

Leaf Prints on Fabric: Ecoprint Batik Training as a Vehicle for Student Creativity

Nur Hasanah^{1*}, Sitti Rahmaniar Abubakar², Salwiah³, Muamal Gadafi⁴,
Ahid Hidayat⁵, Sri Yuliani⁶, Wa Ode Syamzaharah Astarin⁷, Dinar Salasatun Ashar⁸
^{1,2,3,4,5,6,7,8} Department of Early Childhood Teacher Education, Halu Oleo University, Kendari
e-mail: nurhasanah_paud@uho.ac.id^{1*}, sittirahmaniar_fkip@uho.ac.id²,
salwiah_fkip@uho.ac.id³, muamalgadafi@gmail.com⁴, ahidhidayat@uho.ac.id⁵,
sriyulianimustar91@uho.ac.id⁶, wdsyamzaharahastarin@uho.ac.id⁷, dinarsalasatunashar@uho.ac.id⁸

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*Correspondence:

nurhasanah_paud@uho.ac.id

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Abstract

This community service program aims to evaluate the outcomes of ecoprint batik training on students' creativity, including conceptual understanding, application of ideas, and the ability to produce visual works based on natural materials. The evaluation employed conceptual understanding questionnaires, practical skill observation sheets, and ecoprint product assessment rubrics to measure participants' knowledge, technical abilities, and creative outputs. The initiative responds to the growing need for creative, adaptive, and sustainability-oriented learning models in higher education. A one-day training was conducted on 21 April 2025 at Universitas Halu Oleo, involving 58 students from the Early Childhood Teacher Education Study Program. The implementation employed a structured approach comprising theoretical instruction, hands-on practice, and evaluation. The results of the program evaluation showed that 90% of participants demonstrated an understanding of basic creativity concepts, while 95% demonstrated an understanding of basic ecoprint concepts. All participants completed the ecoprint process, and 95% produced distinctive patterns through material selection, visual composition, and pigment transfer. Participants also demonstrated collaborative engagement and appreciation of local natural resources and environmentally responsible art practices. These findings indicate that the training supported immediate dimensions of creative capacity, particularly the application of ideas, experimentation with natural materials, and production of varied visual outcomes. In conclusion, ecoprint batik training serves as a relevant and sustainable model for fostering student creativity and appreciation of environmentally sustainable and culturally relevant art practices. Future programs should extend the duration, incorporate product development workshops, and involve community partners to broaden impact and ensure long-term continuity.

INTRODUCTION

Global dynamics in the modern era demand that young people take a strategic position in responding to various global challenges. In this era, education and training are considered important for fostering student creativity in order to produce innovative and

creative works (Gregory et al., 2013). However, the education system in Indonesia generally still tends to place greater emphasis on the mastery of technical knowledge (*hard skills*) rather than the development of non-technical skills (*soft skills*), such as creativity, communication, critical thinking, and problem-solving abilities. This condition is considered one of the factors influencing the limited competitiveness of students in responding to the demands of global competencies (Irhamni et al., 2022). Meanwhile, creativity in the current era is strongly influenced by individuals' internal conditions, particularly intrinsic motivation that encourages continuous self-development. DeHaan, (2017) findings state that creativity is flexible and requires special stimulation, which is in line with research results that emphasise the importance of a supportive learning environment, appropriate motivation, and active learning methods. Student creativity does not emerge automatically but must be nurtured through specially designed learning experiences that integrate creative teaching with learning content (Gregory et al., 2013).

Creativity is no longer viewed as merely an innate potential, but rather as a skill that can be honed and nurtured through a focused educational process and a conducive learning environment. In higher education, creativity plays an essential role in producing graduates who are adaptive, critical thinkers, capable of solving problems constructively, and have the capacity to create opportunities amid the complexity of global challenges. However, reality shows that the higher education system is still dominated by conventional approaches that focus on cognitive and academic aspects. The learning process tends to emphasise mastery of theory and rote memorisation of material, thus limiting the space for students to develop their creativity and imagination.

Previous studies have shown that educators often face difficulties in fostering and nurturing student creativity (Ambrose & Sternberg, 2016; Kim, 2011). Grigorenko (2018) also emphasises that creativity is an important advantage in the student learning environment, but at the same time poses a major challenge for the global education system. This situation requires higher education institutions to design and implement learning programmes and methods that can accommodate and stimulate students' creative potential optimally. One alternative approach that is gaining widespread attention is skill-based learning, particularly that which incorporates elements of local art and culture as an integral part of the educational process. The application of artistic skills in learning is believed to support the achievement of higher education policies oriented towards creativity development (Narwana & Rathee, 2019). Among the various relevant skills, the ecoprint batik technique has great potential in supporting the development of student creativity. Additionally, ecoprint activities also contribute to strengthening the economy and socio-cultural aspects of the community (Shaharuddin et al., 2021).

Ecoprint is a technique for printing patterns on fabric using natural elements such as leaves, flowers, or plant stems as printing elements (Faridatun, 2022). The process involves selecting natural materials, arranging patterns, dyeing, and fixing the colours. Each stage requires precision, patience, and a high level of exploratory skills. Thus, this activity not only serves as a medium for artistic expression but also as a multidimensional learning tool that encompasses technical skills, environmental awareness, and the preservation of local cultural values (Yunus & Tulasi, 2021). Through ecoprinting, students are trained to understand the characteristics of plant leaves, learn the principles of natural dyeing, and harmoniously combine visual elements to produce works of aesthetic and functional value. This process encourages students to think creatively and innovatively in creating new, original, and authentic motifs, which are important indicators of the development of creative potential.

Ecoprint batik skills provide added value from the perspective of sustainability and entrepreneurship. As awareness of environmental conservation increases, ecoprint

products have become an environmentally friendly alternative with high aesthetic value. This opens up opportunities for students to develop creative ecoprint-based products. Thus, this activity not only plays a role in enhancing creativity but also supports the development of students' entrepreneurial spirit. Through the practice of ecoprint batik, students can integrate technical knowledge, practical skills, and socio-cultural values in the process of creating meaningful and high-value works. Therefore, it is important to further explore how ecoprint batik skills can be utilised as a learning strategy to enhance student creativity. This community service is expected to contribute to the development of a creative learning model based on practical and contextual skills, as well as enrich learning methods in higher education institutions that are relevant to the demands of the times.

IMPLEMENTATION METHOD

This activity was carried out by the Community Service Program (PkM) team through a community service approach focused on mentoring and coaching participants. This activity was held for one day on 21 April 2025 at Halu Oleo University, specifically at the Hijau Bumi Tridharma Anduonohu Campus, Jalan H.E.A. Mokodompit, Kendari City, Southeast Sulawesi.

This activity involved 58 students from the Early Childhood Education Teacher Education (PG-PAUD) department, with details regarding the distribution of participants presented in the following table.

Table 1. Participant Distribution Data

No.	Gender	Number of Participants
1.	Female	56
2.	Male	2
Total		58

(Source: Nur Hasanah, et al., 2025)

The PkM activity began with initial planning and coordination. At this stage, the PkM team determined the location and objectives of the activity and obtained permits from the faculty and partners. In addition, the PkM team prepared instruments including questionnaires, interview guidelines and training materials to be used during the service process. After all planning elements were completed, the PkM team then conducted a socialisation session aimed at students majoring in PG-PAUD, Faculty of Teacher Training and Education, Halu Oleo University.

The socialisation at this stage aims to provide information related to the PkM programme, foster student interest, and recruit students who are willing to participate in the activities. After the participants are selected, the PkM team designs a model for implementing the activities. The next stage is to collect data through surveys and interviews with 10 (ten) PG-PAUD students who are selected purposively. This number is considered representative enough to explore the initial level of creativity possessed by participants in ecoprint batik activities and to identify the obstacles often experienced by students in developing their creativity.

Based on the results of the needs assessment, the PkM team then analysed the initial data to be used as a basis for developing a training programme focused on enhancing participants' creativity through the preservation of local culture using the ecoprint batik technique with organic materials. This training was designed to provide participants with both theoretical understanding and practical skills. Theoretically, the training was conducted through the provision of materials covering the basic concepts of creativity, the importance of creativity in early childhood education, an introduction to ecoprint

techniques, types of plants that can be used as dyes, and practical steps in the batik process. In addition, this plan was also developed by determining the time, place, and duration of activities in accordance with the needs and availability of participants. Furthermore, the implementation plan also included determining the time, place, and duration of the training in accordance with the needs of the participants.

After the training activities were carried out, the PkM team then proceeded to the evaluation and reflection stage to determine the extent to which the activities had achieved their predetermined objectives. The evaluation was conducted to assess the outcomes of the activities in terms of both process and results. Data were collected using questionnaires, observation sheets, interviews, and ecoprint product assessment rubrics. The questionnaire was used to evaluate participants' conceptual understanding of creativity and ecoprint principles, while observation sheets were used to assess practical skills during the ecoprint process. In addition, product assessment rubrics were applied to evaluate the creativity and quality of participants' ecoprint works based on motif originality, material composition, aesthetic aspects, and the utilization of natural resources. The evaluation process was conducted by the research team using interview and questionnaires to measure both process and outcome indicators, including participant engagement, enthusiasm during activities, and improvement in ecoprint batik skills. In addition, the PkM team also conducted joint reflections to identify successes, challenges and recommendations for similar activities in the future.

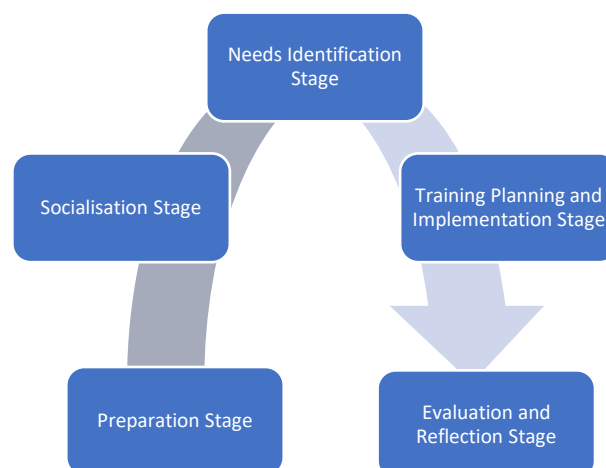


Figure 1. Stages of Community Service Activities

RESULT and DISCUSSION

Result

1. Conceptual Knowledge

This category covers participants' ability to understand the concepts and theories presented during the training. The evaluation was conducted using a conceptual understanding questionnaire distributed to all participants after the training activity. The evaluation results show that participants experienced a significant increase in their understanding of the basic concepts of creativity, namely 90%, and their understanding of the basic concepts of ecoprinting also reached 95%. This shows that the training activities in terms of conceptual knowledge had a major impact on participants, including:

- Participants explained the concept of creativity as the ability to create or renew existing works.

- b. Participants explained the concept of ecoprint as a technique for printing natural motifs using materials from nature such as leaves, twigs, and flowers. Of course, these materials are easily obtained by participants in subsequent activities.
- c. Participants discussed the relationship between creativity and ecoprint art as a form of self-expression and environmentally friendly innovation.

The questionnaire results were further reinforced by observations made during the discussion and reflection sessions conducted after the material presentation. Participants demonstrated active engagement by responding to questions, explaining the concepts of creativity and ecoprinting, identifying natural materials commonly used in ecoprint techniques, and describing the relationship between creative expression and environmentally sustainable art practices.



Figure 2. Presentation of Material by Resource Persons
(Source: Nur Hasanah, 2025)

This activity broadened participants' knowledge of creativity and ecoprinting concepts, the steps involved in ecoprint batik, and their ability to identify plants that produce natural dyes. The training raised awareness of the potential of local natural resources as educational and artistic media. The increase in participants' conceptual understanding reached 90%, which is consistent with the results of the previous programme's PkM, showing that training based on simultaneous theory and practice can accelerate participants' understanding of the concepts of art and creativity. This is in line with the opinions of Samaniego (2024) & Zainuddin et al, (2025) that the integration of theoretical foundations and practice actively supports participants' mastery of creative concepts and technical creativity skills. This shows that the strategy of delivering material using discussion, lectures and demonstrations is very effective in the implementation of ecoprint batik training.

2. Improvement of Practical Skills

The evaluation of participants' practical skills was conducted using a practical skills observation sheet during the hands-on ecoprint batik activities. The observation sheet was used to assess participants' ability in performing each stage of the ecoprint process, including preparation of tools and materials, selection of natural materials, arrangement of leaves and flowers, application of the pounding technique, and finishing process. The assessment was conducted by the community service team through direct observation during the training activities.

The evaluation results showed a marked increase in students' practical skills, with 100% of participants successfully applying ecoprint techniques and 95% demonstrating improved ability in selecting natural materials, arranging compositions, and using the pounding method. This improvement directly contributed to the clarity and stability of the resulting motifs. These findings are consistent with previous programmes, which highlight that ecoprint quality is strongly determined by technical mastery and accuracy in material selection factors that influence colour intensity, motif durability, and the success of pigment transfer (Benli, 2024; Šabarić et al., 2024).

The use of natural materials also offers significant environmental benefits, as natural dyes and biomordants are more sustainable and less harmful than synthetic alternatives. They can be sourced from plants, minerals, and other organic materials, contributing to ecological sustainability (Pranta & Rahaman, 2024).

Skill improvement is also linked to the learning design applied during training. The combination of theoretical instruction, intensive mentoring, and repeated practice aligns with scaffolding principles and cognitive load management (Partarakis & Zabulis, 2024), enabling participants to develop motor skills gradually without excessive cognitive burden. Consequently, students' practical abilities improved not only because natural materials are easy to process and environmentally friendly but also due to the outcomes of the instructional design in building conceptual understanding and technical competence. The practical component of the programme centred on hands-on ecoprint batik activities. Participants were trained from tool and material preparation to leaf and flower arrangement, steaming, and finishing. The evaluation confirmed that all participants were able to apply the technique correctly, and 95% produced distinctive patterns through effective combinations of colours, shapes, and natural compositions. They also demonstrated the ability to identify and select fresh materials such as dragon fruit peel, avocado peel, ketapang leaves, betel leaves, mango leaves, and hibiscus to transfer pigments with consistent positioning and pressure.



Figure 2. Participants performing the pounding technique using natural materials
(Source: Nur Hasanah, 2025)



Figure 3. Participants performing the pounding technique using stone
(Source: Nur Hasanah, 2025)



Figure 4. Unwrapping and Result Inspection
(Source: Nur Hasanah, 2025)

3. Strengthening Attitudes and Appreciation of Local Culture

This ecoprint training not only focuses on enhancing participants' creativity, but also emphasises the development of attitudes and values related to local culture and environmental awareness. The assessment of participants' creative outputs was carried out using an ecoprint product evaluation rubric. This rubric evaluated various components, including motif originality, creativity in arranging and combining natural elements, aesthetic quality, the use of locally available resources, and the extent to which the ecoprint products reflected environmental and cultural values. The evaluation was based on the ecoprint works produced by participants during the hands-on practice session. Throughout the activity, participants showed great enthusiasm in following all stages of the training, developing an appreciation for traditional art combined with modern environmentally friendly innovations, and showing concern for the preservation of local natural resources as the main materials for ecoprint, as reflected in their testimonials. In addition, the collaborative process of creating works fostered a sense of responsibility, cooperation, and perseverance.

This activity also strengthened local wisdom values and encouraged sustainability ideas that can be adopted in various other art forms. These findings are in

line with various Community Service Programmes (PkM) oriented towards the preservation of traditional arts and the sustainable use of natural resources. The increase in appreciative attitudes towards local culture and concern for the environment is in line with the findings of Zheng et al, (2025), which confirm that practical, participation-based activities can strengthen local identity and internalise cultural values. Furthermore, the use of natural materials as art media not only broadens participants' aesthetic experiences but also increases their awareness of the concepts of sustainability, local wisdom values, and the importance of protecting the environment. This is reinforced by Ambusaidi et al, (2024), who show that sustainability-oriented learning programmes, including field activities, are effective in shaping positive attitudes towards the environment. Thus, ecoprint training plays an important role not only in skill development but also in building character, ecological awareness, and appreciation for local culture.

Thus, the achievements of this Community Service Programme not only confirm the outcomes of the programme, but also reinforce the findings of previous Community Service Programmes that training related to creativity, particularly ecoprint batik based on natural materials, consistently contributes to improving the knowledge, skills and attitudes of participants. This consistency shows that ecoprint activities are worthy of being used as a model for sustainable creative training and remain relevant for the development of the competencies of students and the wider community.

CONCLUSION

The PkM ecoprint batik training programme successfully supported students' creative learning outcomes by strengthening their knowledge, skills, and attitudes. Participants showed understanding of creativity and ecoprint concepts, as well as mastery of practical techniques, including the selection of natural materials and the application of pounding techniques. In addition, they demonstrated a growing appreciation of local culture and environmental awareness. These results are consistent with previous PkM studies indicating that natural material-based art training can enhance student creativity and technical competence. Training that integrates theory, demonstration, and practice facilitates conceptual understanding and motor skill development. Future programmes may improve outcomes by extending training duration, diversifying natural materials, and providing follow-up support to strengthen participants' creative exploration. Overall, ecoprint can be considered a relevant and sustainable model for developing student competencies in higher education.

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