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Application of STEAM-Based PjBL Model with Ecoprint Technique to Increase Student Creativity in Fine Arts Subjects in Grade V of SD Negeri Tondo

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ABSTRACT: This study aims to enhance students' creativity in Visual Arts learning through the implementation of the Project Based Learning (PjBL) model integrated with the STEAM approach using the ecoprint technique. This research is a Classroom Action Research (CAR) based on the model developed by Kemmis and McTaggart, involving fifth-grade students at SD Negeri Tondo in the 2024/2025 academic year. Data collection techniques involved observation sheets of teacher activity, student activity, and student creativity. The results showed an increase in student creativity from 65.34% to 76.92%, teacher activity from 61.81% to 90.78%, and student activity from 61.53% to 80.76%. This approach fosters active, creative, and interdisciplinary learning.

KEYWORDS: Art Education, Project Based Learning, STEAM, Ecoprint, Creativity

INTRODUCTION

Learning with the PjBL model also provides opportunities for students to develop critical, creative, and collaborative thinking skills, which are crucial in facing real-world challenges. This project-based learning process not only prioritizes theoretical understanding, but also encourages students to apply their knowledge in real, contextual situations. (Mutiara Rosalina & Herry Sanoto, 2023). STEAM (Science, Technology, Engineering, Arts, and Mathematics) Learning is learning that teaches children to solve problems, so that children can develop critical and analytical thinking skills based on the knowledge they have. Good learning activities can be shown when children are directly involved in the learning process and are able to try to develop concepts that are already known (Ayuningsi et al., 2023). This ecoprint craft training provides great benefits for both parties. For students, it is an extraordinary experience that not only gives them the opportunity to be creative while getting to know plants, but also can understand why humans must appreciate the nature around them, the importance of making environmentally friendly handicraft products to the community, especially to elementary school students, students gain a lot of new knowledge and skills (Widiastuti et al., 2023).

Creativity is an important learning to create an atmosphere that encourages students to think creatively, where they are given the opportunity to develop new ideas and explore different possibilities. Through challenging and relevant assignments, students can be encouraged to produce authentic and modified works that will in turn hone their creative skills. (A'rop & Hadi, 202). Fine arts education has a role in the personal or mental attitude of students who are creative and innovative. Because fine arts education focuses on the needs of children's development in achieving multi-intelligences consisting of interpersonal intelligence, spatial visual, linguistics, mathematical logic, naturalist and adversity intelligence, creativity intelligence, spiritual and moral intelligence, and emotional intelligence. (Dayanti et al., 2013). When conducting observations in grade V of SD Negeri Tondo, the researcher found that in learning fine arts, teachers only gave drawing tasks to students without providing an indepth explanation of the art material to be taught. As a result, students struggle to develop their creativity. Based on the description above, the focus of this research is related to the learning model to increase student creativity, so the researcher took the title Application of the STEAM-Based PjBL Model with Ecoprint Techniques to Increase Student Creativity in Class V Fine Arts Subjects at Tondo State Elementary School.

Project-Based Learning Model Steps (Nafisah & Muaddab, 2023)

Syntax: Project determination The presentation of topics in theory by educators is then followed by activities of asking questions by students about how to solve problems. In addition to asking questions, students also have to find appropriate steps in solving the problem.

Syntax: Planning of project completion steps, teachers group students in accordance with the project making procedures In applying effective communication public relations shows incompleteness in the cognitive domain, then students solve problems through discussion activities and even go directly into the field.

Syntax: Preparation of the Project Implementation Schedule performs the steps and schedule between student teachers in completing the project. After completing the time limit, students can prepare steps and schedules in realization.

Syntax: Project completion with facilities and monitoring teachers monitoring carried out by teachers regarding student activity when completing projects and realization carried out in solving problems. Students realize according to the project schedule that has been set.

Syntax: Preparation of reports and presentations/publications of the results of the project The teacher discusses in monitoring the realization carried out on students The discussion carried out is used as a report as material for exposure to others.

Syntax: Evaluation of the project and the results of the project, the teacher briefs the process of presenting the project, then reflects and summarizes what has been obtained through the observation sheet from the teacher.

LITERATURE REVIEW

The Project-Based Learning model, this learning model is very complex, consisting of providing stimuli and questions, developing project plans and scheduling, monitoring, assessing, publishing products, and conducting evaluations. This activity can motivate students in completing important tasks because problem-solving activities and making works can change the way students learn from one-way learning to cooperative learning, students will think of ideas to solve the given problems and pour them into a work (Ika et al., 2024). STEAM (Science, Technology, Engineering, Arts, and Mathematics) learning is an integrated learning approach from various disciplines, namely science, technology, engineering, art, and mathematics. The purpose of STEAM learning is to develop and activate children's potential and creativity STEAM learning provides opportunities for students to carry out the design learning process directly and produce products with creativity and problem-solving skills well Students' creativity needs to be grown from an early age as well as possible (Fitriyah & Ramadani, 2021).

This ecoprint technique brings several advantages, the first of which is that ecoprint is indeed related to the art of utilizing nature and is also friendly to the environment. Second, unique and interesting motifs. This is as explained above that the ecoprint technique produces unexpected motifs and colors, it is also influenced by the type of fabric and how to obtain the motif and color of the fabric, the use of this technique will not be able to make one fabric to another have the same motif and color Eco print can be applied to various types of fabrics such as cotton, silk, viscose, chiffone, linen, shantung, and felt (Aryani et., al 2022). Creativity is a skill that must be possessed by students and developed in a learning, creative thinking is thinking to do something by producing a way or result from something that has been owned, Indicators of creative thinking are creating learning situations that foster creative thinking and acting as well as the assignment of tasks that challenge the emergence of new works that are authentic or modified (Widiyaningsi et al., 2023). Fine art is an art form that focuses on creating visual works that can be enjoyed with the sense of sight. This art involves the use of a variety of media and techniques to produce works that not only have aesthetic value, but also convey a specific message or expression. In fine art, a person can express themselves through drawings, paintings, sculptures, graphic design, and installation art. Fine art can also reflect the culture, feelings, and thoughts of its creator, and often serves as a means of communication that touches various aspects of life. As a discipline, fine art not only prioritizes visual beauty, but also fosters creativity and deep technical skills (Dayanti, et. al 2021).

RESEARCH METHODS

The method used in this study is Classroom Action Research (PTK) The term classroom action research (PTK) or Classroom action research is actually not very well known abroad, this term is known in Indonesia for an action research whose application is in teaching and learning activities in the classroom with the intention of improving the teaching and learning process, with the aim of improving or improving learning practices to be more effective (Aji et al., 2023). Stephen Kemmis and Robyn McTaggart's model, this model is often cited in books and articles and consists of four stages of planning, observational and reflection planning in the form of all things to be carried out in the

Action stage. This stage of action is carried out at the same time as the observation of the teacher taking action as well as observing what is happening After the action and observation are carried out, research data is obtained. These data are analyzed to find out

whether the goals and results of the research have been achieved "perfectly" or not. This data analysis is called reflection. If the research objectives have not been fully achieved, and to validate the research results, the researcher carries out a second cycle or round starting from planning to reflection again This cycle or round is carried out until the researcher assesses that the problem being studied has been completed and there has been an improvement in the learning process or objectives (Prihantoro & Hidayat, 2019) This research was conducted at SD Negeri Tondo which is located on Jalan RE Martadinata, East Palu District, Palu City, Central Sulawesi. This research will be carried out in the even semester of the 2025/2026 academic year. The timing of the research refers to the school's academic calendar, because PTK requires several cycles that require an effective learning process. The subjects in the study were class V teachers and class V students totaling 25 people with details of 17 male students and 8 female students. In this study, it was carried out to increase students' creativity through the use of a STEAM-based Project-Based Learning model with Ecoprint Techniques in Fine Arts Subjects in Grade V of SD Negeri Tondo The implementation of the research was carried out in several cycles. The data collection techniques used in this study are using observation, interviews, and documentation. The data analysis technique used in this study is a qualitative data analysis technique. Qualitative data analysis was carried out to analyze the results of observation of student creativity as well as teacher and student activities for each cycle.

Rating	Value
Very Good (A)	90 < A ≤ 100
Good (B)	75 < B ≤ 90
Sufficient (C)	60 < C ≤ 75
Less (K)	≤ 60

The value is converted into a qualitative value in the bounded table

$$\text{Value} = \frac{\text{jumlah score obtained}}{\text{Maximal score amount}} \times 100\%$$

RESULT

1.Results of Observation of Teacher Activities in Cycle I

Observation of teacher activities was carried out by the homeroom teacher of class V, namely Mrs. Dwi Wijayanti S.Pd, .Gr., M.Pd using the observations that have been provided. Observation of teacher activities starting from the beginning of learning to the end of learning of the first cycle of meetings.

Observation Table of Teacher Activities Cycle I

No	Aspek Perolehan	Nilai
1	Total Students	26
2	Total assessment scores of all aspects	47
3	Maximum total score of all aspects	19
4	Percentage score	61,81%
5	Category	Enough

Based on the table of the results of observation of teacher activities in cycle 1, actions in teacher activities in cycle I were obtained with a percentage score of 61.81% or in the category Quite a few aspects are of sufficient value and there are several aspects that need to be improved again as for some aspects that need to be improved in cycle 1, namely when conditioning the physical student teacher gets 1 point because there are some students who tell stories with their classmates so they are not fully ready to learn.

2. Results of Student Activity

Observation On the student activity observation sheet, the main target is to involve student activities during the learning process at the time the observation process is carried out by the investigator's friend, namely Putri Regina Sadu, the data from student observation can be seen in the following table: Observation Table of Student Activities Cycle 1

No	Aspek Perolehan	Nilai

1	Total Students	26
2	Total assessment scores of all aspects	16
3	Maximum total score of all aspects	19
4	Percentage score	61,53%
5	Category	Enough

Based on the table of Observation of Shiva activities above, it can be concluded that based on the data in Table 4.2 regarding the results of student activity observation, it can be seen that the implementation of activities between teachers and students in the first cycle of the first meeting obtained a score percentage of 69.56%, which is classified as sufficient. This achievement is influenced by several obstacles, including: In the aspect of perception, the average student only gets a score of 2 because there are still many who lack confidence to answer questions from teachers. In the aspect of the ability to answer questions related to the project, the average score was also 2, due to the confusion of students in understanding the questions given.

3. Results of Student Creativity Observation In the student creativity observation sheet, the main goal is to involve student activities during the learning process. At the time of the observation process, the research partner was Putri Regina Sadu. The data from the observation of student activities can be seen in the following table:

Table Observation of Student Creativity Cycle 1

No	Aspek Perolehan	Nilai
1	Total Students	26
2	Total assessment scores of all aspects	17
3	Maximum total score of all aspects	12
4	Percentage score	65,34%
5	Category	Enough

Based on the results of observations on student creativity in the Table, it can be concluded that the activities of teachers and students in Cycle I at the first meeting showed a score percentage of **65.38%,** which is included in the "Less" category. These results show that there are still several obstacles that affect the development of students' creativity.

1. Results of Observation of Teacher Activities in Cycle II

Observation of teachers' activities is carried out by homeroom teachers in grade V using observation sheets that have been prepared beforehand. This observation process took place from the beginning to the end of the learning at the second cycle meeting. The purpose of this observation is to assess the extent to which teachers' activities are in accordance with the application of the Project Based Learning (PjBL) learning model that integrates STEAM-based, as well as to see an improvement in the implementation of learning.

Observation Table of Teacher Activities Cycle II

No	Aspek Perolehan	Nilai
1	Total Students	26
2	Total assessment scores of all aspects	69
3	Maximum total score of all aspects	19
4	Percentage score	90,78%
5	Category	Good

Based on the table of the results of observation of teacher activities in cycle 2, several aspects that were observed were of good value and there were still several aspects that needed to be improved again when giving essential questions, teachers still got point 2, then the teacher's village when distributing reading materials, students got 3 points, teachers' competence when

concluding learning results got point 3, teachers' ability to supervise still got point 3. The success of actions in the 2nd cycle teacher activity obtained a score of 90.78% which was in the Good category and increased from cycle 1

2. Results of Observation of Student Activities in Cycle II

The student activity observation sheet is focused on recording student involvement during the learning process. Observations of student activities were carried out by a fellow investigator, namely Putri Regina Sadu, The results of the observations can be seen in the table below:

Observation Table of Student Activities Cycle II

No	Aspek Perolehan	Nilai
1	Total Students	26
2	Total assessment scores of all aspects	21
3	Maximum total score of all aspects	19
4	Percentage score	80,76%
5	Category	Good

Based on the table, namely the observation sheet of student activities, it can be concluded that the activities of teachers and students in the 12th cycle at the first meeting obtained a score of 80.76% which is in the good category, in this case there are several factors that become obstacles, including that in the student's answer to the questions that the teacher gives an average of 3 points, then in the aspect of students listening, the teacher explains the material, the average student gets 2 points, then in the aspect of students listening to directions The average teacher, students get 3 points, then in the aspect of presenting projects, the average student gets 3 points, then in the aspect of concluding the average learning, students get point 3, there are many who are able to conclude the material well but have to learn more.

3. Results of Observation of Creativity of Cycle II Students

In the student creativity observation sheet, the main goal is to involve student activities during the learning process. At the time of the observation process, the investigator's friend was Putri Regina Sadu. Data from observation of student activities It can be seen in the following table:

Observation Table of Student Creativity Cycle II

No	Aspek Perolehan	Nilai
1	Total Studenst	26
2	Total assessment scores of all aspects	20
3	Maximum total score of all aspects	12
4	Perencentage score	76,92%
5	Catagory	Good

Based on the observation table of student creativity above, it can be concluded that the activities of teachers and students in the first cycle at the first meeting obtained a percentage score of 76.92% or were in the good category. However, there are still some obstacles that need to be improved, namely in the aspect of being able to determine some ideas on average students get 3 points, then on the aspect of being able to create several variations of ornamental patterns on average students get 3 points, then on the aspect of being able to come up with ideas on average students get 2 points, then on the aspect of occasionally berating and looking for information on average students get 3 points because there are still some students who are still embarrassed to Asked next on the aspect of diligent work when working on projects, the average student gets 3 points because students are still not too cooperative in working on projects. In cycle I, it can be seen that in the pre-action of observation of student creativity carried out by the researcher, it was seen that students did not have creativity in learning art because students were not able to explore their creativity if they only read books, so that in measurement, of course, they had not reached the criteria for school completion. After the observation of student creativity in the first cycle through learning with the STEAM-based PjBL model, a percentage score of 65.34% was obtained, which means that it met the completeness criteria. When the second

cycle was redone to ensure the level of creativity of the students obtained a percentage score of 76.96% which increased from cycle I to cycle II.

RESULTS AND DISCUSSION

1. Student Creativity

Students' creativity in learning fine arts increased in cycle II. Previously, during pre-action, students were less able to explore creativity because they only focused on reading books. In the first cycle, the student completion rate reached 65.34% (17 out of 26 students), then increased to 76.94% (20 out of 26 students) in the second cycle. This increase occurred because teachers have applied the STEAM-based PjBL model with ecoprint techniques during the learning process. The increase in student creativity was seen in each meeting in the two cycles. In cycle I, the application of the STEAM-based PjBL model with ecoprint techniques was quite good, as shown by the increase in pre-action. However, teachers still lack guidance for students in asking, responding, and cooperating in projects, so some students are passive. In addition, during the playback of the learning video, the classroom conditions are less conducive because there are students chatting, disrupting the focus of other friends. Even so, the use of videos is still effective in increasing the spirit of learning. During the activity of making eciprints, some groups were initially confused even though they had been given references, but in the end they were able to
produce works according to their respective creativity. The results of the discussion The researcher found that in the project work, the project trial as well as the evaluation of the project results and the giving of prizes for the best group. Team-based learning helps students understand the material and practice cooperation, especially for those who are less active in asking questions or interacting. Students are invited to help each other, and are trained to dare to present and convey their work in public. This shows that the application of the STEAM-based PjBL model is effective in increasing student creativity in learning fine arts in grade V of SD Negeri Tondo.

2. Teacher activities

Observation of teachers' activities during the learning process in cycle I was carried out by the homeroom teacher of grade IV. Based on the results of observations over two cycles, there was an increase in the implementation of learning. This increase is reflected in the teacher's activity score in the first cycle which reached 61.81%, with the less category, then after learning in cycle 2 the teacher's activity score increased to 90.78 indicating that the quality of learning activities is improving. The data shows that teachers' activities in the learning process using a project-based learning model using the STEAM approach with ecoprint techniques have increased very well. Teachers have improved the aspects that are lacking in the first cycle where in this second cycle the teacher gives more motivation to students, the teacher often gives praise to the success obtained by the students. In the second cycle, teachers have also been able to master the classroom and have been able to guide and direct project work to be carried out in groups, not just by a few people. In the first cycle, the teacher has not been able to provoke students to build initial knowledge, in the second cycle, the teacher is able to build the initial knowledge of students, besides that, the teacher is also able to guide students to ask and answer questions given by the teacher, in this case, the teacher often gives questions to students so that they can get used to asking and answering.

Teachers motivate students more, teachers often give praise to the success obtained by students. In the second cycle, teachers have also been able to master the classroom and have been able to guide and direct project work to be carried out in groups, not just by a few people. In the first cycle, the teacher has not been able to provoke students to build initial knowledge, in the second cycle, the teacher is able to build the initial knowledge of students, besides that, the teacher is also able to guide students to ask and answer questions given by the teacher, in this case, the teacher often gives questions to students so that they can get used to asking and answering.

3. Student Activities

Observation of student activities during the learning process in cycle I and cycle II was carried out by fellow students. The results of the observation showed that student activities in the first cycle had not reached the expected level of completeness, with a score of 61.53% which was included in the poor category. Some aspects that need to be improved in the first cycle include the courage of students to answer the teacher's questions during perception, student participation in presenting the results of group work, the ability of some students to conclude the material, even though some are quite good. Then when the Cycle II Learning was carried out, student activity increased to 80.76% which was in the good category.

Student activities in the application of the PjBL-based learning model with the STEAM approach when carrying out learning at the beginning, core, and closing activities have been carried out according to the stages of the PjBL-based learning model that the teacher implements. In the first cycle, students have not dared to ask questions because they have not been able to build their

initial knowledge, but in the second cycle they have improved, they have begun to be able to ask questions about the learning materials and projects used. When their group learning is directed to collaborate with their group friends, this stage is very good to apply because students who do not understand the material can ask questions with their group friends and discuss in completing the LKPD given by the teacher so that it can be concluded that student activities through the application of the project-based learning model have improved very well.

CONCLUSION

Based on the results of the research that the researcher carried out on increasing student creativity by using the STEAMbased PjBL model (*Science, Technology, Engineering, Art and Mathematic*) with *ecoprint* techniques in grade V of SD Negeri Tondo, it can be concluded that by using *the STEAM-based* Project based learning model with *ecoprint* techniquescan increase students' creativity in fine art subjects. This statement can be seen from the observation results show an increase in creativity and activity in learning. The completeness of student creativity increased from 65.34% in the first cycle to 76.94% in the second cycle. Teacher activity increased from 61.81% to 90.78%, and student activity increased from 61.53% to 80.76%. This increase occurred due to the application of the STEAM-based PjBL learning model with *ecoprint* techniques that encourage students to be active through project creation. The approach is a combination of several sciences, namely science, technology, engineering, art and mathematics so as to produce more active, creative, innovative and fun learning. The products produced are a variety of decorations using a simple *ecoprint* technique and then used as decorations to decorate tissue holders, pencil holders, photo frames made of used items, namely cardboard.

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