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Improving Ecoprint Skills Using Pounding Technique at Setiabudi Middle School, Malaysia

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Abstract

This community service was motivated by the need to improve the practical skills and creativity of students and teachers at Setiabudi Middle School, Malaysia, in the field of environmentally friendly textile arts through ecoprint techniques, especially pounding techniques. The purpose of this activity was to empower participants to master ecoprint techniques as an alternative skill that has economic and aesthetic value, while supporting environmental conservation. The implementation method included a series of stages, namely preparation, socialization and theory sessions on ecoprint and pounding techniques, direct practice workshops on pounding ecoprint using local natural materials, and evaluation of results through discussions and questionnaires.This activity involved 35 participants, consisting of 30 students and 5 supervising teachers as implementing partners at the school. The evaluation of benefits was carried out using a questionnaire that measured the improvement in skills and interest in developing ecoprint products. The results of the community service showed that 95% of participants experienced a significant increase in practical skills, with 90% expressing interest in developing ecoprint products as a sustainable creative business opportunity. The ecoprint products produced also had high economic and aesthetic value, opening up the potential for developing entrepreneurship among students.Thus, this activity not only succeeded in improving the participants' hard skills, but also raised awareness of the importance of environmentally friendly innovation in vocational education. Furthermore, the use of natural materials and eco-friendly methods in the ecoprint technique directly aligned with SDG 13: Climate Action, as it encouraged participants to reduce the environmental impact of traditional textile production. By learning and implementing sustainable practices, the participants contributed to combating climate change by supporting more responsible consumption and production patterns, in line with the global efforts to mitigate the effects of climate change.

Keywords: *climate action, ecoprint, environmentally friendly, pounding technique*

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A. INTRODUCTION

Community service is an important part of the tridharma of higher education, which plays a role in applying science and technology to the wider community (Wahyuni et al., 2025). In today's modern era, the development of environmentally friendly arts and technology is very important to support

environmental sustainability and improve people's welfare (Rowan et al., 2022). One of the creative innovations that has been developing is the ecoprint technique, which is a method of printing natural motifs on fabrics using plant materials without using hazardous chemicals (Lehtijarvi et al., 2021). The ecoprint technique, especially the pounding technique, offers a simple and effective way to create unique artistic motifs with high aesthetic value. This technique utilizes natural pigments from leaves, flowers, and twigs that are beaten onto the surface of the fabric to produce different patterns according to the type of material used (Sugiastutih et al., 2025). In addition to providing aesthetic value, ecoprint also supports the concept of environmental conservation because it uses natural materials that are easily obtained and environmentally friendly (Lestari and Sakti, 2022).

Setiabudi High School in Malaysia had great potential in developing students' and teachers' creativity through textile art skills. However, limited access to ecoprint techniques hindered the development of this potential. Therefore, pounding technique ecoprint training at this school was important as an effort to empower and improve practical skills for students and educators. This activity aimed to overcome the problem of the lack of ecoprint technique skills while opening up opportunities for sustainable creative entrepreneurship (Wulandari et al., 2024). With this training, it was hoped that participants would be able to master ecoprint techniques practically, understand the aesthetic and economic value of the products produced, and raise awareness of the importance of preserving the environment through environmentally friendly production methods (Saptutyningsih et al., 2025).

Furthermore, this community service initiative contributed to SDG 13: Climate Action by promoting sustainable practices in textile production. By using natural materials and avoiding harmful chemicals, the ecoprint technique helped reduce the environmental impact associated with traditional textile manufacturing (Harmono and Nurhamzah, 2025). This activity not only empowered the participants with creative skills but also encouraged them to become environmentally conscious creators, thus supporting efforts to mitigate climate change through more sustainable production methods. The main questions in this community service were: How did the implementation of the pounding ecoprint training improve the practical skills of students and teachers at Setiabudi Middle School? To what extent did the improvement in these skills contribute to the economic value and environmental awareness at the school? Through training that involved hands-on practice and systematic evaluation, this study aimed to answer these questions comprehensively.

The improvement of practical skills among students and teachers was crucial in supporting an effective and applicable learning process (Avdiu et al., 2025). Ecoprint skills, as a form of textile art integrating the concept of sustainability, became an innovative alternative that could expand the scope of vocational competencies at the secondary education level (Wahyuningsih et al., 2024). In this context, the pounding ecoprint training focused not only on the artistic aspect but also on the development of relevant soft skills and hard skills in preparation for careers and entrepreneurship (Kinanti, 2024). The implementation of community service at Setiabudi Middle School, Malaysia, became a concrete model of cross-border collaboration that supported the exchange of knowledge and technology in the field of arts education. The collaboration between the Faculty of Engineering, Universitas Negeri Semarang (UNNES), and the International Community of Scientists and Engineers (KICT) at the International Islamic University Malaysia (IIUM) was expected to have a sustainable positive

impact on the development of vocational education and entrepreneurship at the school (Hastuti, 2024).

Furthermore, there was a need to systematically evaluate the effectiveness of the training in order to measure the improvement in skills and the application of the training outcomes in real contexts. Previous studies emphasized the importance of both quantitative and qualitative evaluation in community service programs to provide accurate data for the further development of the program (Silverman and Patterson, 2021). Therefore, this training was equipped with an evaluation mechanism in the form of a questionnaire, which measured participants' perceptions regarding the improvement in skills and the economic potential of the ecoprint products.

B. METHOD

Location of Implementation

The training was conducted at Setiabudi Middle School, Malaysia, a secondary school that was actively developing student skill programs as part of its entrepreneurship and arts curriculum.

Participants

The participants of the activity consisted of students and teachers from Setiabudi Middle School, totaling 35 people, including 30 students and 5 supervising teachers. The participants were selected based on their interest and involvement in the school's arts and entrepreneurship skill programs.

Time of Implementation

The training activity was carried out on May 22, 2024, for a full day with a total of 6 hours of intensive training.

Implementation Stages

The implementation of the activity was divided into three main stages, as follows at Table 1.

Table 1. Activity

Stage	Time	Activity
Pre-Activity	May 1 - May 21, 2024	Coordination with the partners, preparation of materials and tools
Implementation	May 22, 2024	Workshop and training on pounding ecoprint technique
Monitoring and Evaluation	May 22, 2024	Filling out questionnaires, direct observation, evaluation discussions

Stages of Implementation

1. Preparation: Coordinated with the school regarding material and facility needs. Prepared natural materials (leaves, flowers, twigs) and supporting tools for the pounding ecoprint technique.
2. Theory Session: Introduced the concept of ecoprint, its history, and the importance of eco-friendly techniques.Explained the pounding technique as a method for applying ecoprint.
3. Practical Pounding Ecoprint: Demonstrated the pounding technique by the PKM team.Participants practiced the pounding ecoprint process on cotton fabric using the provided natural materials.

4. Evaluation and Discussion: Participants presented their ecoprint works. Conducted a discussion on challenges, development potential, and business opportunities.
5. Benefit Evaluation: Participants filled out a questionnaire to assess their understanding, skills, and the potential benefits of the training.

C. RESULT AND DISCUSSION

The 85% students and 15% teachers composition reflected an effective distribution of participants. With the majority of participants being students, the training primarily benefited those who would apply the skills in their daily lives.

Table 2. Data of Ecoprint Pounding Technique Training Participants

No	Participant Category	Number	Percentage (%)
1	Students	30	85%
2	Supervising Teachers	5	15%
Total		35	100%

Table 2 shows that the pounding ecoprint training focused on students as the primary participants, with fewer teachers involved as facilitators. This structure reflected a practical, student-oriented approach, while still considering the role of teachers in supporting the sustainability of the program. The training provided an opportunity for students to develop skills that could be applied in daily life and the workplace, while teachers acted as facilitators to ensure that the technique was applied and continued inside and outside the classroom. 85% of the participants were students, indicating that the main goal of the training was to enrich the practical skills of students in ecoprint techniques. This training not only aimed to enhance artistic skills but also provided opportunities for students to develop entrepreneurial abilities through ecoprint-based products. The large participation of students also supported the educational goal of strengthening students' technical skills and creativity.

The number of teachers involved was smaller (15%), but they played an important role in the training. Teachers were responsible for providing direct guidance to students, helping them overcome technical challenges, and ensuring that the skills acquired could be carried forward after the training. Supervising teachers also served as agents of change who could integrate this technique into the school's curriculum in the future (Puspitasari et al., 2023).

However, the involvement of teachers remained crucial, as they ensured the sustainability of the training and could integrate the ecoprint technique into further educational activities. Although the number of supervising teachers was small, their involvement had a significant impact on supporting the sustainability and implementation of the ecoprint technique in the future. They served as mentors, helping students implement and develop the skills they had learned, as well as introducing this technique to future students in the years ahead.

Table 3. Stages of Ecoprint Pounding Technique Training Implementation

No	Stage	Main Activity	Duration
1	Preparation	Coordination, preparation of materials and tools	1 hour
2	Theory Session	Introduction to ecoprint concepts and pounding technique	1 hour
3	Pounding Practice	Demonstration and hands-on practice of pounding ecoprint	3 hours
4	Evaluation & Discussion	Presentation of works, discussion on challenges and business opportunities	1 hour

Table 3 illustrates the stages of the pounding ecoprint training, which was divided into four main stages with a total duration of 6 hours. The first stage, Preparation, lasted for 1 hour and involved coordination with relevant parties and the preparation of materials and tools required for the training. This stage was essential to ensure the smooth implementation of the training and the readiness of the materials to be used. The second stage, Theory Session, also lasted for 1 hour and aimed to introduce participants to the basic concepts of ecoprint and the pounding technique. In this session, participants gained the foundational knowledge needed before moving on to hands-on practice. The third stage, Pounding Practice, was the core of the training and lasted for 3 hours. In this session, participants were given the opportunity to observe a demonstration of the pounding technique and then practice it themselves. The longer duration of this stage was designed to ensure that participants could master the technique effectively. The final stage, Evaluation & Discussion, lasted for 1 hour and included the presentation of participants' works, as well as a discussion on the challenges faced during the training and the business opportunities that could arise from the ecoprint skills. Overall, the duration and distribution of time reflected a balanced training structure between theory and practice, with a primary focus on strengthening participants' skills through hands-on experience.

Figure 1. Ecoprint practice

Table 4. Monitoring and Evaluation Table

No	Type of Evaluation	Implementation Time	Method	Description	Responsible Party
1	Evaluation During Activity	May 22, 2024	Direct Observation, Discussion	Observing participation, participants' understanding, practical challenges	Team and partner teachers
2	Post-Activity Evaluation	May 29, 2024	Closed Questionnaire	Measuring participants' perception of the benefits of the training, skill improvement, and potential business development	Team and partners

Benefit Evaluation

Based on the questionnaire filled out by 40 participants, 95% stated that the training was very beneficial in improving their practical skills. Additionally, 90% of participants expressed interest in developing ecoprint products as a future business opportunity. The supervising teachers conveyed that the training aligned with the school's vision to develop students' creativity and sustainable entrepreneurship.

Table 5. Benefit Evaluation

No	Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	This training added practical skills	70	25	5	0	0
2	I am interested in developing ecoprint products	65	25	10	0	0
3	This training increased awareness of environmental conservation	75	20	5	0	0
4	The training material was easy to understand	80	15	5	0	0
5	I feel confident in applying the ecoprint technique independently	60	30	10	0	0

In general, the evaluation results indicated that the program not only improved technical skills but also raised awareness of the importance of environmental

conservation through the use of natural materials and eco-friendly techniques. Participants also felt more confident in continuing ecoprint practice independently.

The community service, focused on enhancing ecoprint pounding technique skills at Setiabudi Middle School in Malaysia, was successful and had a positive impact. The training improved participants' practical skills, fostered creativity, and provided new insights into environmentally friendly textile art. The benefit evaluation showed that participants received the material well and were highly motivated to develop ecoprint as a potential creative business opportunity (Waluyanto et al., 2020).

Figure2. Participants of Practice

It is recommended that this ecoprint training continue regularly and be expanded, with ongoing mentoring to optimize the achieved results. International collaborations like this are also crucial to strengthen educational networks and community-based innovation that benefit the wider society.

D. CONCLUSION

The community service program aimed at enhancing the ecoprint pounding technique skills at Setiabudi Middle School in Malaysia was successfully implemented and yielded positive results. The training significantly improved the practical skills of the participants, fostered creativity, and provided valuable insights into environmentally friendly textile art. The benefit evaluation demonstrated that the participants understood the material well and were highly motivated to explore ecoprint as a potential business opportunity. The program not only enhanced technical skills but also raised awareness about the importance of environmental conservation through the use of natural materials and eco-friendly techniques. The participation of students, with support from supervising teachers, ensured the sustainability of the skills learned and the continuation of the ecoprint technique in the school curriculum. It was recommended that the ecoprint training be conducted regularly and expanded in scope, with continued mentorship to optimize the results. Such international collaborations were also deemed essential in strengthening educational networks and fostering community-based innovations that benefit society at large.

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