

The influence of batik jumputan production on the cooperative attitude of fifth grade students at public elementary schools in cluster V, Bengkulu City

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Abstract

This study aimed to examine the effect of batik jumputan artwork on the cooperative attitude (gotong royong) of fifth-grade students at public elementary schools in Cluster V, Bengkulu City. This research employed a quantitative approach using a Pre-Experimental Method with a One Group Pretest-Posttest Design. The population in this study consisted of all fifth-grade students in Cluster V schools, with the research sample being class V A of SDN 02 Kota Bengkulu, selected using cluster random sampling. The research instrument used was a cooperative attitude questionnaire, measured using a Likert scale. The data were analyzed quantitatively through descriptive statistics, normality tests, and hypothesis testing. The analysis results showed that the calculated t -value (t_{count}) was 8.453, with a significance level (2-tailed) of 0.001. Based on the degrees of freedom ($df = 23$) and a significance level of $\alpha = 0.05$, the critical t -table value was 2.069. Since $t_{count} > t_{table}$ ($8.453 > 2.069$) and $sig. (2-tailed) = 0.001 < 0.05$, the alternative hypothesis (H_a) was accepted. Thus, the study indicates a significant difference in the mean scores between the pretest (94.63) and posttest (108.63). It can be concluded that the batik jumputan project had a significant positive impact on the cooperative attitudes of fifth-grade students at public elementary schools in Cluster V, Bengkulu City.

Keywords: Batik Jumputan, Visual Arts, Cooperative Attitude

INTRODUCTION

The value of gotong royong (mutual cooperation) plays a vital role in fostering togetherness and collaboration among individuals. As a key social value in Indonesian society, it emphasizes collective efforts, mutual assistance, and shared responsibility to achieve common goals. According to Hayati & Utomo (2022), gotong royong embodies the appreciation of teamwork and mutual aid in problem-solving, reflecting solidarity, cooperahidayation, and a strong sense of kinship.

In the field of education, instilling the value of gotong royong from an early age is essential, as it contributes significantly to character development. Latifah et al. (2023) assert that this value can be cultivated through habitual behaviors that reflect mutual respect and collaborative problem-solving. However,

at the elementary school level, a lack of student participation in group-based activities remains a common issue. Hayati & Utomo (2022) found that many elementary students do not yet exhibit optimal levels of cooperation and responsibility. This is evident in group learning activities, where students often work in isolation, avoid active participation, or are reluctant to help peers in need.

Andesa et al. (2024) further explain that a tendency toward individualism among students may lead to reduced empathy and care for others. Without the reinforcement of values like cooperation and responsibility, students may become indifferent, arrogant, and unwilling to contribute to their surroundings. Therefore, embedding gotong royong at the primary level is essential, as this is when children begin learning to interact in

groups and build positive social relationships. Andesa et al. (2024) also emphasize that fostering this value from an early age benefits not only group dynamics but also the personal development of each student.

At the elementary level, students are developmentally ready to grasp social concepts and internalize such values through their daily experiences. Teaching strategies that emphasize collaboration can encourage students to recognize the importance of teamwork in achieving shared goals. Hayati & Utomo (2022) define gotong royong as an act of cooperation, concern for others, and mutual assistance in resolving challenges collectively. Accordingly, learning approaches that involve active interaction—such as those in visual arts—can effectively promote these values.

Visual arts, one of the subjects taught in elementary schools, can serve as a powerful medium for fostering gotong royong. Hidayatullah & Fauziah (2021) state that visual arts education in Indonesia encourages critical thinking, empathy, and appreciation of cultural diversity. One such activity is the creation of traditional batik, particularly jumputan (tie-dye batik), which requires collaborative effort at every stage—from planning the design and tying the fabric to dyeing the material.

The jumputan technique, based on Yudhaningtyas et al. (2024), refers to a resist-dyeing process where certain parts of the fabric are tied to prevent dye penetration before submersion in color. This process inherently demands strong teamwork, as it cannot be effectively executed individually. Therefore, art lessons involving the creation of jumputan batik are ideal for nurturing students' collaborative attitudes.

The value of cooperation in making batik jumputan lies not only in the final product but also in the collaborative process throughout

the activity. Karina et al. (2024) argue that collaborative learning supports the development of social skills such as communication, teamwork, solidarity, and sharing. Through art activities, students can build social connections while strengthening their cooperative attitudes. Nisa et al. (2022) also emphasize the importance of coordination in group work to ensure aligned efforts among members.

Creating batik jumputan requires active engagement from every group member, encouraging students to practice working together, appreciate individual contributions, and assist peers facing challenges. In this setting, teachers can assign roles such as design planning, fabric tying, or dyeing to ensure all students participate equally. Throughout this process, they are expected to demonstrate mutual support, exchange ideas, and provide encouragement. Thus, visual arts instruction becomes a tool not only for artistic skill development but also for reinforcing students' social skills—critical in shaping them into caring and responsible individuals.

Wahyuni et al. (2024) highlight that project-based collaborative art learning fosters teamwork, effective communication, and mutual support—skills that are crucial for students' future character formation.

Previous studies have used jumputan batik-making as an educational tool. For example, Margaritiviera et al. (2024) reported a significant difference between pretest and posttest results ($p < 0.05$), indicating that natural dye batik jumputan activities effectively enhance students' creativity. Similarly, Muslihasari et al. (2022) found that training programs in jumputan batik-making resulted in diverse student creations, reflecting their creativity and cultural appreciation. These studies, however, focused primarily on the outcomes related to creativity and cultural values, rather than the

collaborative process involved in the group activities.

This research also stems from field observations and interviews with a teacher at one of the public elementary schools in Cluster V of Bengkulu City, which has implemented the Merdeka Curriculum. One of the subjects taught is Visual Arts. In Unit 9, titled “Introducing Decorative Patterns from Various Regions in Indonesia,” the curriculum includes a variety of visual art forms from different cultural contexts. However, in practice, students are often limited to observing local patterns and drawing them in their sketchbooks, without deeper exploration. As a result, they tend to feel bored and complete tasks carelessly. This individual-based approach also reduces empathy and collaborative spirit. In contrast, students show greater enthusiasm when engaged in group art projects, which enhance both their involvement and learning experience.

Based on the above background, this study is titled “The Influence of Batik Jumputan Production on the Cooperative Attitudes of Fifth Grade Students at Elementary Schools in Cluster V of Bengkulu City.” This research aims to show that such activities not only develop students’ practical skills in batik-making but also instill the values of *gotong royong*. Through this group-based approach, students learn to value teamwork, strengthen peer relationships, and build a sense of responsibility within their groups.

RESEARCH METHODS

This study employed a quantitative approach using a pre-experimental method with a One Group Pretest-Posttest Design (Sugiyono, 2023). The primary aim was to examine the effect of batik jumputan-making activities on students’ cooperative attitudes. The research was conducted at SDN 02 Kota

Bengkulu, selected through cluster random sampling from the elementary schools in Cluster V that met the criteria of A-level accreditation and implemented the Merdeka Curriculum. The research instrument consisted of a closed-ended attitude questionnaire, administered both before (pretest) and after (posttest) the treatment. The questionnaire used a Likert scale ranging from 1 to 5 to assess students’ responses (Sugiyono, 2022). The collected data were analyzed using both descriptive statistics and inferential analysis, specifically the paired sample t-test, to identify any significant differences between the pretest and posttest results. Prior to the t-test, the data were subjected to a normality test using the Shapiro-Wilk method, which is recommended for samples fewer than 50 participants (Winarni, 2018). This research design was chosen to enable a comparison of students’ attitudes before and after the treatment, allowing for a structured and measurable assessment of the effectiveness of art-based learning—specifically the batik jumputan project—in fostering values of cooperation and mutual support (Sugiyono, 2023; Winarni, 2018).

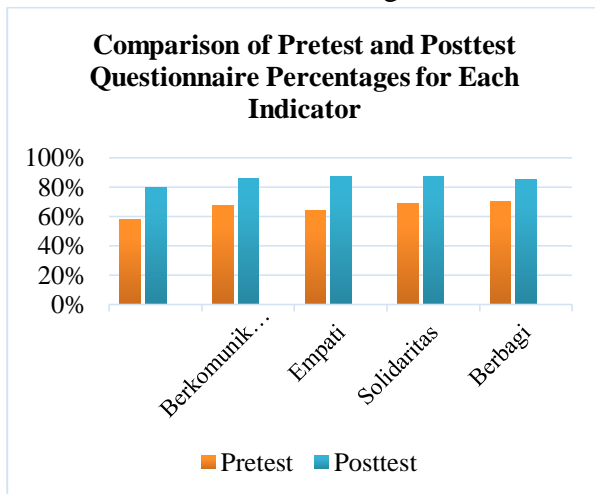
RESULTS AND DISCUSSION

This study aimed to examine the effect of the batik *jumputan* project on the cooperative attitudes of fifth-grade students at SDN 02 Kota Bengkulu. The results showed a significant improvement in students’ cooperative behavior after participating in the batik-making learning activity. The average pretest score was 94.63, which increased to 108.63 on the posttest. Additionally, the highest score rose from 109 to 122, and the lowest score increased from 70 to 91. These differences indicate a positive change in students’ attitudes after the treatment was applied. Detailed data on the pretest and posttest scores are presented in Table 1.

Table 1
Descriptive Analysis of Pretest and Posttest Results

Description	Pretest	Posttest
Highest Score	109	122
Lowest Score	70	91
Average Score	94.63	108.63

Further improvements can also be observed in the percentage scores for each indicator of cooperative attitude. The "group collaboration" indicator increased from 57.50% to 79.17%, "effective communication" from 67.50% to 85.83%, "empathy" from 64.17% to 86.67%, "solidarity" from 68.33% to 86.67%, and "sharing" from 70.00% to 85.00%. These data are shown in Table 2 and Diagram 1.



Prior to hypothesis testing, a normality test was conducted using the Shapiro-Wilk method, as the sample size was fewer than 50. The results showed that both the pretest and posttest data were normally distributed, with significance values of 0.172 and 0.500 respectively (both > 0.05). Thus, the data fulfilled the assumptions required for parametric analysis. The normality test results are shown in Table 3.

Table 3.
Shapiro-Wilk Normality Test for Pretest and Posttest

Cooperative Attitude	Source	Shapiro-Wilk		
		Statistic	df	Sig.
	Pretest	0,941	24	0,172
	Posttest	0,9463	24	0,500

Further analysis using a paired sample t-test revealed a t-value of 8.453 with a significance value (2-tailed) of <0.01 , indicating a statistically significant difference between pretest and posttest scores. Therefore, the alternative hypothesis was accepted, and the null hypothesis was rejected. These findings are summarized in Table 4.

Tabel 4
Paired Sample T-Test Results for Pretest and Posttest

Data	Experimental Class
Mean Difference	-14,000
t	-8,453
Df	23
Sig. (2-tailed)	$<0,01$
Conclusion	Sig. (2-tailed) $< 0,025$
	Ha accepted

These results demonstrate that the batik *jumputan* activity significantly enhanced students' cooperative attitudes. This improvement is supported not only by statistical evidence but also by notable changes across five key indicators: collaboration, communication, empathy, solidarity, and sharing. These findings affirm that project-based art learning fosters not only technical and creative skills but also contributes meaningfully to students' character development.

This study reveals that the creation of tie-dye batik artworks had a positive impact on the collaborative attitudes (*gotong royong*) of fifth-grade students at SD Negeri Gugus V, Bengkulu City. This impact is evident from a significant improvement in the five indicators of collaborative behavior—cooperation,

communication, empathy, solidarity, and sharing—based on a comparison of pretest and posttest questionnaire scores, which increased from an average of 94.63 to 108.63. The results suggest that participating in group-based tie-dye batik activities fosters shared values and teamwork among students. This finding aligns with Rahmawati et al. (2022), who stated that group-based learning enhances students' social skills.

Art education, particularly through tie-dye batik-making, provides an ideal context for instilling collaborative values, as the process requires students to assist one another, discuss, and cooperate at every stage—from preparing materials, folding and tying the fabric, dyeing, to drying. This form of group work naturally cultivates collaboration, as each student must show support, solidarity, and mutual trust to achieve optimal results. This is in line with Adilah et al. (2023:49), who asserted that student-centered approaches allow learners to internalize character values such as responsibility and teamwork by practicing them in real-life contexts.

As a subject that emphasizes self-expression and creativity, visual art holds great potential for developing students' emotional and social competencies. According to Setiaji (2023), visual art education fosters mental development, emotional intelligence, creativity, aesthetic appreciation, social interaction, and physical coordination. Through art, students learn to interact and communicate with others while building empathy and care for their environment. In this context, tie-dye batik becomes an effective medium for integrating *gotong royong* values into art education, as it demands intense collaboration and interaction among students. It encourages teamwork, mutual support, empathy, responsibility, and shared decision-making. This aligns with Kusumarini (2020), who emphasized that the

cultural values embedded in traditional crafts such as batik are relevant to character education, especially in fostering collaboration.

Based on the analysis of the five collaborative indicators, all aspects showed improvement in students' abilities to work together, communicate, empathize, show solidarity, and share responsibilities. The most significant improvement was seen in empathy. This indicates that the batik-making activity not only enhanced technical skills but also nurtured students' sense of care for their peers. While working in groups, students developed a deeper understanding of their peers' roles and challenges, supported one another, and realized that every individual action contributed to the group's success. This experience built tolerance, mutual respect, and a constructive approach to diversity—signs of growing empathy. According to Riyani et al. (2025), empathy in students develops through direct experiences of collaborative work and appreciation of each group member's contribution.

The second highest increase was in cooperation. This occurred because the batik-making process required close coordination among group members at each stage, such as folding, tying, dyeing, and drying. The interdependent nature of the process encouraged students to actively support one another. This is supported by Oktaviani (2025), who found that group work enhances cooperation, responsibility, and social awareness in students. Similarly, Hayati & Utomo (2022) stated that project-based and collaborative learning encourages students to be more engaged and supportive of their peers.

These findings are reinforced by previous studies, such as Margaritiviera et al. (2024), who found that tie-dye batik activities enhance children's creativity, and Kharisma et

al. (2023) and Salwiyah et al. (2023), who reported that collaborative and art-based approaches significantly boost students' cooperative values. Collaborative learning environments foster a culture of teamwork in the classroom and raise students' awareness of the importance of mutual support in achieving common goals, thereby creating a more positive and harmonious learning atmosphere. This supports Jayanti et al. (2024), who argued that *gotong royong* promotes unity, collaborative behavior, and equality without discrimination.

Nevertheless, the study faced several limitations that affected the overall learning process and outcomes. One challenge was the limited implementation time, which led to insufficient dye absorption during the resting period, resulting in weak color bonding to the fabric fibers. Additionally, the learning environment was less than ideal. A noisy classroom, lack of student focus, and insufficient space or facilities disrupted the learning process. These issues limited students' interaction and made it difficult to reinforce the collaborative behaviors that the study aimed to develop.

The findings clearly show that tie-dye batik-making positively influenced students' *gotong royong* attitudes. This is evidenced by measurable improvements across the five indicators and by students' enthusiasm throughout all stages—from preparing tools and materials to folding, tying, dyeing, and drying. These activities promoted active engagement and group collaboration. The project fostered effective communication, mutual empathy, solidarity in overcoming challenges, and a sense of shared responsibility. As a project-based learning model, it enhanced students' social interactions and built their collaborative character.

In conclusion, this study confirms that tie-dye batik-making significantly contributes to developing collaborative attitudes in fifth-grade students at SDN Gugus V Kota Bengkulu. This is supported by both statistical results and observed student enthusiasm during the learning process. The t-test analysis confirmed a significant difference between pretest (94.63) and posttest (108.63) scores, indicating the effectiveness of this learning model in instilling values of *gotong royong*. Thus, integrating tie-dye batik into visual arts education offers an effective strategy for promoting collaboration and social character among students.

CONCLUSION

Based on the research findings, data analysis, and discussion, it can be concluded that there is a significant difference in students' cooperative attitudes between the pretest and posttest results. This conclusion is supported by the results of the statistical test, which showed a t-value of 8.453 with a significance level (2-tailed) of 0.001, compared to the critical t-table value of 2.068. Since $t_{\text{count}} > t_{\text{table}}$ ($8.453 > 2.068$) and $\text{sig.} (0.001) < 0.025$, the alternative hypothesis (H_a) is accepted.

These findings confirm that the implementation of the batik jumputan project had a statistically significant impact on improving the cooperative attitudes of fifth-grade students at public elementary schools in Cluster V, Bengkulu City. The increase in students' collaborative behavior after participating in the art-based activity demonstrates that visual arts projects, particularly those that involve hands-on and group-based processes, can serve as an effective medium for fostering essential social values such as teamwork, empathy, and shared

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