



How to Apply *Ecoprint Learning Media* in Yogyakarta Schools?

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Abstract

Ecoprint has emerged as a popular trend in Yogyakarta's creative industry. However, its integration into school learning remains limited due to the lack of systematic and interactive learning media, making it difficult for students to effectively understand local content. This study aims to analyze the effectiveness of ecoprint-based learning media in art education. A quantitative descriptive method was employed using a closed-ended questionnaire. The respondents consisted of 23 art teachers and 157 junior and senior high school students in Yogyakarta, selected through purposive sampling based on their active involvement in art learning. The results indicate that both teachers and students showed high enthusiasm toward the use of ecoprint learning media, with approval rates exceeding 71%. The implementation of learning—including planning, teaching processes, assessment, material relevance, facilities, and environmental support—was categorized as good to high. The findings also highlight the need for more interactive and varied learning media to improve students' focus, interest, and understanding. By integrating visual content, video tutorials, and interactive simulations, the media makes abstract environmental concepts more concrete while enhancing both cognitive understanding and ecological awareness. These findings suggest that strengthening teacher capacity and promoting collaboration between schools and communities are essential to optimize the implementation of ecoprint-based learning in the future.

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INTRODUCTION

The city of Yogyakarta is known as a creative city where it has extraordinary potential in the creative industry sector. There are several creative industry sectors in Yogyakarta City that are potential for excellence such as *fashion*, crafts, culinary, and performing arts (Prayudi et al., 2020; Hasanah, 2015). The creative industry in Yogyakarta City is growing rapidly, one of which is through the *ecoprint textile craft sector* which is in demand by the public. In addition to serving as a source of creative economy for local residents, *ecoprints* have a high appeal in the eyes of consumers (Salma & Eskak, 2022).

In line with this development, ecoprint has emerged as a natural-based textile dyeing technique that emphasizes environmental sustainability and artistic exploration (Masruchiyah et al., 2024; Soemaryani, et al., 2025). Etymologically, the term *ecoprint* comes from the words *eco* (ecosystem/nature) and *print*, which represent the technique of printing motifs on textiles using natural materials. (Irianingsih, 2018; Sulistiawati et al., 2025). *Ecoprint* is a technique that can produce a unique motif shape or color by utilizing materials that come from nature such as leaves, flowers, seeds, stalks, roots, and so on (Kristanti, 2024; Humaeroh et al., 2023; Wahyuningsih et al., 2022; Saptutyningsih & Wardani, 2019). It is often developed with a local wisdom approach, such

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as using native plants and motifs that reflect local cultural identity. The use of *ecoprint* techniques aims to create motifs and colors using natural materials that are environmentally friendly and sustainable.

Ecoprint itself can be used in student practical activities at school, which will teach students about the use of nature and conservation in a sustainable manner. *Ecoprint* as an environmentally friendly product based on local wisdom can be associated with the concept of green business and 3R (reduce, reuse, recycle) (Syafri & Agel, 2024). In addition, the recycling concept in making *ecoprints* can be done by utilizing waste from the media used, such as cement paper waste.

The surge in infrastructure development increases the impact of cement paper waste in the community and the educational environment. Actually, the waste has the potential to be reprocessed into creative value-added products (Gemilang et al., 2024). However, the lack of innovation in processing cement paper waste causes the material to be rarely processed into functional creative products, so it often ends up as waste (Jenifer et al., 2020). The processing of cement paper waste into products with functional value is a strategic alternative in reducing waste innovatively (Oentoro & Putro, 2018; Syah et al., 2018). The strong characteristics of cement paper with thick material and can accommodate the weight of cement 40 kg per sack, have good potential to be used as a creative product (Gemilang et al., 2024).

The use of cement paper waste as a creative material is able to produce products exclusively with high marketability. This innovation has a positive impact on the future economic outlook (Lukma et al., 2025), at the same time as a means of skill development, increasing environmental awareness, and creating value-added products (Widjaja et al., 2025). So that with the development of materials and product designs based on cement paper waste through *the ecoprint* technique, it can be implemented as a learning project in schools to optimize students' creative potential while instilling awareness of environmental sustainability.

The practice of making *ecoprints* can be done in learning fine arts subjects at school. The existence of art learning in schools with practical activities is one of the efforts made by educators to develop creativity and explore the potential in students (Lestari & Sakti, 2022). As well as being able to provide a hands-on learning experience that connects technical skills with sustainable lifestyle education. Where it is based on creativity that is expressed in ideas, creativity, and imagination that can build a process or method effectively (Irdalisa et al., 2024; Fatmala & Hartati, 2020).

Therefore, art learning is always related to the process of working, where learning activities must be through direct practice. In learning art practice can be supported by the application of learning media as a student facility to increase knowledge related to the material to be delivered. The delivery of material in art subjects can be supported by various interactive learning media, including videos, *PowerPoint*, and *Adobe Animate*.

The application of interactive learning media, shows that it can increase learning motivation and understanding of concepts, which is in line with the goal of developing *ecoprint* media for students (Wahyuliana & Andrian, 2022). The use of these media has a high effectiveness on learning (Saniriati et al., 2021). In addition, multimedia learning media can improve students' memory of the material delivered by the teacher better (Ganino, 2021; Mayer, 2009). In the context of *ecoprint*, interactive media plays a role in visualizing complex technical stages such as the selection of leaf types, the arrangement of motifs, and the manufacturing process so that students can more easily internalize the procedures of the technique systematically.

It can be proven that there is an assessment of the effectiveness of learning media by experts who obtained a score of 9.8 and an average score of 4.9 which indicates the "Very Good" criterion, as well as the influence of media on learning strategies with a total score of 14.75 with an average of 4.9 and the "Very Good" criterion. Thus, learning media can make it easier for teachers or facilitators to transfer knowledge through interesting learning in the *ecoprint* learning theme (Hakiki et al., 2025).

There are several studies that have discussed related to *ecoprint* learning and the application of learning media, including Lestari & Sakti (2022) Analyzing the impact on the learning process of fine arts subjects with *Ecoprint* practical activities, Hakiki et al. (2025) developing learning media in the form of modules with the theme of *ecoprint* for junior high school students, Agustino et al. (2023) solutions in increasing students' interest and understanding with the use of *Adobe Animate*-

based learning media in the form of interactive animations. In general, previous research has tended to measure learning outcomes in the final practice phase, but ignores how learning media functions to facilitate the systematic internalization of students' conceptual insights and technical readiness before practice. This study fills this gap by evaluating the effectiveness of learning media as a cognitive and psychomotor bridge that supports the success of *ecoprint* practices in Yogyakarta schools, in order to produce a more comprehensive learning model from the planning stage to implementation.

Therefore, this study aims to analyze the effectiveness of *ecoprint* learning media as a cognitive instrument in strengthening students' theoretical understanding and procedural readiness before carrying out hands-on practice. The main focus of research is not just on the final results of students' work, but on the effectiveness of media in building a solid conceptual foundation, so that students have readiness for an in-depth understanding of the material before direct exploration and practice of art.

METHOD

In this study, a quantitative descriptive approach was used. Where this approach was chosen because it can measure quantitative variables, as well as explore the patterns of respondents' perceptions and experiences (Sugiyono, 2024). The respondents in this study were 157 students and 27 teachers from 8 schools, namely Junior High School and Senior High School in Yogyakarta City. khususnya di wilayah Yogyakarta. The research flow diagram is shown in Figure 1.

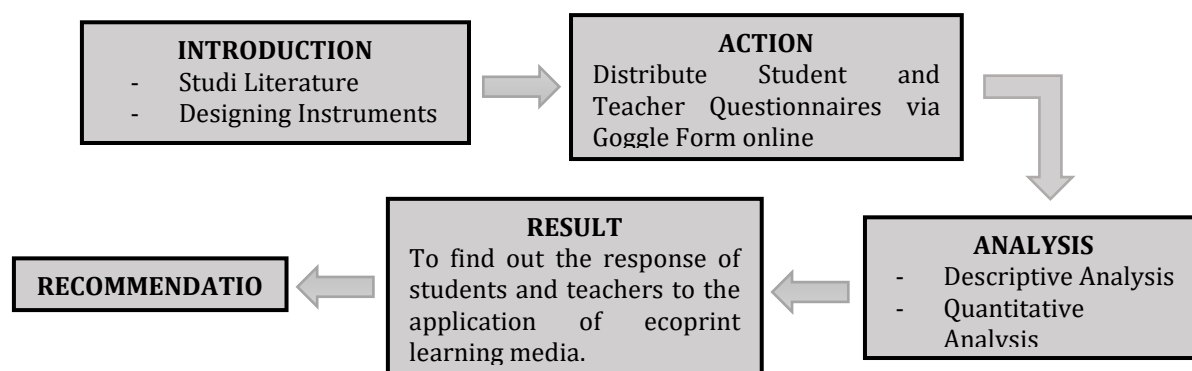


Figure 1. Research flow diagram.

Based on the flow chart, this research began with the preliminary stage, namely literature study and instrument design. Then followed by the action stage in the form of distributing questionnaires to students and teachers through the goggle form. The collected data is then processed in the analysis stage using descriptive and quantitative methods (percentage), to obtain results related to the subject's response to the use of *ecoprint* learning media. After the entire series of processes is completed, it is then concluded into the recommendation stage as a follow-up to the research findings.

The sample selection technique was carried out through purposive sampling based on the criteria of active involvement in fine arts/crafts/entrepreneurship learning. The main instrument in this study was a questionnaire prepared in the form of a 4-point likert scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree) (Aldossari & Aldajani, 2021; Bargiela et.al., 2022; Johnsen et.al., 2020). Instrument testing is carried out by experts through the expert judgement method as a validation process. In addition, there are suggestions and comments given by students and teachers, this will be descriptive data through drawing conclusions. Data collection was carried out from August 20, 2025 to September 12, 2025 through the distribution of online questionnaires through Google Form to schools that were the target of the research. The questionnaire consists of two parts, namely the student questionnaire and the teacher's questionnaire. Table 1 is a description of the questionnaire grid in this study.

Table 1. Student and teacher questionnaire grid

No	Aspects	Number of Student Questionnaires	Number of Teacher Questionnaires
1	School Conditions	3	3
2	Student Conditions	5	5
3	Teacher	2	2
4	Learning Process	2	3
5	Learning Media	4	4
6	<i>Ecoprint</i>	6	6
7	Facilities and Infrastructure	3	3

Data analysis was carried out in a quantitative descriptive manner by calculating the percentage of respondent answers and the average perception score for each indicator. The results were interpreted using a category scale, namely low, medium, and high based on the percentage of results of filling out the questionnaire. The findings of this analysis are used to answer the problem formulation and reveal the perception patterns of students and teachers towards the application of *ecoprint* learning media in Yogyakarta schools. In addition, inputs and comments from respondents were analyzed descriptively with qualitative analysis results to identify patterns of suggestions that are relevant and needed by students and teachers. A description of the impact level category is presented in Table 2 (Kartika et al., 2023).

Table 2. Interpretation of the level of application of *ecoprint* learning media

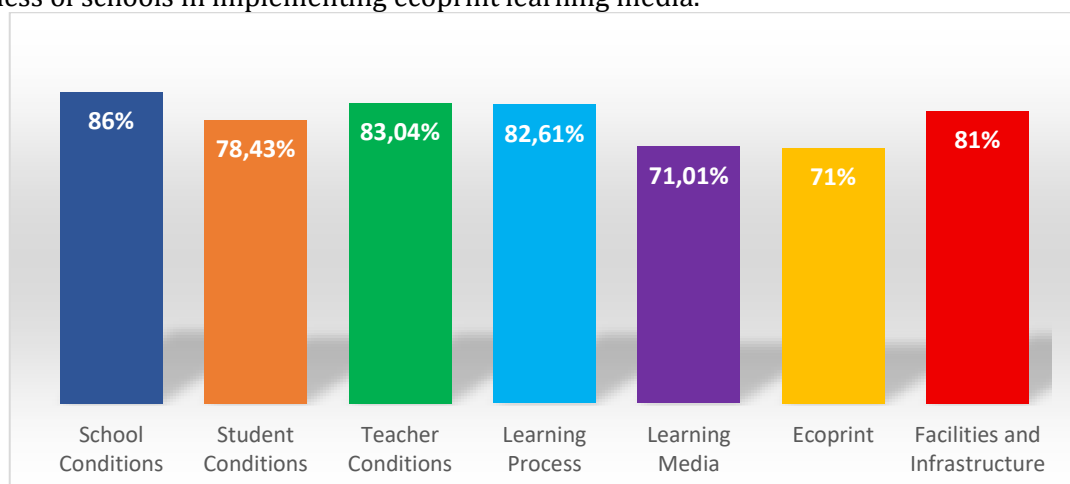
Presentase	Category
$71 < P \leq 100$	High
$36 < P \leq 70$	Medium
$0 < P \leq 35$	Low

RESULTS AND DISCUSSION

The results of the research can be classified into two groups, namely how teachers apply *ecoprint* learning media and how students get learning and teaching from educators.

The Implementation of *Ecoprint Learning Media* by Teachers

To evaluate the implementation of *ecoprint* learning media, a questionnaire was administered to teachers covering several key aspects, including school conditions, student conditions, teacher readiness, learning processes, learning media, *ecoprint* application, and supporting facilities and infrastructure. The results provide an overview of how well *ecoprint*-based learning has been integrated into classroom practices. Figure 2 presents the percentage distribution of teacher responses across these aspects, reflecting the overall effectiveness and readiness of schools in implementing *ecoprint* learning media.

**Figure 2.** Results of teacher questionnaires in each aspect

Based on the analysis of the questionnaire in Figure 2, it is shown that according to the percentage of results from each aspect measured. The data collected proves that there is high enthusiasm from teachers for the application of *ecoprint* learning media, although there are still some technical challenges in its implementation. The results of the teacher's questionnaire in all aspects received high categorization, because they had a percentage of results greater than or equal to 71%. The determination of this category refers to the interpretation scale with a score range of 71%-100% classified into the high category. This means that teachers have prepared the planning, implementation, and assessment of the use of *ecoprint learning media* very well.

In addition to the suitability of the material, the conditions of schools, students, and teachers, as well as the facilities and infrastructure that support *ecoprint* learning. These results show that the application of *ecoprint* learning media by utilizing technology in schools can give rise to active, creative, and innovative learning to the variety of learning media used by teachers. Where teachers can influence students to be more focused in learning, more active, happy, and able to understand the material better. Therefore, the practical material can be carried out in a more fun and conducive way. The results of the statements in each aspect are explained in detail in Table 3.

Table 3. Teacher Questionnaire Statement Each Aspect

Aspects	Statement	%
School Conditions	Learning activities in schools have made maximum use of technology, especially in making learning media.	84,35
	Schools strongly support more creative and innovative learning.	91,30
	Learning in schools has used interactive learning media.	82,61
Student Conditions	Students are very active in learning activities.	88,48
	Students are able to understand the material well with practical learning.	83,50
	Students prefer learning with theory rather than practice.	60,00
	Students prefer learning by practice rather than theory.	85,22
Teacher Condition	Students are able to learn independently with existing technology.	80,00
	I have used technology as a learning medium in accordance with developments.	83,48
Learning Process	I manage classes during learning well so that it is more conducive.	82,61
	The teaching approach I use is in line with the current curriculum.	82,61
Learning Media	With in-depth learning, the presentation of material on learning media is limited.	60,00
	I use learning media in the form of textbooks with conventional methods so that students are more focused on learning.	69,57
	I added a variety of learning media by utilizing technology so that students are more focused on learning and not bored.	83,48
<i>Ecoprint</i>	Students at school have been taught <i>ecoprint</i> learning.	82,61
	In certain subjects, students learn about <i>ecoprint</i> .	65,22
	<i>Ecoprints</i> are taught to students as a practical activity.	66,96
	Students love to learn practice with <i>ecoprint materials</i> .	66,96
Facilities and Infrastructure	There are very supportive classrooms in schools for the use of digital learning media.	78,26
	There is good internet access to support the learning process.	83,48

Based on the results of Table 3, in general, it shows a high category percentage with a value range between 71%-100%. However, there is also an assessment with a medium category, namely a percentage value range of 36%-70%, where the percentage is found in 1) aspects of student conditions related to the type of student learning, 2) aspects of learning media related to the presentation of material to conventional learning media, 3) aspects of *ecoprint* materials taught to students in fine arts subjects. From some of these things, it can be evaluated in teaching and learning activities that practical learning is more preferred by students than theoretical learning. The delivery of material can be further developed by using various interactive learning media, in

addition to teachers who still use lecture or conventional learning. As well as *ecoprint* learning that can be taught and applied to students in a more diverse way to the media and practical techniques.

These results, in line with the findings (Purnawati et al., 2024; Satria et al., 2024; Armiani et al., 2025), that teachers need support and training on the creation of more interactive and varied learning media to optimize student learning to be more active and conducive to ornamental-based *ecoprint* materials. These limitations can affect the effectiveness of learning if they are not addressed immediately. The comparison of the application by the teacher and the application to the students is shown in Figure 3.

Application of *Ecoprint Learning Media* to Students

The results obtained based on filling out the questionnaire showed that most students had a positive response to the application of *ecoprint learning media*. Based on the analysis of the questionnaire Figure 3. The following are the percentage results of each aspect measured.

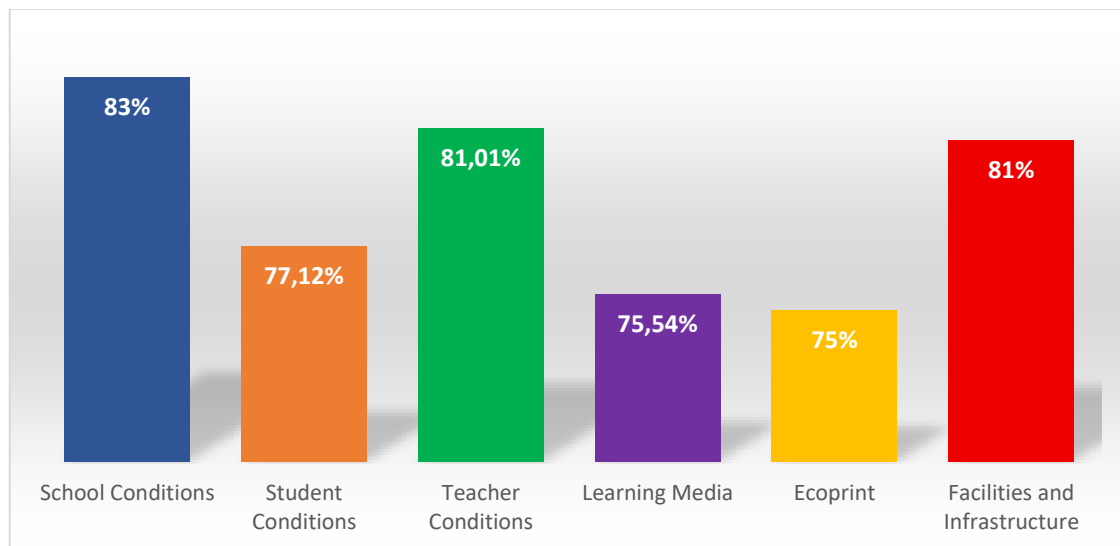


Figure 3. Results of student questionnaires in each aspect

The results of the student questionnaire in all aspects have a high categorization because they obtain a percentage of more than 71% which is included in the range of values between 71%-100%, which means that students have prepared the planning, implementation, and assessment of learning very well. In addition to the suitability of materials, the conditions of schools and teachers, as well as facilities and infrastructure in the application of *ecoprint learning media*. However, there are several of these tables that have the lowest scores in terms of student conditions, learning media, and *ecoprint* themes. The results of the statements of each of these aspects can be explained in detail in Table 4.

Table 4. Student Questionnaire Statement Each Aspect

Aspects	Statement	%
School Conditions	Learning activities in schools have made maximum use of technology, especially in making learning media.	82,92
	Schools strongly support more creative and innovative learning.	82,66
	I studied at school using fun learning and made me more active.	82,55
Student Conditions	I am very active in learning activities because of the fun learning media.	79,87
	I was able to understand the material well with practical learning.	80,38
	I prefer to learn theory rather than practice.	69,68
	I prefer to learn practice rather than theory.	78,22
Teacher Condition	I can learn independently with existing technology.	77,45
	Teachers have used technology as a learning medium in accordance with developments.	81,66
	Teachers manage the classroom during learning well so that it is more conducive.	80,38

Aspects	Statement	%
Learning Media	Learning presents more limited or little material in learning media.	72,61
	I focus more on learning if the teacher uses learning media in the form of textbooks with a lecture method.	70,06
	I am more focused on learning and not bored when teachers add a variety of learning media by utilizing technology.	83,95
<i>Ecoprint</i>	I have been taught <i>ecoprint</i> learning at school.	78,34
	I learned about <i>ecoprints</i> in certain subjects.	72,61
	I learned to make <i>ecoprints</i> as a practical activity.	75,41
	I love learning practice with <i>ecoprint materials</i> .	73,63
Facilities and Infrastructure	There are very supportive classrooms in schools for the use of digital learning media.	79,87
	Good internet access to support the learning process.	81,40

Based on the results in Table 4., in general, there is an average percentage with a high category. However, there are two aspects that have an average percentage below 75%, namely 1) in the aspect of learning media and 2) in the aspect of *ecoprint* material. From these two aspects, it is used as evaluation material in learning, that the use of varied learning media is indeed needed to increase students' focus and interest in the material to be delivered. In addition, *ecoprint materials* must also be more varied, such as using new media and techniques.

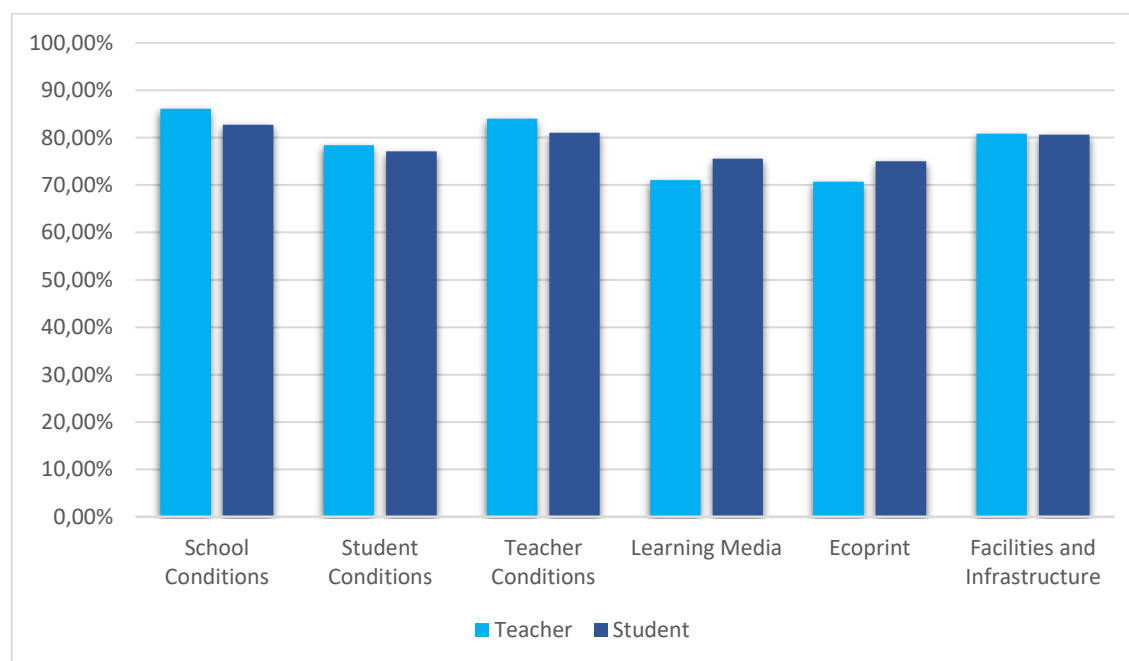


Figure 4. Results of teacher and student questionnaires on each aspect

This is in line with the findings (Ginting et al., 2023; Huda, 2024) that teachers need support and training to make learning more active and varied for students, as well as the material that will be presented so that students' enthusiasm will be higher. Although the students' enthusiasm for practical learning is high, it turns out that there are also obstacles in the delivery of the material, so it is necessary to develop learning media that can make students more active in the teaching and learning process. The comparison of the graph results of the questionnaire in the application of learning media by teachers and students is shown in Figure 4.

Based on several aspects in Figure 4, this has a greater impact on students regarding the suitability of learning media (75.54%) and the material delivered (75%). Meanwhile, the other four aspects, teachers have a higher percentage, namely related to school conditions (86.08%); student condition (78.43%), teacher condition (84.04%); and facilities and infrastructure (80.86%). This proves that teachers have a greater impact on learning development, and are better prepared to

learn the material to be delivered. These findings show that teachers are proven to understand learning before teaching it to students (Aljuzayri et.al., 2017; Aga, 2023). Therefore, teachers need to provide more creative and innovative learning to students. As for descriptively, the results of suggestions and comments from teachers and students can be explained in Figure 5.

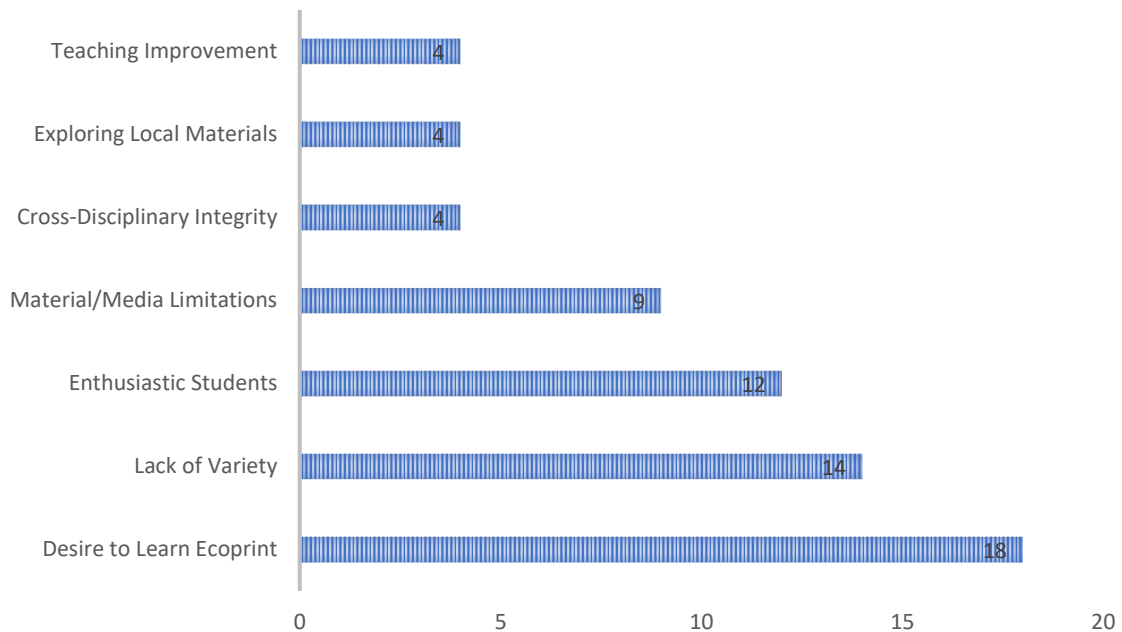


Figure 5. Descriptive analysis of the suggestions of teachers and students

Based on a descriptive analysis of suggestions and comments related to *ecoprint learning*, it shows that there are teachers' opinions to improve the teaching of *ecoprint* that is more interesting and easy for students to understand, such as the following suggestion: "Try to make the delivery of the material more exciting, and provide examples related to the material described." This reflects an enthusiasm to improve the quality of teaching to make it more interactive and relevant. Exploration of materials and media, can show enthusiasm in student learning to experiment with natural materials that are easily accessible and affordable media. In addition, it is also recommended to integrate *ecoprint learning* into other subjects such as biology, social studies, or entrepreneurship.

Although there are criticisms and suggestions for *ecoprint* materials, this learning still provides a positive view as one of the significant themes. The positive responses included compliments such as "good", "creative", "cool", and "very good", which indicated that some teachers and students enjoyed the *ecoprint* learning process. Some respondents also highlighted that *ecoprint* is suitable for teaching students because of its affordable cost, easy materials to obtain, and able to develop their creativity. In addition, the high enthusiasm of students shows that *ecoprint* has appeal as a creative, environmentally friendly, and fun activity. *Ecoprint* as a cultural innovation, used to enrich the expression of the archipelago's textile arts and support the eco-friendly movement (Masruchiyah et al., 2024). As stated by (Wulandari et.al., 2024) Cultural preservation through education must involve internalizing values directly in students' lives. However, in order for learning to have an optimal impact, it is necessary to strengthen teacher capacity, provide teaching materials and media that support *ecoprint* practice activities.

Thus, this research makes a significant contribution by offering learning that integrates cognitive, psychomotor, and ecological awareness aspects. Pedagogically, the use of varied learning media has proven to be effective in increasing student activity, focus, and understanding. In addition, by presenting *ecoprint materials*, it can foster students' creativity through innovations in the use of waste into products with economic value. Furthermore, the success of the integration of this material in the response of teachers and students opens up great opportunities for the implementation of cross-disciplinary learning such as integration with science for environmental studies and social studies for entrepreneurship development and problem issues in the school or

community environment, thereby supporting the creation of an innovative, relevant, and sustainable educational ecosystem.

LIMITATION

The limitations of this study were found in the characteristics of respondents who only came from the junior high school and high school levels. The selection of this level was made because of the characteristics of technology-based *ecoprint* materials that require digital skills and a more complex understanding of environmental concepts. However, this causes the results of the study to not be generalized to basic or higher education levels that have different learning styles and media needs. For this reason, it is suggested that further research can involve respondents in environments outside of school, including at the elementary school and university levels to see the consistency and effectiveness of the application of learning media.

CONCLUSION

The use of more varied learning media with *the theme of ecoprint* has a positive impact on teachers and students, with a medium to high percentage. Teachers and students have carried out learning planning, learning implementation, learning assessment, suitability of materials, facilities and infrastructure, as well as a supportive environment with a fairly good and high category. Some of the aspects suggested by teachers and students include teaching and learning activities with interactive learning media and more varied materials, so that students can be more focused, interested, and can improve their understanding of the material presented.

Therefore, based on relevant research and also various opinions and suggestions from respondents, there are findings or new things by developing Adobe Animate-based *ecoprint learning media*. Where at first learning media still had minimal use of technology. However, there are also those who have taken advantage of technology in the form of modules and interactive animations, as well as content in the form of *ecoprint materials* with fabric media. In this case, the application of learning media has succeeded in filling the gap in the limitations of technology in conventional art learning by presenting visual content, video tutorials, and interactive simulations that make material on environmental issues, such as the use of cement paper waste, more concrete. Thus, the application of learning media not only improves students' cognitive understanding, but also fosters ecological awareness through the practice of making relevant functional products.

So that suggestions for future research can be focused on learning strategies to strengthen teachers' capacity in increasing the availability of teaching materials, as well as increasing collaboration between schools and the community to optimize the learning impact of *ecoprint* materials in practice.

AUTHORS CONTRIBUTIONS

PDP conceived and designed the study, developed the research instruments, conducted data collection, and drafted the manuscript. IKS supervised the research process, contributed to data analysis and interpretation, and reviewed and refined the manuscript.

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