ended in an enthusiastic atmosphere despite the slight noise. This meeting was the closing of a series of three-dimensional art creation practices with *paper core media*.

### 2.3 Learning evaluation

The evaluation is carried out comprehensively, including the assessment of the process and the results of the work. The assessment is based on indicators of creativity, craftsmanship, neatness, conformity of the shape to the theme, and cooperation in groups. The assessment is carried out by subject teachers and researchers using observation instruments and assessment sheets that have been prepared beforehand.

In addition to formative and summative assessments, evaluation also involves student self-reflection activities. Students were asked to write down their experiences during the work process, the challenges they faced, and the solutions they did. This activity aims to increase students' metacognitive awareness of the learning process they are undergoing. According to Magdalena1 and (2020), reflective evaluation is an important part of art-based learning because it can increase students' understanding and appreciation of their work and process.

This kind of authentic assessment is in accordance with the principles in the Independent Curriculum which emphasizes the importance of assessments that encourage learning growth, not just the results of numbers. Therefore, the evaluation in this study is designed to provide feedback that builds and fosters students' enthusiasm for learning.

### 2.4 Research Results

The results of the study show that the use of *paper core waste* as an alternative medium in three-dimensional art learning has a positive impact on students' cognitive, psychomotor, and affective aspects. From the psychomotor aspect, students are able to process waste materials into three-dimensional works of art that are unique, functional, and have high aesthetic value. Some of the works produced are miniature traditional houses, animal sculptures, stationery holders, and uniquely shaped piggy banks.

From the affective aspect, students show positive attitudes such as concern for the environment, good cooperation in groups, and enthusiasm in facing technical challenges. This aspect is in accordance with the function of art education as a medium

for character formation as expressed by Kristanto (2017), that art is able to form a creative, independent, and socially caring person.

The results of the assessment of the students' work showed that most of the groups obtained the "Good" to "Excellent" category. The following is a table of the results of the assessment conducted by teachers and researchers:

### 2.5 Educational Value

The use of *paper core* waste in three-dimensional art learning not only emphasizes creative skills, but also contains educational values that shape students' character. Through collaborative and creative group activities, students learn to develop creativity, apply aesthetic values, and foster concern for the environment by utilizing used materials. This process also trains an attitude of cooperation, responsibility, independence, discipline, and perseverance. Thus, this learning not only produces works of art, but also instills positive values that are useful in daily life.

## 3. Conclusion

Based on the results of the research, it can be concluded that the use of *paper core* waste as an alternative medium in learning three-dimensional art in grade IX of SMP Negeri 1 Pabelan is able to increase students' skills, creativity, and environmental awareness. The learning process carried out through the stages of planning, implementation, and evaluation takes place systematically and actively involves students in exploration and art creation activities. The resulting works show variations in form and function, and reflect students' ability to process used materials into aesthetic and functional products. In addition, this learning also instills educational values such as cooperation, responsibility, and concern for the environment. Therefore, the use of *paper core* as a medium in fine arts learning can be an innovative alternative and support the formation of students' character as a whole.

### Declaration of Conflicting Interests

Thesis exam requirements

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