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Introducing ecoprint batik at Rt 19 Dukuh Kembang: creativity inspired by nature

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Abstract
The introduction of ecoprint batik techniques to children and adolescents in Dukuh Kembang represents an educational effort aimed at fostering creativity, ecological awareness, and local cultural preservation from an early age. Ecoprint utilizes natural materials such as leaves, flowers, and twigs as dyes and patterns on fabric, making it environmentally friendly and easy to implement with resources available in the local community. Participants were involved in all stages of the process, ranging from material collection and motif arrangement to dyeing and color fixation. The results demonstrated that participants were able to produce artistic works with aesthetic value and economic potential. This program also served as a means of optimizing local resources while strengthening the harmonious relationship between humans and nature. Furthermore, it provides a foundation for building ecological awareness and creative economic empowerment among the village's younger generation.

Keywords: creativity; ecoprint batik; environmental education; local empowerment

1. Introduction

Indonesia is renowned for its cultural wealth, with batik being one of its most prominent national identities. In recent years, innovations in batik-making have emerged, including the ecoprint technique, which is increasingly recognized as a sustainable alternative to conventional wax-resist batik (Elvina, 2023). Ecoprint employs natural elements such as leaves, flowers, and twigs as colorants and motif makers, without the wax-resist process typically used in traditional batik (Sulistyan et al., 2024).

Recent studies highlight the educational and creative benefits of ecoprint for children and youth. For instance, a project in KB Strawberry Surakarta revealed that 71.43% of children achieved "very good" creativity development through ecoprint activities (Fatimah et al., 2024). Similarly, research in TK Dharma Wanita Macanan demonstrated that integrating ecoprint into local wisdom-based learning significantly enhanced fine motor skills, creativity, and cultural identity among early childhood learners (Nururrohmah et al., 2025).

Although the Special Region of Yogyakarta has long been recognized for its batik villages such as Krebet (wooden batik) and Wukirsari (hand-drawn batik) many children and adolescents in rural areas like Dukuh Kembang remain unfamiliar with ecoprint techniques, In fact, there are local ecoprint batik artisans living in Dukuh Kembang, despite living amidst abundant natural resources. but limited access to information, inadequate educational facilities, and a lack of guidance hindered the dissemination of knowledge about ecoprint among rural youth, leaving children and teenagers in RT 19 of Dukuh Kembang without the knowledge and skills regarding this ecoprint technique.

Addressing this gap, a community service initiative was conducted by the KKN Group 21 of Universitas 'Aisyiyah Yogyakarta, with local craftsman Aris Suharman as mentor. The program sought

to introduce ecoprint batik to children and youth in Dukuh Kembang as a means of instilling cultural and environmental awareness, while simultaneously encouraging creativity and practical skills for future empowerment. What makes our community service program unique is its approach, which is based on local resources and utilizes leaves and flowers found in our surroundings as the primary materials for eco-print batik. Furthermore, this program uses only natural materials free of synthetic chemicals resulting in batik products that are healthier and more sustainable.

2. Research Methods

The research method used in this community service activity uses a cross-sectional study design, the steps involved are material's preparation, implementation and data collection, interview and evaluation, and data analysis. The research was conducted at the Community Service Program (KKN) Post located in RT 19 RW 10 Dukuh Kembang, Margosari Village, Pengasih District, Kulon Progo Regency, Yogyakarta City. Data collection was carried out directly during the ecoprint batik activity on August 18, 2025. The population in this study consisted of children and young people residing in Dukuh Kembang, Margosari Village. The research sample was taken using total sampling technique, where all children and young people who were present and participated in ecoprint batik activities at the KKN Command Post on August 18, 2025 were included in the study. The total number of samples collected was 28 participants.

2.1.Preparation Step

At this stage, participants choose several types of leaves from their surroundings to use as motifs for ecoprint batik. KKN students have prepared the ecoprint media dan ecoprint tool

Figure 1. Ecoprint Hammer

Figure 2. Medium (Totebag)

2.2.Implementation and Data Collection Step

At this stage, participants first observe Mr. Aris, the ecoprint batik mentor, demonstrating how to make ecoprint batik. After that, they can try making ecoprint batik on the prepared media.

Figure 3. Mr.Aris giving an example of ecoprinting

Data collection for this activity used a cross-sectional study, all data were collected using various complementary techniques, such as participatory observation, visual documentation and artifacts and semi-structured interviews to identify the process and outcome aspects of these activities:

a. **Participatory observation**: The service team directly observed the ecoprint process, including material collection, fabric preparation, motif arrangement, dyeing, and color fixation. The observations focused on technical accuracy, motif creativity, cleanliness, and participants' responsiveness to instructions.
b. **Visual Documentation and Artifacts**: Participants' works were photographed and archived, including process and final documentation. The physical artifacts were analyzed for aesthetic value, diversity of motifs, and color durability.
c. **Semi-Structured Interviews**: conducted with selected participants to explore their experiences, perceptions of ecoprint, encountered challenges, and aspirations for future practice. Interviews were also conducted with mentors provided insights into pedagogical and technical aspects.

2.3.Interview and Evaluation

Next, in the interview stage, we, the KKN students, interviewed all participants who attended the ecoprint batik activity. At this stage, we explored their experiences when they first started ecoprinting batik, their perceptions, views, and opinions about ecoprinting, the challenges faced during the ecoprint batik-making process, and aspirations for future practice. We also interviewed Mr. Aris, our mentor, who provided insight, introduced us to ecoprint batik, and taught us how to make ecoprint correctly.

At this phase, we also evaluated the ecoprint batik activity we had carried out together. Mr. Aris provided motivation to improve creativity in ecoprint batik. The KKN students, along with Mr. Aris, assessed the ecoprints the participants had created.

2.4.Data Analysis

Based on the results of observations and interviews, aesthetic and economic assessments were conducted using a rubric was applied to evaluate the artistic qualities (composition, color balance, clarity of patterns, craftsmanship) and economic potential (marketability, cost-effectiveness, and local demand) of participants' products. A rubric is an assessment instrument containing criteria and assessments used to evaluate the work. This assessment includes several levels of assessment, such as 1 for poor, 2 for good, and 3 for excellent. The assessments were conducted by KKN students with the

assistance of Mr. Aris throughout the process by observing participant participation and enthusiasm in making ecoprint batik.

The result indicate that participants who took part in the ecoprint batik activity, consisting of children and young people, received an average score of 3, meaning excellent because participants were very enthusiastic about trying to be creative using different various natural materials from collected leaves, and some even hit the fabric so hard that the hammer came off because they were so enthusiastic about ecoprint batik.

3. Results And Discussion

3.1.Results

The ecoprint batik introduction activity held in Dukuh Kembang, Margosari Village, on August 18, 2025, was attended by 28 youths and children who were fully engaged in the event from opening to closing. Analysis of the collected data revealed several key findings:

a. **Full Participation:** All 28 participants completed the full sequence of the workshop, from materials gathering to color fixing and presentation of final products.
b. **High Enthusiasm:** Over 90% of participants exhibited strong enthusiasm during the training. Indicators of this enthusiasm included active experimentation with various combinations of ecoprinting techniques, frequent questions about the process such as how striking a leaf against fabric could produce a pattern from the impact and the participants visible enthusiasm during the hands-on practice sessions.

Figure 4. KKN Students Trying Ecoprint Batik

Figure 5. The Process of Placing Leaves on the Medium (Tote Bag)

Figure 6. The Process of Beating Leaves with a Hammer to Create Patterns

Figure 7. Interview with Mr Aris

c. **Product Quality:** Approximately 80% of participants produced ecoprint works judged to be of good quality characterised by aesthetically pleasing motifs, variety in design, and harmonious colours.

Figure 8. Ecoprint Results using the Hammering Method

d. **Sustained Interest:** Many participants expressed an intention to replicate the ecoprint process at home using materials available in their immediate surroundings. They voiced desire for continuous practice in future similar events.

e. **Family Sharing Desire:** A subset of the younger children intended to show their work to their parents, indicating pride in their creation and a potential for intergenerational engagement.

These findings align with similar community service programs and educational interventions in ecoprint practice, which commonly report increased creativity, motivation, and intention to continue beyond the formal workshop (Adiyanti et al., 2025; Dermawan et al., 2025; Sumiati, 2024).

3.2. Discussion

The results demonstrate that introducing ecoprint batik among children and adolescents in Dukuh Kembang has multiple positive dimensions: creative, educational, environmental, and socio-economic. Each of these is discussed below.

3.2.1. Creative and Aesthetic Development

The high proportion of fine ecoprint works (≈ 80%) shows that participants quickly grasp aesthetic and technical aspects: motif design, colour application, and pattern layout. As no two leaves or plant parts are identical in texture, pigmentation, or veining, the uniqueness of each ecoprint piece fosters originality an important dimension of creativity. Research conducted by (Khotimah, 2023) has shown that the ecoprint technique, especially with pounding or iron blanket methods, can significantly improve creative outcomes among children aged 5–6, increasing average creativity scores from moderate to good categories. These parallels suggest that despite the workshop being a single-day event, participants here were able to internalise sufficient understanding to produce high-quality artifacts.

In other studies such as research by (Fatmala & Hartati, 2020, p. 1153) it is also stated that ecoprint activities with pounding techniques can increase children's creativity. This can be seen from the results of research conducted. Ecoprint batik activities have an effect on increasing children's creativity with hand movements carrying out ecoprint activities, their cognitive abilities allow children to choose various forms of leaf and flower patterns, recognize colors and analyze their thoughts so that children can arrange them into a work of artistic value, train the patience of children and friends in the process of making ecoprints.

3.2.2. Environmental Education and Local Resource Awareness

Participants' preference for materials such as mango leaves, betel leaves, papaya leaves, and other locally available botanical matter reflects an increase in awareness about natural resource usage. Ecoprinting uses plant pigments rather than synthetic dyes, contributing to environmental sustainability. This aligns with recent findings that underscore ecoprint as a method to teach environmental stewardship among younger populations (Dermawan et al., 2025). Also, familiarity with material colouring properties such as checking stain potential, water content, and aroma—demonstrates integration of simple scientific reasoning in craft practice.

3.2.3. Pedagogical Implications: Learning Process and Skills

The structure of the workshop starting from materials collection, motif design, through to dye fixation provided a comprehensive experiential learning environment. Participants did not merely replicate steps; they engaged with motif creativity, recognised colour value, and understood the importance of fixing agents like lime water. Such hands-on, continuous involvement mirrors successful pedagogical models where ecoprint activities lead not only to aesthetic development but also to improved fine motor skills, critical thinking, and collaborative learning (Adiyanti et al., 2025; Wilda et al., 2023).

3.2.4. Socio-Economic Potential and Empowerment

The interest in continuing ecoprinting activities at home and sharing results with family suggests that participants view the craft not just as a pastime but as potentially meaningful in economic or social terms. This echoes community empowerment outcomes observed in other ecoprint programs: participants gaining entrepreneurial interest, and some programs showing readiness to produce marketable products (Mahadewi, 2024). Thus, ecoprint has dual potential: as cultural/artistic expression and as source of additional income.

Despite the many positive outcomes, several constraints were evident in the implementation, which may influence both the depth of learning and longer-term sustainability.

a. **Limited Duration:** The one-day format constrained the time available for participants to deeply explore motifs, experimentation with plants, and full mastery of fixing techniques. This is consistent with other programs which recommend multi-day training to allow reinforcement and better retention of skills (Adiyanti et al., 2025).
b. **Uneven Technical Skill**: Some children encountered difficulty in achieving even pounding resulting in motifs with inconsistent clarity or colour saturation. This points to a need for more guided practice or repetition. Technical challenges are also documented in similar studies, especially when participants have limited prior experience (Sumiati, 2024).
c. **Material Variability and Predictability:** While uniqueness is a strength, it can also pose unpredictability: not all plant materials produce strong or stable dyes; some motifs may fade faster. Effective colour fixation (e.g. via mordants or lime water) is crucial. Research in Bantul indicated that participants' skills in dye fixation improved after mentoring, and knowledge gains in this area were strong predictors of product durability and satisfaction (Adiyanti et al., 2025).
d. **Physical Effort and Resource Constraints:** The pounding technique, while simple, can be physically demanding using wooden hammers, manual force, and sometimes cumbersome tools. Also, materials such as blank canvases or tote bags, fixation agents, and weather conditions (sunlight, humidity) influence outcome quality.

Drawing from recent literature, several strategies emerge to amplify successes and mitigate limitations, that's are to be longer training duration programs consisting of two or more sessions (e.g., multi-day or repeated batches) lead to better skill mastery and product refinement (Wilda et al., 2023). Mentoring and follow up mentorship after the main workshop aids participants in troubleshooting techniques like fixation and motif clarity, thereby supporting sustained practice (Dermawan et al., 2025). Integration of entrepreneurship modules including information on marketing, cost estimation, and product packaging from the outset can help participants view ecoprinting not only as craft but as viable livelihoods. Surveys from other ecoprint community programs show that linking environmental education with entrepreneurial spirit yields higher motivation and practical impact (Mahadewi, 2024).

From a community service perspective, the findings suggest that ecoprint batik training in settings like Dukuh Kembang can serve as a valuable platform for enhancing local cultural heritage and environmental awareness in younger residents, building technical arts skills that may translate into small-scale creative enterprises, strengthening community identity and intergenerational bonding through shared craft practices. For future research and practice, the following are recommended that can investigate cost-benefit analysis for home-based production to assess feasibility as an income source.

4. Conclusion

The introduction of ecoprint batik techniques to children and adolescents in Dukuh Kembang, Margosari Village, proved to be an effective community empowerment activity that integrates cultural preservation, environmental education, and creative economy potential. The results of the program indicated that all 28 participants were actively engaged throughout the activity, with more than 90% demonstrating high levels of enthusiasm and willingness to explore new skills. Approximately 80% of the participants successfully produced creative and aesthetically appealing ecoprint products, which highlights the practicality and accessibility of this environmentally friendly technique when applied at the community level. Beyond skill acquisition, the activity contributed to enhancing ecological awareness by encouraging participants to utilize natural materials readily available in their surroundings, thereby strengthening the bond between local wisdom and sustainable practices. The collaborative atmosphere also fostered community cohesiveness and opened opportunities for youth to consider creative entrepreneurship in the future. Through ecoprint techniques, the young generation in Dukuh Kembang not only successfully developed their creativity but also built a strong foundation of ecological awareness and environmentally friendly local cultural preservation efforts. Despite these successes, challenges were identified, particularly related to the limited training duration and participants' lack of prior experience with uniform hammering techniques. These challenges suggest that while the activity achieved its primary objectives, ongoing mentoring and systematic follow-up are necessary to ensure sustainable impact.

Recommendations

Based on the results and reflections, several recommendations can be proposed for the development of similar community service programs in the future:

a. Extended Training Duration

Future ecoprint workshops should be organized over multiple sessions rather than a single day. This will allow participants to deepen their technical mastery, experiment with diverse materials, and refine the durability and marketability of their products.

b. Capacity Building and Mentorship

Continuous mentoring is needed, especially for young participants, to develop consistency in their techniques and creativity. Collaboration with local artisans, universities, and creative industry practitioners can enrich the learning experience and provide sustainable skill transfer.

c. Future Research and Innovation

Further studies are needed to explore innovations in ecoprint fixation techniques, color fastness, and product diversification. Research could also assess long-term community impacts, including shifts in environmental awareness and economic independence among youth.

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