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The Implementation of Project Based Learning Through Two-Stay Two-Stray Technique to Promote Students Creative Thinking Skill In Procedure Text

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ABSTRACT

Students' creative thinking skills were in the low category, as they met only the indicators of fluency and flexibility, while the indicators of originality and elaboration still needed improvement. This study aims to analyze the implementation of the Project Based Learning (PjBL) model through the Two-Stay Two-Stray Technique to promote creative thinking skills in procedure text material. The research method used was a mixed-methods approach with a one-group pretest–posttest design. The research sample consisted of 30 ninth-grade junior high school students. The instruments used included a creative thinking skills test in the form of essay questions and a student response questionnaire. Data analysis involved a paired-samples t-test to compare students' mean scores before and after the treatment, followed by an N-gain analysis with the assistance of SPSS version 25. The results showed an increase in the average score of creative thinking skills from the "fair" category to the "excellent" category, with an N-gain score in the medium category (0.673). The creative thinking indicators that showed improvement with a high N-gain category were fluency, flexibility, and originality, whereas the elaboration indicator obtained a low N-gain category. The average percentage of students' responses to the learning ranged between 87% and 89%, which fell into the "excellent" criteria. Based on these findings, it can be concluded that the implementation of the PjBL model through the Two-Stay Two-Stray Technique effectively equipped students with creative thinking skills in procedure text material, achieving a medium N-gain category.

KEYWORDS *Project Based Learning, Two-Stay Two-Stray Technique, Creative Thinking Skill, Procedure text*

INTRODUCTION

In the era of globalization and rapid technological advancement, creative thinking skills are one of the most important competencies for students to face future challenges. According to a World Economic Forum report (2020), creative thinking and innovation skills are predicted to be among the most in-demand skills in the job market by 2025. However, many students today struggle to develop these skills, often due to conventional teaching methods and a lack of opportunities to collaborate and innovate. In this context, education plays a strategic role in shaping quality human resources. A strong educational foundation encourages progress in various aspects, including work ethic, discipline, and moral values. Amid rapid developments in science and technology and global challenges, education must produce adaptive, skilled generations ready to compete internationally.

In the 21st century, learning demands are shifting from teacher-centered to student-centered paradigms, from memorizing concepts to students developing concepts themselves, and from individual to collaborative learning (Gustiara et al., 2025; Maula M.M., 2014; Sukmawijaya & Juhanda, 2019). Skills such as creativity, critical thinking, communication, and collaboration are essential for graduates to compete and thrive in an ever-changing world (The Partnership for 21st Century Skills). For this reason, innovations in the learning process, including online learning, are vital to foster these skills (Redhana, 2019).

According to the basic competencies in the junior high school curriculum, students learning to write must produce texts such as letters, short messages, greeting cards, and monologues—including descriptive texts, recounts, narratives, procedures, and reports. Producing good writing, especially monologues, requires following structured writing steps. According to Rumisek and Zemach (2005), the writing process involves several stages to yield effective products. However, many students struggle to understand and structure procedural texts, often due to limited grasp of their structure and purpose. This demands not just stringing words into sentences but ensuring proper structure and tense usage. Thus, innovative methods like project-based learning are essential to enhance understanding of procedural texts. Through interactive and collaborative approaches, students can better comprehend, produce procedural texts, and improve English communication skills.

The Independent Curriculum in Indonesian schools aims to build character and competencies via student-centered learning. It offers teachers flexibility to adapt to students' needs and traits, positioning educators as facilitators while empowering students to explore, question, and present findings. In practice, however, implementation remains suboptimal: many teachers rely on conventional methods, lecturing while students passively note-take, with limited discussion or inquiry. Learning media are often basic, like static PowerPoint slides lacking interaction—contradicting the curriculum's emphasis on differentiated, interactive, contextual learning.

In line with this, the Ministry of Education, Culture, Research, and Technology (2022) states that the Independent Curriculum allows deep concept exploration and competency strengthening. Learning becomes immersive, meaningful, and enjoyable by prioritizing creativity and exploration. Achieving this requires innovative methods to engage students fully. One effective approach for critical and creative thinking is Project-Based Learning (PjBL), aligning with the Independent Curriculum (Prajoko et al., 2023; Rahmawati et al., 2021; Retno et al., 2025). The PjBL model draws from constructivism, enabling students to build knowledge through real experiences and express ideas via projects (Mrayyan, 2016).

Project-based learning develops knowledge, attitudes, and skills like creativity, motivation, responsibility, cooperation, socialization, and problem-solving (Nuryati et al., 2020). It fosters meaningful, enjoyable experiences Sumarni (2015) through six stages: determining essential questions, designing project plans, creating schedules, monitoring progress, assessing results, and evaluating experiences (Sitorus & Harahap, 2019; The George Lucas Educational Foundation, 2005). Projects guide students toward problem-solving (Nahdiah & Handayani, 2021), and research confirms PjBL boosts creative thinking (Mulhayatiah, 2014; Surahman et al., 2019).

A complementary strategy for PjBL is the Two-Stay Two-Stray (TSTS) technique. This method fosters collaboration by having students "stay" to teach peers or "stray" to learn from other groups, promoting diverse perspectives (Lie, 2008)—ideal for procedural text writing, where peer observation refines creative processes. Researchers view Two-Stay Two-Stray Technique as creating a discussion-rich environment for comparing learning approaches and deepening process understanding.

As Lie notes, Two-Stay Two-Stray enables sharing ideas, arguments, and information across groups. Fithra Ramadian's (2020) research shows it improves conceptual understanding and communication—key for procedural texts—through mutual student support toward group

goals. Integrating PjBL with TSTS innovates pedagogy: hands-on projects enhance text comprehension, group dynamics build collaboration, and peer exposure cultivates creative thinking. This addresses gaps in procedural text instruction, which often limits creativity and peer learning.

METHOD

This study employed a mixed-methods approach with a sequential explanatory design (Creswell & Clark, 2015, 2017). It also used a quasi-experimental one-group pretest-posttest design. Participants comprised ninth-grade students selected via purposive sampling, as they were studying procedure text material relevant to the research objectives. Although the lack of a control group limited internal validity, this design suited the school's practical constraints and the exploratory focus on the combined PjBL-TSTS (Two-Stay Two-Stray) approach. Pre-post comparisons still enabled analysis of learning gains, with cautious interpretation of causality; future studies could include control groups for stronger inferences.

The group first completed a pretest (O1) to assess baseline creative thinking skills. Treatment (X) followed, applying the PjBL model through the Two-Stay Two-Stray (TSTS) technique during procedure text lessons on advertisement material. A posttest (O2) then measured creative thinking to evaluate improvements from pretest levels.

RESULT AND DISCUSSION

Implementation of the Project Based Learning (PjBL) Model through the Two-Stay Two-Stray Technique in Promoting Creative Thinking Skills in Procedure Text

The initial stage of the Project Based Learning (PjBL) model began with a pre-test at the start of the meeting to determine the students' prior understanding and skills in developing creative thinking abilities. Students were given open-ended essay questions regarding creativity in creating procedural texts to encourage them to generate creative ideas before starting the project. The instructions for completing the tasks were delivered directly in the classroom, allowing the teacher to easily explain and guide the students throughout the process. The completed student responses were then submitted via Google Forms. In this study, the respondents consisted of 30 ninth-grade students.

The first meeting was held face-to-face, during which the teacher began explaining and outlining the learning process to be undertaken. Students were guided to find resources in the form of images, videos, or articles related to creating procedural texts to develop innovative and distinctive creative ideas. They were then given the opportunity to ask questions about the procedural text project they would create. The teacher introduced the topic of "Creativity in Creating Procedural Texts" to promote students' creative thinking skills during the project. In this study, the two-stay two-stray technique was implemented after completing the first syntax of PjBL, with the aim of supporting the project-based learning model. In the first meeting, students were divided into six groups, each consisting of 4–5 members. The purpose of forming these groups was to allow students to exchange ideas, creativity, and perspectives regarding the chosen topic of creativity. Next, the teacher distributed the student worksheet (LKPD) on the topic "Procedural Text" to each group, as shown in Appendix E.1.2. During the worksheet completion, students experienced no major difficulties. They began designing project plans and

setting project timelines through the LKPD. The creative ideas developed focused on proper writing in procedural texts based on creative thinking skill indicators, and students were asked to prepare a timeline and explain their work procedures to be completed within two effective weeks. Students were instructed to prepare the project sequence as outlined in the LKPD, which would later be discussed through group monitoring and discussions in the following meeting. They were given two weeks to complete their projects. In this first meeting, students still struggled to come up with ideas for creating procedural texts and had yet to demonstrate fluency or flexibility in asking questions or developing their creativity. This aligns with Anggraini and Wulandari's (2021) view that the PjBL model allows educators to fully control the teaching process, incorporating project work into the system.

The second meeting focused more on continuing the LKPD completion and beginning the monitoring of project planning. During the lesson, the teacher monitored each group's project draft via their LKPD. Students coordinated with each other in carrying out the project, held discussions, asked questions, and were given creative freedom regarding the procedural text products to be created, as shown in Appendix E.1.6. Before finalizing their products and procedural texts, students consulted the teacher about their ongoing projects, and each group sent two members to gather information from other groups to avoid producing identical products. The teacher also provided guidance and feedback on the strengths and weaknesses of each project plan to help develop creative ideas, as shown in Appendix E.1.6. By the second meeting, most groups had made progress in completing the LKPD, with students able to decide on the products and texts they would create and beginning to prepare a production timeline. However, one group experienced difficulties because some members did not participate in group work or discussions. Another group had started creating an initial draft of the procedural text, even if only in the form of raw bullet points. This exchange of ideas, listening to others' ideas, and reflecting on one's own ideas in light of others' perspectives represents a form of the meaning-making process. Project-based learning has great potential to provide more engaging and meaningful learning experiences for students (Mulhayatiah, 2014).

The third meeting focused solely on monitoring the progress of each group's project until the product was completed. Each group worked on their final product and procedural text in class, as shown in Appendix E.1.4. In the following meeting, each group would be directed to present their product and procedural text based on their innovations and submit their LKPD. At this stage, groups began creating kidney cross-section models and continued working on them until completion. According to Grant (2011), the PjBL model is student-centered and allows learners to conduct in-depth investigations into topics they study. In this case, students had more autonomy in creating their own work as a representation of their learning outcomes.

During the monitoring session, not all students actively participated in expressing their opinions via the LKPD or during product-making discussions and information-sharing with other groups. Only a few showed enthusiasms for creativity in this session. To address this, students were appointed to share their creative ideas to ensure everyone had the opportunity to present new concepts for their product, and all members were expected to collaborate in their groups. Some students tended to follow their peers' opinions without contributing to the group, as shown in Appendix E.1.3.

The fourth meeting, or the final stage, was the product presentation session for each group. In this stage, students observed, listened to, and tried to give feedback on the projects

presented by other groups, while also noting additional creative ideas that might not have occurred to them before. Through this presentation stage, the teacher could also assess the extent of students' creativity in producing quality, innovative products by reviewing the procedural texts they created. The final project outcomes are shown in Appendix E.1.5. During the presentations, some students were able to present their creative ideas in detail, but others had not yet maximized their contributions, as shown in Appendix E.1.5. Consistent with these findings, Gerhana et al. (2017) stated that project-based learning is more effective in improving student achievement using a scientific approach, as PjBL encourages active and creative thinking.

At the conclusion of the session, final data collection was conducted in the form of a post-test, intended for comparison with the pre-test results to determine any differences following the implementation of the Project Based Learning (PjBL) model through the two-stay two-stray technique. Similar to the pre-test, the post-test consisted of open-ended questions related to the completed project and procedural text, requiring students to articulate their creative ideas in written form. The post-test responses were submitted via Google Forms. In addition, a student response questionnaire was administered through Google Forms to evaluate students' perceptions of the learning experience. These procedures align with the findings of Hasani et al. (2018), who assert that project-based learning is an effective instructional strategy for fostering reflective thinking, which, in turn, contributes to the enhancement of student competencies.

In its implementation, nearly all students involved in the study appeared to be accustomed to using the Google Forms application for learning activities. This familiarity facilitated the smooth execution of the research in the classroom.

The Result after Following PjBL through Two-Stay Two-Stray Technique

The pretest and posttest data on creative thinking skills were obtained during the application of the PjBL model through two-stay two-stray technique on creatives to see if there were any differences. The data was scored according to the rubric, then averaged and changed on a scale of 100. Through these average results, a hypothesis test and an N-Gain test were then carried out. A statistical recapitulation of the descriptive ability of creative thinking can be seen in Table 1.

Table 1. Statistical Analysis of Creative Thinking

Data Type		Pre-test	Post-test
N		34	34
Average		59,85	84,12
Standard Deviation		9,086	8,391
Minimum Value		40	70
Maximum Value		75	100
Hypothesis Test, Paired-Sample T test	Sig.	0.000	
	Int	There are differences	
N-Gain	Sig.	0,61	
	Int	Keep	

Source : Researcher, 2025

Based on the table, it can be seen that statistical analysis is carried out using the Paired-Samples T Test to see the difference in pre-test and post-test scores of students' creative thinking skills. The use of this test is appropriate because the data is declared to be normally distributed, so the analysis is continued with a parametric approach. The test results showed that the significance value (Sig.) of 0.000 was below the significance level of 0.05. This means that H_0 is rejected and H_1 is accepted, so it can be concluded that there is a significant difference between students' pre-test and post-test scores.

This difference shows that after the application of the face-to-face Project Based Learning (PjBL) model in procedure text, there is an increase in students' creative thinking skills. This is in line with the findings of Distyasa et al. (2021), who stated that the use of the PjBL model has a positive impact on student learning outcomes and supports the development of higher-level thinking skills, including creative thinking. Furthermore, the results of the N-Gain test showed an average score of 0.61, which is included in the medium category. This indicates that the PjBL model is quite effective in equipping students' creative thinking skills. Although it did not reach the high category, the increase that occurred still showed positive changes. This could be due to the relatively good initial level (pre-test) of students' abilities, so that there is more limited room for improvement. This improvement also reflects that students are starting to be able to come up with more varied and creative advertising ideas after going through the individual stages of the project. Thus, the application of the PjBL model directly in the classroom has been proven to make a meaningful contribution to the development of students' creative thinking skills on advertising materials.

In conclusion, the application of the PjBL model in creative learning in grade IX showed quite good effectiveness in honing students' creative thinking skills. This supports the view of Lestari and Ekapti (2021) that the active involvement of students in learning, especially through a project approach, is one of the effective ways to train creative thinking skills that are urgently needed in the context of 21st century education.

Comparison of Results of Each Indicator of Creative Thinking Ability

The assessment of students' creative thinking ability includes four indicators, namely fluency, flexibility, originality, and elaboration. For more details, the following is attached the average increase in students' creative thinking ability in each indicator, as shown in Table 4.2

Table 2. Analysis of N-Gain Achievements in Each Creative Thinking Indicator

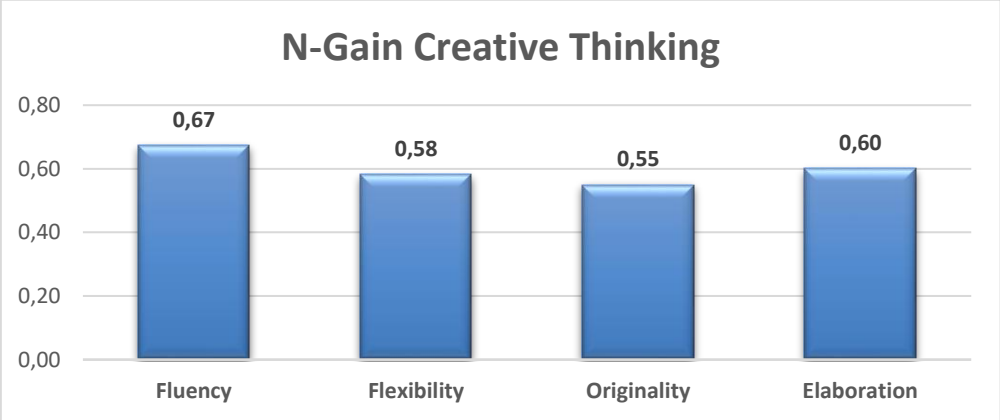
Indicators of Creative Thinking	Average Value				*N-Gain*	Interpretation
	Pre-Test	Int.	Post-Test	Int.		
Fluency	61,76	Good	87,50	Very Good	0,67	Enough
Flexible	59,56	Enough	83,09	Very Good	0,58	Enough
Originality	47,79	Enough	76,47	Good	0,55	Enough
Elaboration	63,24	Good	85,29	Very Good	0,60	Enough

Source: Researchers, 2025

As can be seen from Table 2, it is known that there is an increase in the average score of students in each of their indicators of creative thinking. In the fluency indicator, the average score increased from 61.76 in the good category, to 87.50 in the very good category. Likewise, for the flexibility indicator, the average score increased from 59.56 in the fair category, to 83.09 in the very good category. Meanwhile, the indicator of originality increased from 47.79 in the fair category to 76.47 in the good category. Likewise, in the elaboration indicator, where the

average score of both increased from 63,24 in the good category to 85,29, it is enough to be a very good category. The improvement of students' creative thinking skills is suspected to occur due to the stages of project planning and the advertising creation process, where students have the opportunity to explore creative ideas and get input from classmates to develop various forms of creativity in creating attractive advertisements. This is in line with the opinion of Ismayani (2016) who states that creativity is the result of the construction of creative ideas that emerge through the process of thinking. Therefore, the learning process must encourage the active involvement of students so that they can form their knowledge and skills independently.

The results of N-Gain achievement in the four creative thinking indicators showed moderate. When presented in the form of a graph, the comparison of the N-Gain achievements of each creative thinking indicator can be seen in Figure 1.



Source: Researcher, 2025

Figure 1. N-Gain Achievement of Creative Thinking for Each Indicator

In figure 1, it is known that the comparison of N-Gain achievements in each of the creative thinking indicators, which includes fluency, flexibility, originality, and elaboration. From the graph it can be seen: Fluency has the highest N-Gain achievement of 0.67, which is close to the high category, indicating that students experience considerable improvement in generating ideas smoothly during the learning process that has been done to successfully create products with new innovations. In line with the opinion of Rahmawati and Purnomo (2017) that the PjBL model is expected to be able to provide solutions in solving problems that occur by creating an idea or creating a product by utilizing the existing environment. Flexibility obtained an N-Gain of 0.58, which shows that students' ability to see a problem from various perspectives also increases even though it is not as fluency. Originality had the lowest achievement with a score of 0.55, although it remained in the medium category. This shows that although students experience improvements in coming up with unique and original ideas, they still need to be improved. Elaboration followed with a score of 0.62, also in the medium category, indicating that students' ability to develop and detail ideas also improved well. Overall, all four indicators of creative thinking showed an increase in the medium category, which indicates that the learning model applied succeeded in improving students' creative thinking skills in these aspects.

The distribution of the value categories of students' creative thinking ability in each indicator of students' creative thinking before and after the application of the PjBL model through two-stay two-stray technique is presented in table 3.

Table 3. Distribution of Creative Thinking Ability Value Categories Before and After Treatment

Interval Classes	Category	Pre-Test		Post-Test	
		Sum	Percentage (%)	Sum	Percentage (%)
81-100	Very High	0	0	0	0
61-80	High	0	0	22	65
41-60	Enough	20	59	12	35
21-40	Low	14	41	0	0
0-20	Very Low	0	0	0	0
Summary		**34**	**100**	**34**	**100**
Average Frequency		**46,5**		**66,5**	

Source: Researcher, 2025

Table 3 presents the distribution of students' creative thinking skills before and after being given learning treatment. Before the treatment was given (at the time of the pre-test), the majority of students were in the "Sufficient" category with a total of 19 people or 56% of the total students. This shows that at first the creative thinking ability of students was still moderate and not optimal. In addition, 20 students (59%) were in the "Enough" category, and only 14 students (41%) were included in the "Low" category. None of the students are classified as "Very Good" or "Very Poor". The average pre-test score obtained was 46,5, which indicates that creative thinking skills in general are still at the middle to lower level.

However, after the implementation of learning through a model designed in the form of a project-based approach (PjBL) with face-to-face, there was a very significant increase in the distribution of student scores on the post-test. It was recorded that 22 other students (65%) were in the "High" category and only 12 students (35%) students fall into the category of "Enough". The average post-test score increased sharply to 66,5, showing that the learning carried out succeeded in encouraging the development of students' creative thinking skills more evenly and comprehensively.

The shift in the distribution of grades from the medium and low categories to the high category is proof that the learning process applied is able to have a positive impact on the achievement of students' creative thinking skills. The existence of activities such as project preparation, exploration of ideas, and independent reflection carried out during learning is suspected to provide enough space for students to develop their creative ideas optimally.

The distribution of creative thinking skills based on the N-Gain category can be seen in Table 4.

Table 4. Distribution of Creative Thinking Ability Categories Before and After Learning Based on N-Gain Achievement

Interval N-Gain	Category	Summary of Students	N-Gain Frequency (%)
> 0,7	High	11	32
0,7 > g > 0,3	Enough	20	59
< 0,3	Low	3	9
Summary		**34**	**100**

Source : Researcher, 2025

Based on table 4, it is known that the N-Gain achievement in students' creative thinking skills tends to be in the high category with an achievement of 32%, in the sufficient category

with an achievement of 59%, but there are still those in the low category with an achievement of 9%.

Students' Perception after Following PjBL Model through Two-Stay Two-Stray Technique

Data collection regarding student responses to the application of the Project Based Learning (PjBL) model was carried out through two-stay two-stray technique using a questionnaire in the form of Google Forms. This questionnaire consists of 12 statements compiled based on the Likert scale with five response options, namely: Strongly Disagree (STS), Disagree (TS), Disagree (KS), Agree (S), and Strongly Agree (SS). A total of 34 students became respondents in filling out this questionnaire. The purpose of the questionnaire is to get an idea of the level of students' creativity, how they respond to the implementation of blended project-based learning, and to identify obstacles that may be encountered during the learning process.

Response questionnaires were distributed to students after the implementation of the post-test to find out how they responded to learning using the PjBL model through two-stay two-stray technique. Students' responses to the learning process have an important role. According to Agustya and Soejoto (2017), success in achieving optimal learning outcomes can be reflected in students' responses to the learning activities they undertake. Therefore, in order for learning outcomes to be maximized, teachers need to design learning that is easy to understand and interesting for students.

The researcher processed the questionnaire data on the Likert scale into a percentage. The percentage is obtained from the frequency of each alternative answer which is divided by all students and then multiplied by 100%. Based on the Appendix (...), it can be seen that the results of the students' answers to each item of the questionnaire statement given are different, therefore the researcher groups the results of filling out the questionnaire per table that has been grouped for each question.

Table 5. Percentage of Questionnaire Answers Number 1

No.	Category	Frequency	Percentage (%)
1	SS	19	56
	S	8	24
	KS	5	15
	TS	2	6
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 5, which presents the distribution of the percentage of students' answers to statement number 1, it can be seen that the majority of students responded positively to the Learning Project Based Learning (PjBL) model learning through two-stay two-stray technique. From the total 34 respondents, as many as 19 students or 56% stated "Strongly Agreed" (SS), and 8 students or 24% stated "Agreed" (S). Meanwhile, the response "Disagree" (KS) was only given by 5 students (15%), and "Disagree" (TS) by 2 students (6%). No respondents voted "Strongly Disagree" (STS).

Table 6. Percentage of Questionnaire Answers Number 2

No.	Category	Frequency	Percentage (%)
2	SS	15	44
	S	13	38
	KS	5	15
	TS	1	3
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 6, which displays the results of the questionnaire on statement number 2, it can be seen that most of the students gave a positive response to the statement. Of the 34 respondents, 15 students (44%) voted "Strongly Agree" (SS) and 13 students (38%) answered "Agreed" (S), which when combined showed that 82% of students agreed with the statement on this item. Meanwhile, 5 students (15%) voted "Disagree" (KS), 1 student (3%) voted "Disagree" (TS), and no students answered "Strongly Disagree" (STS).

Table 7 Percentage of Questionnaire Answers Number 3

No.	Category	Frequency	Percentage (%)
3	SS	20	59
	S	8	24
	KS	5	15
	TS	1	3
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 7, which shows the results of the distribution of students' responses to statement number 3 in the questionnaire, it can be seen that most of the respondents showed a very positive attitude. Out of a total of 34 students, 20 students (59%) chose the "Strongly Agree" (SS) category, and 8 students (24%) chose "Agree" (S). Thus, as many as 83% of students showed approval of the statements made. Meanwhile, 5 students (15%) voted "Disagree" (KS), and only 1 student (3%) voted "Disagree" (TS). No students answered "Strongly Disagree" (STS).

Table 8. Percentage of Questionnaire Answers Number 4

No.	Category	Frequency	Percentage (%)
4	SS	10	29
	S	19	56
	KS	3	9
	TS	2	6
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 8, which presents the percentage of students' responses to statement number 4 in the questionnaire, it can be seen that the majority of students gave a positive response to the statement. A total of 19 students (56%) stated "Agreed" (S), and 10 students (29%) stated "Strongly Agreed" (SS). Thus, as many as 85% of students expressed their

agreement with the content of statement number 4. On the other hand, 3 students (9%) voted "Disagree" (KS), and 2 students (6%) answered "Disagree" (TS). No students answered "Strongly Disagree" (STS), indicating that the negative response to this statement was very small.

Table 9. Percentage of Questionnaire Answers Number 5

No.	Category	Frequency	Percentage (%)
5	SS	8	24
	S	13	38
	KS	13	38
	TS	0	0
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 9, which shows the students' responses to statement number 5 in the questionnaire, it can be seen that the majority of students gave positive and quite positive responses. A total of 13 students (38%) chose the category "Agree" (S), while 8 students (24%) stated "Strongly Agree" (SS). Thus, as many as 21 students or 62% overall responded in support of the statement. However, as many as 13 other students (38%) chose "Disagree" (KS), which shows that there are doubts or dissatisfaction among some students about the content of statement number 5. No students chose the "Disagree" (TS) or "Strongly Disagree" (STS) category)

Table 10. Percentage of Questionnaire Answers Number 6

No.	Category	Frequency	Percentage (%)
6	SS	10	29
	S	16	47
	KS	6	18
	TS	1	3
	STS	1	3
	Sum	**34**	**100**

Source: Researcher, 2025

Based on Table 10, which contains data on student responses to statement number 6 in the questionnaire, it shows that most students give positive responses. A total of 16 students (47%) chose the category "Agree" (S), and 10 students (29%) stated "Strongly Agree" (SS). Thus, as many as 76% of students overall showed agreement with the statement. Meanwhile, there were 6 students (18%) who answered "Disagree" (KS), 1 student (3%) answered "Disagree" (TS), and 1 student (3%) chose "Strongly Disagree" (STS).

Table 11. Percentage of Questionnaire Answers Number 7

No.	Category	Frequency	Percentage (%)
7	SS	9	26
	S	20	59
	KS	5	15
	TS	0	0

	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Table 11 shows the percentage of respondents' responses to statement number 7 in the questionnaire given. Of the total 34 respondents, the majority gave positive responses. A total of 20 respondents or 59% said they agreed with the statement, while 9 respondents or 26% said they strongly agreed. Only 5 respondents (15%) gave a disagreed answer, and none of the respondents stated that they disagreed or strongly disagreed.

Table 12. Percentage of Questionnaire Answers Number 8

No.	Category	Frequency	Percentage (%)
8	SS	13	38
	S	16	47
	KS	5	15
	TS	0	0
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Table 12 shows the distribution of respondents' responses to statement number 8 on the questionnaire. Of the 34 respondents, as many as 16 people or 47% gave a positive response (S), while 13 people or 38% said they strongly agreed (SS). Only 5 respondents (15%) stated that they disagreed (KS), and there was not a single respondent who chose the category of disagree (TS) or strongly disagree (STS). In general, respondents' responses tended to be very positive to the statement, as evidenced by the high percentage of respondents who agreed and strongly agreed.

Table 13. Percentage of Questionnaire Answers Number 9

No.	Category	Frequency	Percentage (%)
9	SS	10	29
	S	19	56
	KS	4	12
	TS	1	3
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Table 13 illustrates the results of the respondents' responses to statement number 9. Of the total 34 respondents, the majority gave a positive response, with details of 19 people (56%) choosing the Agree (S) category, and 10 people (29%) stating Strongly Agree (SS). A total of 4 respondents (12%) were in the Disagree (KS) category, while only 1 respondent (3%) stated Disagree (TS), and no one voted Strongly Disagree (STS).

Table 14. Percentage of Questionnaire Answers Number 10

No.	Category	Frequency	Percentage (%)
10	SS	13	38
	S	16	47
	KS	4	12

No.	Category	Frequency	Percentage (%)
	TS	1	3
	STS	0	0
	Sum	**34**	**100**

Source: Researcher, 2025

Table 14 shows the distribution of respondents' responses to statement number 10. Of the 34 respondents, as many as 16 people (47%) chose the Agree (S) category, while 13 people (38%) stated Strongly Agree (SS). This indicates that the majority of respondents responded positively to the statement. A total of 4 respondents (12%) stated Disagree (KS), and only 1 respondent (3%) voted Disagree (TS). No respondents stated Strongly Disagree (STS).

Table 15. Percentage of Questionnaire Answers Number 11

No.	Category	Frequency	Percentage (%)
11	SS	9	26
	S	18	53
	KS	3	9
	TS	2	6
	STS	2	6
	Sum	**34**	**100**

Source: Researcher, 2025

Table 15 presents the distribution of students' responses to statement number 11. Of the total 34 respondents, as many as 18 students (53%) said Agree (S) and 9 students (26%) voted Strongly Agree (SS). This shows that most respondents responded positively to the statement. A total of 3 respondents (9%) expressed Disagree (KS), while 2 respondents (6%) each stated Disagree (TS) and Strongly Disagree (STS).

Table 16. Percentage of Questionnaire Answers Number 12

No.	Category	Frequency	Percentage (%)
12	SS	5	15
	S	13	38
	KS	9	26
	TS	4	12
	STS	3	9
	Sum	**34**	**100**

Source: Researcher, 2025

Table 16 shows the distribution of students' responses to statement number 12. Of the total 34 respondents, as many as 13 students (38%) expressed Agree (S) and 5 students (15%) expressed Strongly Agree (SS), so that the total number of respondents who showed a positive attitude amounted to 53%. On the other hand, 9 respondents (26%) chose Disagree (KS), 4 respondents (12%) chose Disagree (TS), and 3 respondents (9%) stated Strongly Disagree (STS).

Based on the results of the questionnaire data processing, it is known that most students give positive responses to the learning model applied. It can be concluded that learning with the PjBL model through two-stay two-stray technique supports students in creating and developing their ideas in the creation of advertising media. The average percentage of student

responses to learning based on indicators is in the range of 82%-87%, which is included in the very good category. This result is in line with the high enthusiasm of students during the learning. From the first to the fifth meeting, students showed a high enthusiasm for learning. The discussion process often raises critical questions that encourage students to think creatively in providing answers. Students collect project assignments in the form of procedure text on time, with the monitoring process by teachers carried out both directly in the classroom and through filling out the LKPD online in Google Docs. During the project presentation, other students seemed to focus on listening and criticizing the creative aspects of the advertisement presented by their friends.

This is shown by the dominance of the "Agree" and "Strongly Agree" answer options in most statements. Thus, the application of the PjBL model through two-stay two-stray technique is not only well received by students, but also able to encourage them to be more creative and active in the learning process. On the other hand, some students also expressed challenges, especially in terms of time management and technical work on projects, but overall learning was considered effective and fun.

According to Fajriah and Asiskawati (2015), learning outcomes can be measured through the responses given by students during the learning process. The increase in creative thinking skills, measured by the N-Gain value, is also influenced by students' learning motivation. Learning that is engaging for students is able to encourage their active involvement, such as in collaboration activities, discussions, and other activities (Parasamya & Wahyuni, 2017). Observing and discussing activities are part of project-based learning that has proven to be effective in improving students' creative thinking skills.

In addition to motivation, students' interest in learning materials is also a significant factor that affects creative thinking skills. Susiningrum (2018) explained that interest in the topic discussed can give rise to new ideas and ideas that are different from the usual, which is one of the main indicators in creative thinking, especially original thinking. This indicator is reflected in the N-Gain score which is in the medium category, indicating a significant increase in students' creative thinking skills. Furthermore, Sukmawijaya et al. (2019) added that the ability to think creatively is not only influenced by interest and motivation, but also by the activeness of students during the learning process and the ease of understanding the material taught. These factors overall get a very positive response from students, thus contributing to a significant improvement in their creative thinking abilities. This is in line with the theory put forward by Amabile (1996), which asserts that a supportive and motivating learning environment is essential in developing individual creativity. Thus, it can be concluded that students' responses during learning, which include motivation, interest, activeness, and ease of understanding the material, have a crucial role in improving creative thinking skills. A project-based learning model that integrates activities such as observation and discussion is one of the effective approaches that can be used to encourage the optimal development of students' creativity.

CONCLUSION

This study concluded that applying the Project-Based Learning (PjBL) model through the Two-Stay Two-Stray (TSTS) technique effectively enhanced ninth-grade students' creative thinking skills in procedure text learning. Posttest scores showed significant gains over pretests,

with an overall N-gain of 0.61 (medium category), and indicator-specific values of 0.67 (fluency), 0.58 (flexibility), 0.55 (originality), and 0.62 (elaboration)—all medium. Students responded very positively (82–87%), indicating high demand for this method, support for independent learning, and boosted idea development. For future research, studies should incorporate control groups and larger samples across diverse settings to strengthen causal claims and generalizability.

REFERENCES

Anggraini, P. D., & Wulandari, S. S. (2021). Analisis penggunaan model pembelajaran project based learning dalam peningkatan keaktifan siswa. *Jurnal Pendidikan Administrasi Perkantoran (JPAP), 9*(2), 292–299. https://doi.org/10.26740/jpap.v9n2.p292-299

Gerhana, M. T. C., Mardiyana, M., & Pramudya, I. (2017). The effectiveness of project based learning in trigonometry. *Journal of Physics: Conference Series, 895*(1), 012027. https://doi.org/10.1088/1742-6596/895/1/012027

Grant, M. M. (2011). Learning, beliefs, and products: Students' perspectives with project-based learning. *Interdisciplinary Journal of Problem-Based Learning, 5*(2), 37–69. https://doi.org/10.7771/1541-5015.1254

Gustiara, Y., Gumilar, R., & Sadiah, A. (2025). Pengaruh kemampuan berpikir kreatif, berpikir kritis, dan lingkungan belajar terhadap hasil belajar ekonomi. *COSMOS: Jurnal Ilmu Pendidikan, Ekonomi, dan Teknologi, 2*(3).

Hasani, A., Hendrayana, A., & Senjaya, A. (2017). Using project-based learning in writing an educational article: An experience report. *Universal Journal of Educational Research, 5*(6), 960–964. https://doi.org/10.13189/ujer.2017.050608

Maula, M. M., et al. (2014). Pengaruh model project-based learning (PjBL) terhadap kemampuan berpikir kreatif dan hasil belajar siswa pada materi pengelolaan lingkungan. *Jurnal Kajian Pendidikan dan Hasil Penelitian, 1*(2).

Mrayyan, S. (2016). Investigating mathematics teachers' role to improve students' creative thinking. *American Journal of Educational Research, 4*(1), 82–90. https://doi.org/10.12691/education-4-1-13

Mulhayatiah, D. (2014). Penerapan model pembelajaran berbasis proyek untuk meningkatkan kemampuan berpikir kreatif mahasiswa. *Edusains, 6*(1), 18–22.

Nahdiah, A., & Handayani, S. L. (2021). Pengaruh model project based learning berbantuan Google Meet terhadap kemampuan berpikir kreatif siswa. *Jurnal Basicedu, 5*(4), 2377–2383. https://journal.uii.ac.id/ajie/article/view/971

Nuryati, D. W., Masitoh, S., & Arianto, F. (2020). Pengaruh project based learning terhadap kreativitas peserta didik di masa pandemi. *Educate: Jurnal Teknologi Pendidikan, 5*(2), 98–106. https://doi.org/10.32832/educate.v5i2.3375

Prajoko, S., Sukmawati, I., Maris, A. F., & Wulanjani, A. N. (2023). Project-based learning (PjBL) model with STEM approach on students' conceptual understanding and creativity. *Jurnal Pendidikan IPA Indonesia, 12*(3). https://doi.org/10.15294/jpii.v12i3.42973

Rahmawati, Y., Hadinugrahaningsih, T., Ridwan, A., Palimbunga, U. S., & Mardiah, A. (2021). Developing the critical thinking skills of vocational school students in

electrochemistry through STEM project-based learning (STEM-PjBL). *AIP Conference Proceedings, 2331*, 020018. https://doi.org/10.1063/5.0041915

Redhana, I. W. (2019). Mengembangkan keterampilan abad ke-21 dalam pembelajaran kimia. *Jurnal Inovasi Pendidikan Kimia, 13*(1).

Retno, R. S., Purnomo, P., Hidayat, A., & Mashfufah, A. (2025). Conceptual framework design for STEM-integrated project-based learning (PjBL-STEM) for elementary schools. *Asian Education and Development Studies, 14*(3). https://doi.org/10.1108/AEDS-08-2024-0188

Sukmawijaya, Y., & Juhanda, A. (2019). Pengaruh model pembelajaran STEM-PjBL terhadap kemampuan berpikir kreatif siswa pada materi pencemaran lingkungan. *Jurnal Program Studi Pendidikan Biologi, 9*(9), 28–42.

Sukmawijaya, Y., Suhendar, S., & Juhanda, A. (2019). Pengaruh model pembelajaran STEM-PjBL terhadap kemampuan berpikir kreatif siswa pada materi pencemaran lingkungan. *Jurnal Program Studi Pendidikan Biologi, 9*(9), 28–42.

Sumarni, W. (2015). The strengths and weaknesses of the implementation of project based learning: A review. *International Journal of Science and Research, 4*(3), 2319–7064. https://www.ijsr.net

Surahman, E., Kuswandi, D., Sulthoni, Wedi, A., & Zufar at Thaariq, Z. (2019). Students' perception of project-based learning model in blended learning mode using Sipejar. *International Conference on Education Technology, 372*(ICoET), 183–188.