

Implementing the Project-based Learning Model Through Two-dimensional Art-making To Improve Elementary School Students' Critical Thinking Skills

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Abstract

This study was motivated by the low level of elementary school students' critical thinking skills, particularly in expressing criticism and opinions. A Project-Based Learning (PjBL) model was needed to actively involve students in critical thinking activities. The purpose of this study was to describe the implementation of PjBL through the creation of two-dimensional artworks as a learning activity that helps students achieve the indicators of critical thinking. This study employed an Action Research (AR) approach conducted in two cycles, each consisting of planning, implementation, observation, and reflection. The participants were 25 fifth-grade elementary school students. Data were collected through observation, interviews, and documentation, while the data were analyzed using descriptive quantitative techniques with percentage-based achievement indicators. The findings show that the use of PjBL improved students' critical thinking skills. In Cycle I, learning was carried out through the creation of two-dimensional artworks that presented environmental issues and were followed by group presentations. In Cycle II, the activity was strengthened through two-dimensional art-making and a mini-exhibition. The observation results showed an increase in students' critical thinking performance from 71% in Cycle I to 90% in Cycle II. All four indicators showed meaningful improvement, although one indicator still required further strengthening. These findings indicate that PjBL is effective in improving students' critical thinking skills.

Keywords: visual arts, PjBL, critical thinking, two-dimensional art

Abstrak

Penelitian ini dimotivasi oleh rendahnya kemampuan berpikir kritis siswa sekolah dasar dalam mengemukakan kritik. Dibutuhkan model pembelajaran PJBL yang melibatkan siswa dalam berpikir kritis. Tujuan penelitian ini adalah mendeskripsikan praktik PJBL dengan membuat karya 2 dimensi yang membantu siswa memenuhi indikator berpikir kritis. Penelitian menggunakan pendekatan Action Research (AR) yang dilakukan dalam dua siklus, masing-masing siklus terdiri dari tahapan perencanaan, pelaksanaan, observasi, dan refleksi. Subjek penelitian terdiri dari 25 siswa kelas 5 SD. Teknik pengumpulan data meliputi observasi, wawancara, dan dokumentasi, sedangkan analisis data dilakukan menggunakan metode deskriptif kuantitatif dengan indikator pencapaian berupa persentase. Hasil penelitian menunjukkan bahwa penggunaan model pembelajaran berbasis proyek (PJBL) dapat meningkatkan kemampuan berpikir kritis siswa. Pada Siklus I, pembelajaran dilakukan melalui pembuatan karya 2 dimensi yang menampilkan isu lingkungan dan presentasikannya. Siklus II melibatkan pembuatan karya seni 2 dimensi dan pameran mini. Hasil observasi menunjukkan peningkatan keberanian mengkritik siswa dari 71% pada Siklus I menjadi 90% pada Siklus II. Dari keempat indikator menunjukkan peningkatan yang signifikan, meskipun satu indikator masih belum optimal. Dengan demikian, model pembelajaran Berbasis Proyek Efektif (PJBL) meningkatkan kemampuan berpikir kritis pada siswa.

Kata Kunci: seni rupa, PJBL, berfikir kritis, 2 dimensi

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Introduction

Elementary education plays a crucial role in shaping students' character, personality, and critical thinking skills. Therefore, the learning process should not only focus on cognitive aspects but also develop psychomotor aspects (Azima, 2021; Jodhipati et al., 2024). One key quality that needs to be instilled is critical thinking, as it forms the basis for students to communicate, express opinions, criticize, and actively participate in the learning process (Ketut Cindy Pratini et al., 2024). At the age of 10-11 years, elementary school students are in the concrete operational stage according to Jean Piaget, where they begin to think logically about concrete objects, including understanding social interactions in the learning environment (Marinda, 2020). However, the reality on the ground shows that many students still lack confidence, as evidenced by doubt, fear of making mistakes, and reluctance to speak in class (Anwairi, 2021). Students' critical thinking skills can be influenced by various factors, including internal factors such as self-concept and self-esteem, as well as external factors such as the environment, learning experiences, and teaching methods used (Inayah & Sya, 2022; Pangestu et al., 2020). Learning processes that do not actively involve students are often one of the causes of low critical thinking skills. (Riyadi, 2019).

This can be seen from the results of a preliminary study conducted in one of the schools in Yogyakarta in October 2025 in grade 5; the results of observations showed that 45% of 25 students still lack critical thinking skills when speaking, expressing opinions, and conveying messages, indicated by hesitant behavior, speaking slowly, looking down, and tending to be passive during discussions. Meanwhile, other classes that use more diverse learning models show a higher level of critical thinking skills. Several previous studies have shown that the Project-Based Learning (PjBL) model can increase student engagement and critical thinking skills through project activities and presentations (Hariani et al., 2024; Winarni, 2024). The incorporation of practical activities into the learning process can improve students' critical thinking skills in expressing themselves (Istianah, 2024). The concept of implementing learning can be seen based on student needs, so that multicultural conditions will be met according to the child's talents (Suryandika et al., 2025).

Fine art is a form of human expression that is not only oriented towards visual beauty, but also functions as a medium for conveying ideas, feelings, criticism, and social messages. Through fine art, students can learn to recognize the reality around them, process experiences into ideas, and express views through elements of line, color, shape, image, and composition. Learning fine art, with a two-dimensional theme, has an important position because two dimensions not only display attractive images, but also contain messages, invitations, opinions, and even criticism of an issue (Fernandez, 2021; Radeva, 2023). The process of creating two-dimensional works requires students to determine the issue, choose the main message, compose appropriate sentences, connect text with images, and be responsible for the visual meaning conveyed (Mansoa, 2022). This activity can train students' courage in expressing opinions and build critical thinking skills since elementary school.

Fine art cannot be understood as a silent and non-communicative work, but rather as a visual language capable of conveying messages meaningfully (MacDonald, 2023; Taswadi, 2025). Fine art learning in elementary schools needs to be positioned as a space for the formation of thinking, communicating, expressing, and behaving abilities, so that students not only produce visual works, but are also able to convey ideas and views creatively,

critically, and responsibly (Kurnia, 2025).

This study focuses on the implementation of the Project-Based Learning (PjBL) model through various fine arts subject-based projects with the topic of two-dimensional creation. Two-dimensional art is a medium that can be used to convey criticism, messages, or ideas that encourage personal growth (Rukoyah et al., 2025). Students at school are encouraged to create two dimensions that display criticism of environmental conditions and create artwork, which is presented through mini exhibitions. The role of fine arts subjects is important in developing students' creativity, personal expression, and critical thinking skills. One approach that is considered effective in increasing student engagement is Project-Based Learning (PjBL) (Wiyono et al., 2024). Teachers emphasize the learning process through direct experience, Collaboration, and producing meaningful work, so that students not only understand the theory, but also apply it in their own character. Two dimensions were chosen as a medium because of their potential as a powerful means of visual communication, allowing students to convey criticism. Messages or ideas that can encourage personal and social awareness. Two-dimensional creation encourages students to combine aesthetic, symbolic, and narrative elements, thus demanding creative and reflective thinking (Warner, 2025).

The reason is that students are encouraged to create two-dimensional works that display criticism of environmental conditions, social issues, or relevant phenomena that they see as increasingly deteriorating living conditions. This process not only trains technical skills in artistic performance, but also develops analytical, communication, and decision-making skills. Supporting aspects such as eyes, subjects, artistic performance, two-dimensional works, and themes play a role in determining colors, shapes, ornaments, and writing that provide opportunities for students to express ideas to the public, so that the learning process becomes critical (Marni & Mayar, 2023).

The research objective the use of the PjBL model in fine arts learning through two-dimensional projects and how this method can facilitate the development of creativity and critical thinking awareness among students. Previous literature shows that the integration of PjBL in fine arts is still rarely studied empirically, especially in the context of implementing two-dimensional projects that have critical meanings for social and personal characters. The novelty of this research lies in the use of gradual variations of projects in the process of learning fine arts in the classroom to improve students' critical thinking skills. Thus, students' critical thinking skills through two-dimensional projects can produce descriptions of characters represented by artworks as part of the learning process that encourages student involvement and courage.

METHODS

This study uses an Action Research (AR) approach with the spiral model of Stephen Kemmis and Robin McTaggart (Kemmis et al., 2014). This approach was chosen because it is suitable for improving the learning process directly through actions that are systematically designed, implemented, observed, and evaluated. Action research takes place in a repetitive cycle that includes the stages of *planning*, *implementation*, *observation*, and *reflection*, so that each reflection result can be used to improve the actions of the cycle (Kemmis et al., 2015; McTaggart et al., 2017). Instrument main study in the form of sheet observation ability

students and sheets observation implementation Project-Based Learning learning. Guidelines interview used to get information supporters from the class teacher about condition beginning students, learning obstacles, and changes in students' behavior during the implementation of the action. Observation sheet ability student consists of of the 20 items of statements compiled based on four indicators. Indicator belief to ability self consists of top 5 items, independence in take decision consists of the top 5 items, positive self-image consists of the top 4 items, and courage convey opinions consists of over 6 items. Each item describes behavior that can be observed during activity discussion, planning projects, two dimensional creation, presentations, and mini exhibitions.

Evaluation uses a scale; the explanation is for score of 4 is given if behavior appears consistently without the teacher's instructions, score 3 if behavior often appear with A little direction, a score of 2 if behavior sometimes appears and still needs direction, and score 1 if behavior Not yet or rarely seen during the learning process. The observer provides a score based on current behavior for each student at each meeting. Observation results Then checked return through notes field, results of interviews, documentation of the learning process, and two-dimensional works of students.

Before being used, the observation was validated through evaluation by an expert or expert judgment by 2 validators who have competence in field education art. Validation covers conformity of items with indicators, editorial clarity, observance behavior, conformity of scale assessment, and relevance of the instrument with objective research. Items that are obtained from input from validator fixed before being used in the pre-cycle, Cycle I, and Cycle II. Consistency evaluation between observer inter-rater reliability was checked.

A reflective, critical, and systematic study of learning practices makes it an appropriate approach to addressing real-world classroom problems (I. Firdaus et al., 2023). The research process is described in two main cycles, each consisting of four stages: planning, action, observation, and reflection (M. Firdaus, 2024). Procedure observation is done on all students at the pre-cycle stage, Cycle I, and Cycle II. Assessment is implemented by researchers with the class teacher during learning activities taking place. The observer observes the behavior of every student with reference to the available descriptors in the observation. Assessment is carried out in activities that identify problems, convey ideas, determine themes and messages, two-dimensional work, making decisions in groups, completing assignments, presenting work, as well as giving responses to work by other groups.

Observation data is strengthened with triangulation results from interviews, field notes, and documentation of learning. Observation data is analyzed in a way descriptive quantitative methods, with change scores obtained become percentage. Percentage for every indicator counted use formula:

$$P = \left(\frac{\Sigma X}{\Sigma X_{maks}} \right) \times 100\% \quad (1)$$

where P represents the percentage of achievement, ΣX represents the total actual score obtained by all students, and ΣX_{maks} represents the total maximum ideal score. The maximum ideal score is calculated by multiplying the number of students, the number of indicator items, and the highest possible score.

Percentage results are classified into five categories, namely very high by 85–100%, high by 70–84%, moderate by 55–69%, low by 40–54%, and very low by 25–39%. Range the

arranged based on an ideal minimum score of 25% and an ideal maximum of 100% on the scale assessment 1–4. Success action set if the average percentage of students' ability reaches at least 75% and the percentage of learning implementation reaches at least 75%. In addition to quantitative data, interview data, documentation, and notes were analyzed descriptively through stage data grouping, data presentation, interpretation, and concluding. Qualitative data were used to explain changes in student behavior and supporting factors or hinder the implementation of action in each cycle.

Results and Discussion

Description of Initial Conditions (Pre-Study)

In the initial phase, researchers conducted observations for two months, from October to December 2025. The observations were conducted to directly observe the visual arts learning process in elementary schools, particularly in fifth grade, with a focus on the activities of homeroom teachers and students. In addition to the observations, the researchers also conducted interviews with homeroom teachers to gain a deeper understanding of the students' conditions.

Observations revealed a lack of initiative and critical thinking among students. Some students appeared passive during lessons, remaining silent when asked questions, hesitating when asked to express their opinions, and lacking the courage to speak up in front of the class. During the observation phase, the researcher used a two-pronged approach to encourage interactive discussions. Some students appeared enthusiastic about voicing their opinions and answers, but this impacted their passive peers, preventing the formation of ideas. Furthermore, the use of direct interactive methods did not significantly impact student learning, but when guided through project activities, students became more confident.

Initial data were collected through two follow-up preliminary studies, including observations and interviews with homeroom teachers on October 14, 2025. The second observation was conducted on December 20, 2025, using observation sheets and visual arts subject engagement with 25 children, paying attention to critical thinking indicators.

Based on interviews, teachers reported that 10 students had low levels of critical thinking. These students tended to avoid answering questions or presenting in front of the class, even though they understood the material. One of the main causes was a fear of making mistakes, not mastering the overall concept of the material, and a lack of conceptual understanding in their work. Furthermore, the playgroup environment also affected students' critical thinking skills.

Teachers have attempted to address this by encouraging students with simple questions and providing an overview of an event, allowing their imaginations to emerge. However, these efforts have not been entirely successful in improving students' critical thinking skills in implementing images. Some desired outcomes include students being able to critique the environment in two-dimensional models, students being able to describe two-dimensional models they have created, and students creating two-dimensional projects with messages and artistic value.

It was concluded that fifth-grade students' critical thinking skills still need to be improved. This includes approaches, models, treatments, and contextual issues that can

foster their perspectives expressed through artwork. A learning model that actively engages students and provides a practical space for expressing opinions is needed. In this study, the researcher implemented the Project-Based Learning (PjBL) model as a solution through a two-dimensional creation project activity in fine arts subjects that encourages students' courage and critical thinking.

Observation Result

During this pre-cycle phase, researchers conducted direct observations of the learning process in Grade 5 using a validated observation sheet. The observation sheet consisted of 20 assessment aspects structured based on indicators of students' critical thinking skills, including critical thinking, independence in decision-making, positive self-attitude, and courage to express opinions. This observation aimed to provide an initial understanding of students' levels of critical thinking skills before implementing the Project-Based Learning (PjBL) model.

Based on observations, data show that the level of critical thinking among fifth-grade students varies and tends to be in the moderate to low category. This is evident in student behavior during the learning process, such as some students remaining hesitant when answering questions and communicating, lacking the courage to express their opinions, and tending to be passive during group discussions. Furthermore, some students appear to prefer following more active peers rather than expressing their own ideas. The complete results of the pre-cycle observations can be seen in the Figure 2.

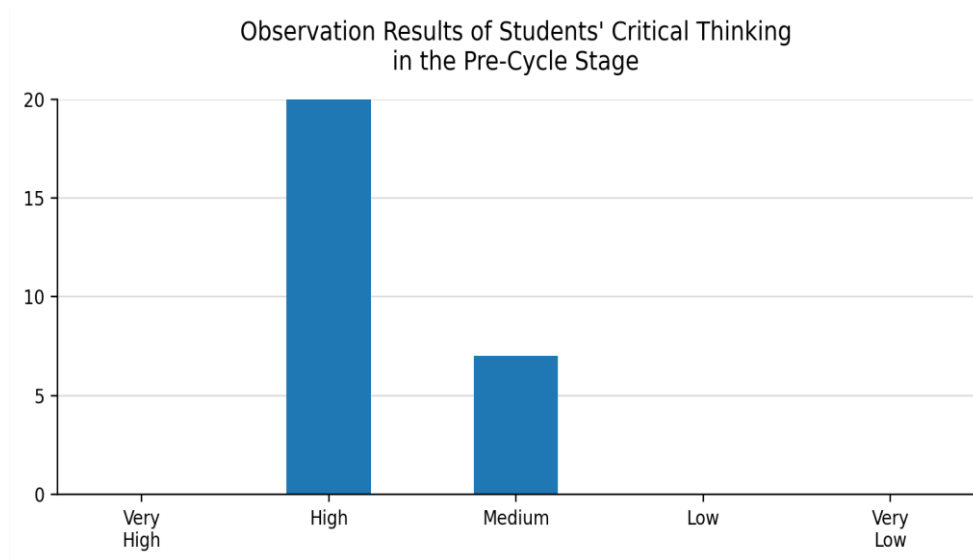


Figure 2. Diagram of pre-cycle observation results

The distribution of students' critical thinking skills in the pre-cycle stage is presented in Figure 2. Figure 2 shows that students' critical thinking skills have not developed optimally, as most students remain in the medium and low categories. This condition is evident in the behavior of students who are still hesitant to answer questions, are less confident in expressing their opinions, and tend to follow more active friends during group discussions.

1. Percentage Results based on Pre-Cycle Indicators

To determine students' baseline levels of critical thinking skills before the intervention, the researchers conducted pre-study observations based on four indicators of critical thinking: belief in one's own abilities, independent decision-making, positive self-image, and courage in expressing opinions. The results of these observations are presented in the following table 1.

Table 1. Percentage based on critical thinking indicators

Critical Thinking Indicators	Score obtained	Percentage
Believe in your own abilities	295	55%
Make decisions independently	284	53%
Have a positive self-image.	246	57%
Not afraid to express opinions	353	54%

Based on the table 1, it was found that the indicators of critical thinking in one's own abilities were 55%, acting independently in decision-making was 53%, having a positive self-image was 57%, and being brave in expressing opinions was 54%.

These results indicate that all indicators of students' critical thinking are still in the low to moderate category, with achievement percentages ranging from 53% to 57%. This condition indicates that students' abilities to believe in their own abilities, make decisions independently, have a positive self-image, and dare to express opinions have not developed optimally. Therefore, efforts are needed to improve the learning process so that students are more active, independent, confident, and able to convey ideas critically. The researcher then tried to experiment with the Project-Based Learning PjBL model in the Fine Arts subject with a two-dimensional theme as a form of intervention to improve students' critical thinking skills in the next cycle.

2. Description of Cycle Implementation in PjBL Learning

In the next stage, the researcher coordinated with the 5th grade homeroom teacher regarding the research schedule, materials, media, tools, and teaching modules used in the intervention. Based on the results of this coordination, the research was conducted over four sessions from the third to the fourth week in January-February 2026. The data collected in this study consisted of qualitative descriptive data obtained through observations of student activities and the implementation of the Project-Based Learning (PjBL) model by the teacher as an instructor.

In this section, the researcher presents the results of the study on the application of the Project-Based Learning (PjBL) model to improve students' critical thinking skills in Fine Arts subjects. The presentation of the research results is arranged according to the stages of the class action, starting from the initial conditions, implementation of the action, observation of student activities, to reflection on the results obtained. This research was conducted in two cycles, to observe the development of students' critical thinking skills after the application of the *PjBL model* in the learning process.

Data Description for Cycle I

Implemented in two sessions by applying for the *Project-Based Learning (PjBL) learning model* in the Fine Arts subject with a two-dimensional theme. At the beginning of the lesson, the teacher presented a visual video containing various environmental and social issues occurring in Yogyakarta. The video was used as a stimulus so that students could observe, recognize, and understand the issues being raised. This became a two-dimensional theme. After watching the video, students are directed to discuss emerging issues, such as environmental cleanliness, waste, urban density, social behavior, and attention to public spaces.

Observation and discussion of activities at the beginning: students form groups to design a two-dimensional project. Each group begins by determining the problem to be raised, collecting two-dimensional ideas, choosing the message they want to convey, and determining the tools and materials needed. In this process, students are seen interacting with their group mates, exchanging ideas, sharing assignments, making initial sketches, choosing colors, determining text, and adjusting visual elements to create a two-dimensional message. can be understood clearly. The teacher acts as a facilitator by providing direction, triggering questions, and providing guidance to groups who have difficulty formulating ideas and composing two-dimensional design.

The implementation of learning in cycle I went quite well. Students began to show involvement in the learning process, especially during discussions, determining themes, creating two-dimensional design, and presenting the results of group work in front of the class. Some students have begun to dare to answer questions, express opinions, and explain the reasons for choosing images. Color and message in two dimensions are created. This project activity also provides opportunities for students to learn, make decisions, collaborate, and connect artwork with real-world problems in the surrounding environment.

The results of cycle I show that students' critical thinking ability has not yet developed optimally. Some students still looked hesitant when conveying opinions, did not believe in themselves when presenting group results, and were not yet able to make decisions independently. In some groups, decision-making is still dominated by certain students, while other members tend to follow without providing their own reasons or ideas. In addition, some students still rely on teacher direction in determining themes, compiling two-dimensional sentences, choosing images, and determining the visual composition.

Other obstacles also arise in the technical learning aspect, which has not been addressed by the preparation of complete tools and materials, so the two-dimensional manufacturing process is not fully maximized. Processing time has also not been utilized effectively because some students spend too long discussing before quickly putting their ideas into design. Limited tools and materials prevent students from having the courage to control other students. From the teacher's side, guidance still needs to be strengthened, especially by providing lighter questions at the implementation stage that encourage students to think more critically, take risks, and explain the reasons behind the visual choices they make. Cycle I still need improvement in the next cycle, especially in increasing students' courage to express opinions, independence in making decisions, readiness of tools and materials, and equality of roles for each group member in the two-dimensional creation process.



Figure 3. Learning activities for Cycle I

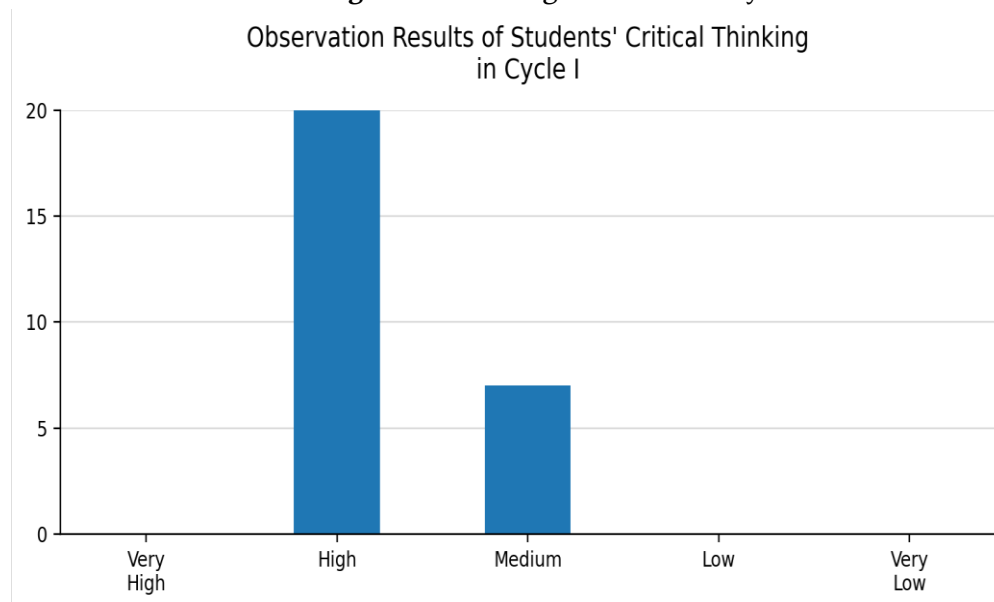


Figure 4. Diagram of Cycle I observation results

Documentation of learning activities in Cycle I is presented in Figure 3. Figure 3 shows students starting to get involved in the process of creating two-dimensional works and presenting group results. These activities indicate that PjBL begins to encourage students to work together, develop visual ideas, and try to convey messages through artwork. However, student involvement is not evenly distributed because some students still seem to rely on friends who are more active in determining themes, developing messages, and explaining their work. In the Cycle I observation, quite good results were seen in several aspects, with an average percentage of 71% and included in the medium category. Most students were in the high category, dominated by several students with good leadership levels, but there were still students in the medium and low categories with more presentations, which indicates that

self-critical thinking was not evenly distributed among students. The analysis can be seen in Figure 4.

The distribution of observation results of students' critical thinking skills in Cycle I is presented in Figure 4. Figure 4 shows that some students have reached the high category, but there are still students who are in the medium category. This indicates that the implementation of PjBL in Cycle I has begun to have a positive impact, but has not yet fully been able to encourage all students to be confident, independent, and dare to express their opinions equally. After applying the Project-Based Learning (PjBL) model in Cycle I, researchers conducted observations to determine students' levels of critical thinking based on four predetermined indicators. The results of observations regarding students' critical thinking in Cycle I are presented in the following Table 2.

Table 2. Percentage based on Critical Thinking Indicators for Cycle 1

Critical Thinking Indicators	Score obtained	Percentage
Believe in your own abilities	428	79%
Make decisions independently	356	66%
Have a positive self-image.	301	70%
Not afraid to express opinions	449	69%

Observation results in Cycle I, ability to think critically, start show development after the application of the learning model Project Based *Learning* (PjBL) in the subject Fine Arts lessons. Details of the achievement of each indicator in Cycle I are shown in Table 2. Based on Table 2, the indicator of confidence in one's own abilities achieved the highest percentage, namely 79%. The indicator of positive self-image reached 70%, courage to express opinions reached 69%, while independence in decision-making achieved a percentage of 66%. These data indicate that students began to believe in their abilities after being involved in the project, but independence in decision-making is still an aspect that needs to be strengthened. This condition occurs because some students still wait for teacher direction or follow the decisions of more dominant friends in the group. Development is seen from the achievement of several indicators that show improvement compared to the initial conditions. Indicators of confidence in their abilities. The percentage success of the tallest student was 79%. These results indicate that most students are beginning to believe in their own abilities in following the learning process, especially when observing problems through videos, discussing them in groups, compiling two-dimensional ideas, and presenting project results in front of the class.

The independence indicator in decision-making achieved a percentage of 66%. This achievement shows that students are beginning to be able to make choices in the two-dimensional creation process, such as choosing themes, messages, using tools and materials, and composing visual elements. However, this percentage is still lower than other indicators. This indicates that some students are not yet fully independent in decision-making. Some students still rely more on peers or wait for the teacher's instructions before making choices in groups.

Indicator: Image self-positive reach 70%. This shows that students are starting to have a better view of themselves as individuals capable of producing work. Through the two-

dimensional project activity, students are allowed to express ideas, demonstrate creativity, and see the tangible results of group work. Thus, the image of a positive self-student still needs to be strengthened so that they not only feel capable of producing work but are also able to explain the reasons for the meaning and message contained therein in the two-dimensional project created.

The indicator for courage in expressing opinions achieved a percentage of 69%. This achievement indicates that students are beginning to express their ideas, answer questions, and present project results in front of the class. However, this courage is not yet evenly distributed among students. Some students still appear hesitant, speak softly, or convey explanations to their peers with greater confidence. Therefore, the aspect of courage in expressing opinions still needs to be improved in the next cycle.

From the implementation side of learning, the implementation of PjBL. The model in Cycle I achieved an 88% success rate and is classified as the high category. Of the 33 planned learning stages, 29 stages were successfully implemented. This shows that learning in this way generally aligns with the syntax of PjBL, starting from the presentation of problems through videos, group formation, discussion, project planning, determination of tools and materials, two-dimensional creation, until presentation of work results. High implementation of this also shows that the PjBL model can push student involvement in the learning process more actively and contextually.

The first implementation cycle went quite well. Reflection on the results showed that there were still several obstacles that needed to be addressed. Some students were not yet able to work optimally in groups. More students were dominant in making decisions, while other members tended to follow along without offering opinions. Furthermore, mutual respect during presentations has not yet fully developed. Few students paid attention when other groups presented their project results. This situation indicates that discussion skills, respecting opinions, and building collaboration still need to be strengthened.

Overall, learning in Cycle I shows improvement in critical thinking ability, but improvement is not yet consistent in all indicators. The indicator of critical thinking already shows sufficient achievement, whereas independence in taking decisions and courage in conveying opinions still needs improvement. Therefore, improvements in Cycle II are needed, especially by strengthening the role of each group member and providing more opportunities evenly to Students. Talking, using lighter and more focused questions, and teacher assistance are needed so that students are more independent in making decisions during the two-dimensional creation process.

a. Data Description for Cycle II

Cycle II was implemented in two sessions while still using the Project-Based Learning (PjBL) model in the Fine Arts subject. Theme: two-dimensional creation. This implementation cycle is designed based on reflection of the results of Cycle I. Several aspects that became the focus for improvement are management of time, increased sense of trust in self and students, independence in making decisions, working the same way with friends, as well as mutual respect during discussions and presentations. Therefore, in the planning stage,

researchers prepared more targeted learning strategies, including video presentations of examples. This includes two-dimensional creation, division into groups, determining the role of each group member, as well as compiling channel activities into mini exhibitions.

In the planning stage, the teacher prepares a learning video on the two-dimensional creation process, providing examples that students can observe and imitate. The video is used to help students understand the steps of two-dimensional creation, from determining the theme, composing the message, making sketches, choosing colors, and determining the image composition to completing the work. In addition, the teacher prepares the necessary tools and materials, such as paper, drawings, and other supplies. Pencils, markers, coloring erasers, rulers, and other equipment that support the manufacturing process. Each group is directed to clearly assign roles so that all students are actively involved in the project.

Distribution of roles in the group is done to support indicator achievement and thinking critically about themselves. Some students act as theme determiners, creators, sketchers, two-dimensional writers, and others. Coloring, arrange layouts, present work, and man the booth during mini exhibitions. This distribution role aims to ensure that students not only follow the dominance of their friends but also answer the challenges that exist in completing the project. With clear roles, students are encouraged to have more confidence in their abilities. This helps build confidence, courage to make decisions, express opinions, and show a positive self-image in the learning process.

session, learning begins by watching a video about two-dimensional creations through a projector. Students are asked to pay attention to the steps of two-dimensional creation, visual elements used, color selection, font styles, and the intended message conveyed in the work. After watching the video, the teacher asks lighter questions to encourage students to think more critically, such as the reasons for the theme choice, the meaning of the image, the appropriateness of the colors, and the intended message to others. This activity helps students understand that two-dimensional media not only work in the form of images, but also as visual communication media that contain ideas, attitudes, and certain messages.

Observation: Students discuss in groups to determine the two-dimensional theme that will be made. At this stage, students begin to express opinions, make suggestions, choose the ideas they consider most appropriate, and determine the tools and materials to be used. The teacher provides guidance as needed, but students are given greater opportunities. To make decisions more independently. This was done as a form of improvement by Cycle I, because in the previous cycle, students were still more dependent on teacher guidance and self-confident friends.

Next, students start making two-dimensional drawings in groups according to the roles that have been determined. Students who oversaw making sketches and starting to design the image, students who were in charge of writing messages and helping formulate two-dimensional sentences, while other students helped with coloring, composing, and finalizing the presentation of the work. During this process, student interaction became more active. They began to provide input, adapt ideas, share assignments, and complete the work together. Students also appeared more confident in expressing their opinions compared to Cycle I, although the teacher continued to provide directions to ensure the discussion ran orderly and all members participated. Each group got an opportunity to contribute.

session, activities continued with the work of arranging and implementing the mini exhibition. Each group was given time. For two-dimensional repair, tidying up color, clarifying the writing, and preparing a brief explanation of the work that has been done. After work finished, two-dimensional work was on display. This activity is designed to encourage students not only to produce work but also to explain the process, meaning, and reasoning behind their visual choices.

In the mini exhibition, students were divided into two roles: both attendants and visitors. The students assigned as booth attendants explained their group's work to their classmates. They conveyed two-dimensional themes, reasons for selecting images and colors, the message to be conveyed, and the group work process during the creation of the work. Meanwhile, students acting as visitors move from one booth to another to observe the work, ask questions, provide feedback, and look for information about the two dimensions on display. Through this activity, students are trained to speak in front of others, respect the work of their friends, ask critical questions, and provide responses with polite language.

During the implementation of the mini exhibition, students saw more of themselves compared to Cycle I. They began to be confident in explaining their work, answering questions, and interacting with friends from other groups. Mutual respect also began to be seen when students listened to other groups' explanations and provided responses to the exhibited work. In addition, the mini-exhibition activity provided a space for students to demonstrate critical thinking skills. They explained themselves, especially in explaining the reasons for choosing a theme, defending their opinions, and evaluating the advantages and disadvantages of the work thoroughly.

Cycle II showed an improvement in the learning process compared to Cycle I. Students appeared more prepared. They were active and enthusiastic about participating in the activities. Assigning roles within groups helped students be more responsible in answering each assignment. The video presentation provided a clearer picture of the two-dimensional creation process, while mini-exhibitions encouraged students to be more confident in speaking and interacting. Thus, the implementation of the PjBL Model in Cycle II not only supports students' skills in creating artwork but also strengthens critical thinking indicators. Self-confidence includes believing in one's own abilities, being independent in making decisions, having a positive self-image, and having the courage to express opinions.

After implementing Project-Based Learning (PjBL) in Cycle II, the researcher conducted observations to assess students' critical thinking skills during the learning process. Observations were conducted by the researcher and five observers using a pre-prepared observation sheet. The results of these observations reflected the development of students' critical thinking skills during the project activities, both during group discussions and during the mini-exhibition.

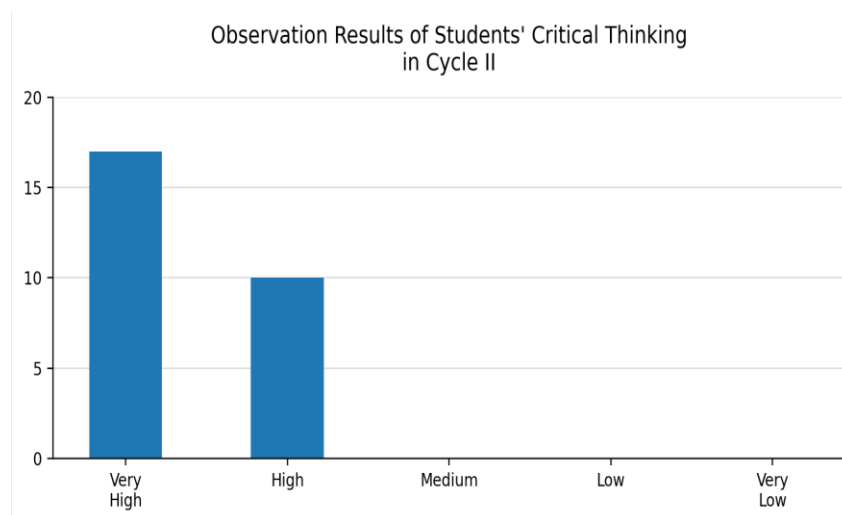


Figure 5. Diagram of Cycle II observation results

The level of critical thinking ability in Cycle II reached 90%, included in the category high. These results indicate that the majority of students experienced significant improvements in their critical thinking skills. Documentation of learning activities in Cycle II is presented in Figure 5. Figure 5 shows that the learning process in Cycle II was more focused through role allocation, completion of work, and holding a mini-exhibition. The division of roles gave students clearer responsibilities within the group, such as determining themes, sketching, composing messages, coloring, presenting work, and maintaining the exhibition booth. These activities helped previously passive students participate in decision-making and express opinions according to their assignments.

Improvement in every indicator of ability to think critically in Cycle II not only shows an increase in the percentage but also shows changes in the learning process after student action was repaired. The indicator "Believe in Your Abilities" increased because students get more concrete learning experiences through video examples, sharing clear tasks and opportunities for finishing work gradually. The process makes students not only accept instructions from the teacher but also experience that they can determine ideas, organizing design, and producing two-dimensional works. Self-belief is formed because they see success in a real way through products created and presented. Indicators of independence in making decisions also increase because in Cycle II, every group member is given more specific roles, such as determining the theme, creating a sketch, writing the message, coloring, compiling the composition, and presenting. Division of roles: this reduces domination by certain students, as occurred in Cycle I, so that students previously passive start being pushed to make decisions, as they are not quite enough to answer.

A positive self-image improvement happens because activity manufacturing works and mini exhibitions give room for students to see that their own ideas are valuable and can be appreciated by their friends. When students are capable of explaining the meaning of images, colors, writing, and messages in their work, they not only feel they have succeeded in the task but also feel their own contribution in the group. Experiencing responses from friends and teachers strengthens students' view that they are capable of thinking, creating, and

getting involved in the learning process. Meanwhile, the indicator of courage in conveying opinions increases because the mini exhibition creates a more natural communication environment. Students not only speak in front of the class formally but also explain their work to friends who came as visitors, answer questions, and give responses to work from other groups. This situation makes courage to speak through direct practice that is repeated, not through purely verbal encouragement. Improvement ability think critical student in study This happen because of the PjBL model give experience demanding learning student For observe problem, choosing ideas, taking decision, composing reason, work the same, and responsible answer results In addition to examining the overall picture, the researchers also analyzed students' critical thinking skills based on four predetermined indicators: critical thinking, independence in decision-making, positive self-esteem, and courage to express opinions. The results of this analysis are presented in the following table :

Table 3. Percentage based on Critical Thinking Indicators for Cycle

II

Critical Thinking Indicators	Score obtained	Percentage
Believe in your own abilities	509	94%
Make decisions independently	465	86%
Have a positive self-image.	390	90%
Not afraid to express opinions	581	90%

Details of the achievements of critical thinking indicators in Cycle II are shown in Table 3. Based on the results in Table 3, the self-confidence indicator scored 509 points, with a percentage of 94%. This percentage is the highest achievement compared to other indicators. The results show that most students already think strongly about their own abilities in participating in fine arts learning, especially in the two-dimensional creation process. Students appear more confident when conveying ideas, determining work designs, completing group assignments, and explaining two-dimensional results in the mini-exhibition activity.

The independent decision-making indicator scored 465 points, representing a percentage of 86%. This achievement indicates that students have improved in making choices during the learning process. They begin to be able to choose a two-dimensional theme, determine the message to be conveyed, share roles within the group, select tools and materials, and determine visual elements that align with the work's idea. Although the percentage for this indicator was the lowest compared to the other indicators, the achievement of 86% is still considered high. This indicates that students' independence in decision-making has developed well in Cycle II.

Next, the indicator image self-positive got a score of 390 with 90%. These results indicate that students are beginning to have a better view of themselves as individuals capable of working and contributing to groups. In Activity two-dimensional creation and mini exhibition, students get the opportunity to show their work, receive feedback from their

friends, and explain the two-dimensional meaning that has been created. These activities help students build a sense of pride in their own work and in groups, so that image self positive they the more develop.

The Not Afraid to Express Opinions indicator obtained a score of 581 with an achievement percentage of 94%. This shows that students are increasingly confident in expressing their ideas. They ask questions, answer questions, and provide feedback to their colleagues. During group discussions and mini-exhibitions, students appeared to be more active in interacting and not being passive. Too passive. Dependence on more friends is more dominant. Courage. This is one sign that the learning environment in Cycle II is more supportive of student engagement openly and confidently.

Overall, the indicator thinks the critical percentage in Cycle II showed a percentage above 75%, thus falling into the high category. The achievement percentage ranged from 86 % to 94 %. This shows that improvement in critical thinking among students did not only occur in one indicator, but it was already quite evenly distributed across all indicators. Thus, the implementation of the PjBL Model in Cycle II can be said to have succeeded in encouraging students to be more confident. Independent, take decisions independently, have a positive self-image, and bravely disclose opinions.

In addition to observing the development of students' critical thinking ability, researchers also conducted observations of the implementation of PjBL. The model was implemented by the teacher during the Cycle II learning process. Based on the results of observations, the implementation of learning reached 90% and was included in the high category. This achievement indicates that most of the learning stages have been implemented effectively and according to plan, starting from the presentation of videos as a stimulus, group discussions, and the distribution of roles, two-dimensional creation, until the implementation of a mini exhibition.

The level of implementation of the PjBL Model in Cycle II shows that the learning process has been running more optimally compared to the previous cycle. Teachers are better able to manage time, direct students in dividing tasks, provide opportunities for students' opinions, and create a more active and respectful learning atmosphere. Thus, the implementation of PjBL will be successful. The model in Cycle II also supports the improvement of students' critical thinking ability in a more consistent way. These results indicate that the project-based learning-based two-dimensional creation and mini exhibitions can be an effective strategy for increasing students' critical thinking ability in Fine Arts lessons.

Improving Students' Critical Thinking Skills Through the PjBL Model in Fine Arts Subjects.

Based on the research results, the application of the project-based learning model, or Project-Based Learning (PjBL), can increase students' critical thinking ability in class V in Fine Arts lessons. Improvements were seen in pre-cycle achievement of 55%, increasing to 71% in Cycle I, and reaching 90% in Cycle II. These results indicate that project-based learning provides space for students to be more active, confident, independent, and courageous in expressing their opinions. In the context of Fine Arts learning, project two-

dimensional creation themed Diversity Yogyakarta culture is a relevant medium because it is close to students' lives and allows them to express ideas in visual form.

The improvement of students' critical thinking skills is seen in four indicators. In essence, they believe in their own abilities, make decisions independently, have a positive self-image, and are not afraid to express their opinions. Through the PjBL stages, students are trained to observe themes through videos, discuss them in groups, determine two-dimensional ideas, choose tools and materials, divide roles, create works, and present project results. This activity encourages students not only to produce works of art, but also to explain the reasons for choosing the theme. Images, colors, writing, and the message you want to convey. However, in Cycle I, there were still students who were hesitant and dependent on more experienced and active friends; improvements in Cycle II, through role distribution, strengthening discussions, and mini exhibitions, were able to increase student involvement more equitably.

This finding is in line with research. (Puspawati et al., 2024) , (Edwita, 2023; Raharjo et al., 2025; Usman & Saputri, 2024) which shows that this PjBL Model is effective in increasing students' activeness, critical thinking, independence, and ability to express opinions. The PjBL model provides an important contribution in improving students' critical thinking skills because learning is not only centered on results, but also on the process of thinking, decision-making, collaboration, and communication. The implementation of PjBL in Fine Arts learning, especially through the creation of two-dimensional projects, can be an effective strategy to build students' critical thinking skills more optimally.

Project-Based Learning Models in Fine Arts Learning

The Project-Based Learning (PjBL) model in this study was carried out through six components. These components are, in essence, basic questions, project planning, schedule preparation, process monitoring, result testing, and evaluation. The application of this model was chosen because the problems that arise in two-dimensional art learning are not only related to students' ability to produce visual works, but also related to their ability to understand problems, determine messages, choose appropriate visual elements, and provide reasons for design decisions made. In the context of learning in schools, basic activities of making two-dimensional works require students to not only draw, but also think about objective communication, target readers, the suitability of images and text, color selection, composition, and the meaning of the message they want to convey.

Project-Based Learning is rooted in the constructivist view that positions students as active subjects in building knowledge through direct experience. Learning fine arts with two-dimensional themes conducted for students not only involves receiving explanations from the teacher, but also allows students to observe problems, design ideas, work on the same thing, create products, present work, and reflect on the results. This process is relevant to the development of critical thinking skills because students are trained to analyze problems, make decisions, provide reasons, evaluate design choices, and improve work based on the input received.

Critical thinking indicators in learning are seen through a number of abilities, namely the ability to understand two dimensional problems or themes, identify important information, organize visual ideas, choose alternative designs, provide reasons for choosing

images, colors, and writing, and evaluate the shortcomings of the work that has been created (Rios, 2025). In Cycle I, the most visible challenge is in the project planning phase. At this stage, students must be able to understand the main problem, determine two-dimensional goals, design concepts, and divide roles within the group. Some students in Cycle I still need teacher instructions in organizing ideas and determining work steps. This is normal because project-based learning requires independent learning skills, collaborative learning, and decision-making that are not always immediately formed in one cycle. Thus, weaknesses in Cycle I not only indicate the failure of the model but also indicate that students are still in the stage of adapting to a more active and demanding learning pattern and have not yet provided adequate answers.

Meanwhile, in cycle II, the quality implementation of PjBL began to show positive progress. Students began to be more focused on determining two-dimensional ideas, dividing tasks, and aligning work with the given theme. The teacher's role as facilitator also became more optimal through providing trigger questions, guiding group discussions, and monitoring the project completion process. This improvement indicates that repeated PjBL implementation can help students develop more systematic thinking habits, particularly in connecting problems, visual ideas, and messages through two dimensions.

The increase in teaching effectiveness is also seen from the results of observations of teacher activities, namely from Cycle I by 88% to 94% in Cycle II. This data shows that the implementation of learning has become more focused. Structured, and in accordance with the syntax of PjBL. Teachers not only deliver material, but also direct students to find problems, make plans, monitor project progress, and evaluate the results of work. In the context of improving *critical thinking*, increasingly better teacher activities play an important role because students in schools still need *guidance* or assistance gradually to be able to think independently, put forward reasons, and evaluate the results of their own work (theory). The use of two-dimensional art materials is also the right context for developing critical thinking skills. The process of considering, selecting, and evaluating elements is part of the critical thinking activity. Thus, learning two-dimensional art through PjBL not only produces product works, but also trains students to think logically. Reflective and responsible answers to creative decisions.

The results of this study align with those of Utami and Anjarini (2022), which showed an increase in PjBL implementation from 78.3% to 92.5%. This finding is also supported by research by Dyah et al. (2025), which showed an increase from 84% to 92%, and research by Irwan and Usman (2021), which showed an increase from 66.6% to 88.88%. These similar results reinforce that PjBL can improve the quality of the learning process if implemented consistently, gradually, and according to student characteristics. The contribution of PjBL becomes more contextual because it is applied to art materials, namely two-dimensional displays that directly require students to process ideas, analyze messages, and make visual decisions. The implementation of the PjBL model cannot be separated from teacher direction, planning, infrastructure provision, processes, evaluation, and flexible time in its implementation.

CONCLUSION

Based on the research results, the application of the Project-Based Learning (PjBL) model

in fine arts lessons with a two-dimensional theme is able to improve the critical thinking skills of 5th-grade elementary school students. The implementation of the PjBL model through six steps provides an active and meaningful learning experience. Through discussions, group work, project creation, and presentations, students become more confident in expressing opinions, independent, critical of social issues, and develop a self-confident self-image in expressing opinions or criticism. The improvement in critical thinking skills is clearly visible from the observation results, which increased from 55% in the pre-cycle to 71% in Cycle I and 90% in Cycle II. In addition, the level of application of the PjBL model by teachers also increased from 88% to 94%. Thus, the PjBL model is effective in improving students' critical thinking skills in learning that is influenced by several indicators to be achieved.

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