Improving Students' Collaboration and Creativity In Learning Procedure Text Writing Through Project-based Learning

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Article Info
Article history:
Received Dec 02, 2025
Accepted Jan 29, 2026
Published Online Jun 23, 2026
Keywords:
Collaboration
Creativity
Procedure Text Writing
Project Based Learning

ABSTRACT
Collaboration and creativity are essential skills in modern education, however students at SMK Taruna Muhammadiyah Mempawah faced problem in both areas. Based on the preliminary study, only two group members were actively working on the writing task, while the others remained passive and distracting. Their creativity was also limited, as they only copied the examples given by the teacher instead of generating original ideas. This study aims to improve students' collaboration and creativity in learning procedure text writing through Project-Based Learning (PjBL). Conducted from July to August 2024 at SMK Taruna Muhammadiyah Mempawah, this study involved 18 students of grade XI and used a classroom action research. Data were collected through observation, documentation, and interviews and analyzed in three stages: data reduction, data presentation, and verification. The results show that Project-Based Learning (PjBL) significantly improved students' collaboration and creativity in writing procedure texts. In Cycle 1, most students worked individually, shared only simple ideas, and produced basic steps with no revisions or editing, resulting in unclear and incomplete texts. In Cycle 2, students became more active in discussions, contributed ideas more equally, and worked together during drafting, revising, and editing. This stronger collaboration helped students generate more detailed, useful, and creative instructions, such as adding safety tips, clearer explanations, and problem-solving steps. Creativity also improved as students began exploring alternative techniques and refining their writing with better vocabulary and organization. Overall, the increase in collaboration supported the rise in creativity, showing that PjBL effectively encouraged teamwork, deeper thinking, and more meaningful writing development.

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How to cite: Pratiwi, A., Ikhsanudin, I., & Riyanti, D. (2026). Improving Students' Collaboration and Creativity In Learning Procedure Text Writing Through Project-based Learning. *Jurnal Riset Dan Inovasi Pembelajaran*, *6*(2). Retrieved from https://etdci.org/journal/jrip/article/view/4300

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1. Introduction

Collaboration and creativity are essential skills in preparing students for the challenges of the 21st century. Collaboration allows students to work together, share ideas and develop deeper understanding through interaction and discussion. Meanwhile, creativity encourages students to think innovatively, find new solutions, and present ideas uniquely and effectively. In education, these two skills enhance learning effectiveness and develop better critical thinking and communication skills. Collaboration and creativity are also important in learning to write, including the creation of procedure texts. Collaboration helps students develop clear steps by discussing and providing feedback. Creativity allows students to create more varied and effective steps.

Challenges in fostering collaboration and creativity at SMK Taruna Muhammadiyah Mempawah have been identified. During writing classes, students had difficulty working together effectively, with only two members of each group engaged in completing group tasks. Active students felt overburdened, while other members preferred to chat and not focus on the task. This lack of participation disrupted group productivity and led to frustration for the active members. In addition, students also find it difficult to develop creativity in writing. They tend to follow examples of exposition texts given by the teacher, so their writing lacks originality and is limited to existing patterns of content and style. These challenges significantly hinder the learning process at the school.

Project-based learning (PjBL) is a highly effective method of encouraging teamwork and increasing student engagement. Research shows that an important factor in the success of PjBL projects is cognitive awareness and meaningful communication from group leaders. In addition, PjBL can also improve students' language skills, including speaking, writing, listening and reading. This method also has benefits in building students' confidence, motivation, and resilience. In addition, PjBL also equips students with the 21st century skills necessary for success. However, there is still a lack of research related to the application of PjBL in English language learning, especially in writing procedure texts. Therefore, this study aims to fill the gap by applying PjBL in learning to write procedure texts with a topic relevant to students' field of study, namely building construction. The purpose of this study is to help students develop their collaboration and creativity through project-based learning.

Collaboration thrives when everyone contributes their expertise as equals rather than following a hierarchical structure. In education, it occurs when learners work together in a shared environment to achieve common goals (Kramer, 2024). Theorists like Vygotsky (Nardo, 2021) and Piaget (Malik, 2021) emphasize the importance of social interaction in learning, with Vygotsky highlighting that humans learn from those around them (Locklear, 2020). Collaboration in writing builds on this idea by encouraging students to share ideas, take responsibility, and work as a team throughout all stages of the process, from brainstorming to revising the final draft (Lu & Kim, 2021; Manchón & Matsuda, 2016). The Australian Council of Education Research (ACER) defines collaboration through three key categories: building shared understanding, pooling resources and information, and regulating activities (Scoular et al., 2020). This study adapts frameworks from Scoular et al. (2020) and Hairida et al. (2021) to suit procedural text writing, with a focus on regulating activities during revising. By reviewing drafts, addressing errors, and evaluating outcomes, students develop collaboration skills that enhance both their writing and teamwork abilities, ensuring shared responsibility and polished results.

Creativity is defined by two key elements: novelty and usefulness (Al-Ababneh, 2020). Novelty refers to the quality of being new, unique, or unconventional, distinguishing

innovative ideas from traditional ones and making them stand out in various fields (Sawyer & Henriksen, 2024). Usefulness, on the other hand, focuses on practicality and relevance, ensuring that creative outputs effectively address specific needs or solve problems. Creativity encompasses multiple dimensions, including product, personality, press, and process (Thornhill-Miller et al., 2023; Gruszka & Tang, 2017). Considering creativity as a product involves generating new ideas or combining existing elements to create innovative and practical solutions. When viewed as a personality trait, creativity reflects an individual's ability to express uniqueness through work and life, showcasing their capacity to think differently and embrace innovative approaches. The press dimension highlights internal and external motivational factors that foster creativity, emphasizing the importance of both personal drive and environmental influences. A supportive and stimulating environment plays a crucial role in nurturing creative potential. Creativity as a process involves systematic problem-solving, where individuals generate, evaluate, and refine ideas to produce effective and original outcomes. Kaufman and Baer (2005) argue that creative products must meet two criteria: functionality, which ensures practical usefulness, and originality, which emphasizes novelty.

Project-Based Learning (PjBL) is a student-centered, interdisciplinary teaching method highly relevant to the 21st-century English learning context. It emphasizes real-world situations where students engage in inquiry-driven, collaborative projects that showcase their knowledge (Handoyono et al., 2020; Indrasari, 2016). PjBL encourages active participation by allowing students to drive their own learning and work together on meaningful tasks. To streamline its application, The George Lucas Educational Foundation outlines six essential steps to guide the process (Setiawan & Takaoka, 2020). First, students are engaged through an essential question that sparks curiosity and encourages critical thinking. Second, the project is designed by selecting relevant content standards and identifying learning goals. Third, the time allocation for the project is planned collaboratively, ensuring that each stage is given sufficient time for completion. Fifth, students' progress is assessed through feedback, which highlights areas for improvement and allows teachers to adjust instruction as neede. Finally, the project's outcomes are evaluated to determine whether students have successfully achieved the learning objectives. By following these steps, PjBL encourages meaningful learning experiences and equips students with skills that extend beyond the classroom.

2. Method

This research was conducted using action research, specifically classroom action research (CAR) method. The subjects of the study were the eleventh-grade students of SMK Taruna Muhammadiyah Mempawah in the academic year 2024/2025. A total of 18 students involved in the study. The researcher selected this class based on prelimenary observation, during last academic year in teaching this class and found that the students face difficulties in collaboration and being creative in writing.

There were two cycles of CAR and every cycle consisted of four steps: planning, acting, observing, and reflecting. The data that were collected in this CAR were the students' collaboration and creativity during creating their written poster project. The data for this research were collected through observations and documentation. The researcher and collaborator teacher observed the students' activities during creating their written poster project. The instruments used to collect the data were: (1) checklist; (2) fieldnoted sheets, (3) students' worksheet as their script for the poster project; and (4) interviews representative student at each level.

The data analysis technique were used involving phases such as data reduction, data display, conclusion drawing, and verification (Miles & Huberman, 1994). In the data reduction phase, raw data were selected, simplified, and organized to focus on key

information relevant to the research objectives. The data were categorized into five levels: very high, high, moderate, low, and very low to evaluate students' collaboration and creativity. The data display phase involved presenting the organized data in visual formats to facilitate interpretation. The final phase, conclusion and verification**,** involved identifying key patterns, cross-verifying data from multiple sources, and reflecting on the findings. Triangulation was applied to ensure consistency by comparing observation data with students' interview responses. The analysis confirmed that project-based learning positively influenced students' collaboration and creativity, as evidenced by improvements in their participation, idea-sharing, and quality of procedure text writing.

3. Research Findings

The results of the study show a clear improvement in both collaboration and creativity after students learned procedure-text writing through Project-Based Learning (PjBL).

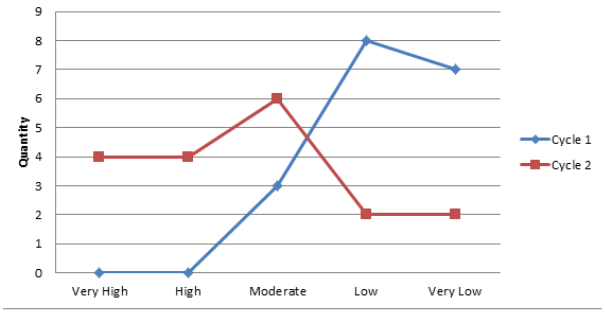

Figure 1. Collaboration Improvement

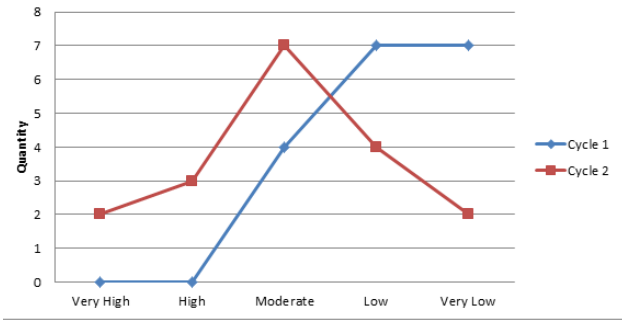

Figure 2. Creativity Improvement

The collaboration graph shows that in Cycle 1 most students were still at the Low and Very Low levels. Eight students were in the Low category, and seven were in the Very Low category. This means that many students were not yet able to work together. They were quiet during discussions, rarely shared ideas, and waited for their friends to decide everything. Only three students reached the Moderate level, and none showed strong collaboration. The classroom observations support this: students only mentioned simple ideas, such as naming basic tools or steps; they wrote individually instead of discussing the sequence of the procedure; and they did not revise or check each other's work. In some groups, one or two students such as S1 or S10 controlled the discussion while others stayed passive. Some students preferred doing easy physical tasks like arranging poster materials instead of giving ideas for the writing. This showed that their collaboration skills were still weak and needed improvement.

However, the graph in Cycle 2 shows a big positive change. The number of students in the High and Very High categories increased sharply, with four students in each category.

Six students reached the Moderate level, while only two stayed in the Low and Very Low categories. This rise is also seen in the way students behaved during learning. In Cycle 2, students began to participate more actively: they asked questions, responded to their friends' suggestions, and discussed which ideas were best for their procedure text. For example, students like S2, S12, and S3 who were quiet in Cycle 1 started offering suggestions about vocabulary, order of steps, and clarity. When writing drafts, students worked as a team instead of individually. They read each step together and corrected unclear instructions immediately. During revising, students who previously skipped this stage began checking alignment, reordering steps, and adding missing explanations. During editing, students corrected grammar, improved vocabulary, and ensured their posters matched the revised content. Dominant students such as S1 and S10 also changed their behavior and began encouraging their group members to contribute instead of controlling the discussion. This created more balanced teamwork and helped passive students participate more confidently. Overall, the collaboration graph and classroom observations both show that students learned to communicate better, solve problems as a group, and share responsibilities more equally.

Students' creativity also improved sharply from Cycle 1 to Cycle 2. The creativity graph shows that in Cycle 1, seven students were at the Low level and seven at the Very Low level. Their writing had no variations or creative details. They only wrote simple and common steps, such as "Drill a hole with a drill," without explaining how to do it safely or accurately. During brainstorming, they only listed tools without thinking about alternative methods. During drafting, they copied basic ideas and did not add helpful information. They also skipped revising and editing, so their texts remained very basic and not useful for the reader.

In Cycle 2, the creativity graph rises strongly. Seven students reached the Moderate level, three reached the High level, and two reached the Very High level. Only a few remained at the Low levels. This improvement also appears clearly in their actions. In the planning stage, students began suggesting more creative and practical ideas. For example, S1. recommended using tile spacers to keep the distance between tiles even; S14. suggested using a roller to remove air bubbles; S10. mentioned using anchors to secure ventilation. These ideas showed deeper thinking and problem-solving. During drafting, the steps became more detailed and helpful, such as "Spread the tile adhesive evenly using a notched trowel," or "Check screw tightness before installing the frame." Students also included safety reminders and accuracy tips, which did not appear in Cycle 1. During revising, students improved unclear steps, rearranged actions into a better order, and added explanations such as why alignment is important. Editing helped them refine grammar, adjust vocabulary, and produce clearer and more professional instructions. Student interviews support these improvements: S1. said he became more careful about safety; S14. learned to make the instructions more "professional"; and S2 understood how grammar could affect clarity. These reflections show that students were thinking more critically and creatively about their writing.

Overall, both graphs and classroom observations show that students improved because PjBL encouraged them to think, communicate, and revise their ideas step by step. In Cycle 1, students only completed the task in a simple way. In Cycle 2, they discussed more, added deeper ideas, solved problems together, and improved their writing through revision and editing. This process helped them become more active, confident, and creative. The strong rise in the graphs confirms that PjBL helped students build teamwork, practice critical thinking, and express creativity more effectively.

4. Discussion

The implementation of Project-Based Learning (PjBL) in procedure-text writing showed strong improvements in both students' collaboration and creativity, and these developments align with several educational theories. During the learning process, students

began to work together more effectively sharing ideas, dividing tasks, and supporting their group members. Some students who were initially passive became more active when they observed the enthusiasm of their peers. This improvement reflects Vygotsky's Social Learning Theory (1978), which explains that interaction with peers helps students build knowledge. It also aligns with Lu and Kim (2021), who state that collaboration in writing means sharing responsibility at every stage, from brainstorming to final revision.

Group dynamics also improved in ways that support Johnson's Cooperative Learning Theory (Yang, 2023), which emphasizes active engagement and shared responsibility. Students naturally divided roles some students handled technical tasks, while others worked on poster design or ensured the clarity of instructions. The use of teacher-prepared checklists helped students review and improve their work, supporting findings by Alharbi et al. (2022) that collaborative learning environments strengthen critical thinking and problem-solving skills.

Students' creativity also improved significantly. They began adding safety tips, using visual elements like decorative sticks or newspaper cuttings, and even exploring digital tools such as Canva to design their posters. Some initially shy students contributed small suggestions, showing early signs of creative growth. These developments align with Dewey's Experiential Learning Theory (1938, cited in Priya et al., 2024), which suggests that hands-on experiences encourage students to explore and develop new ideas. Creativity also reflects Amabile's Componential Theory of Creativity (2013), which states that creativity is shaped by intrinsic motivation, relevant skills, and a supportive environment conditions that were strongly present during PjBL. Moreover, the students' procedure texts in Cycle 2 showed greater novelty and usefulness, matching creativity criteria explained by Sawyer & Henriksen (2024).

Students also felt more motivated because they worked in supportive groups. They learned to listen, share ideas confidently, and build on each other's contributions. However, some students still preferred to follow rather than lead, showing that collaborative habits vary among individuals.

PjBL also aligned well with the writing process stages described by Richards & Willy (2002, cited in Sadapotto et al., 2021) planning, drafting, revising, and editing. In the planning stage, students brainstormed and organized ideas together, strengthening collaboration. During drafting, they expressed ideas freely without worrying too much about grammar, which supported creativity. In the revision stage, they incorporated peer feedback to clarify instructions. Finally, during editing, they improved grammar, vocabulary, and formatting to produce a refined final product.

Overall, the improvement from Cycle 1 to Cycle 2 shows a strong connection between collaboration and creativity. When students collaborated more actively sharing ideas, giving feedback, and discussing steps their creativity also increased. Their writing became more detailed, clearer, and more original. Drafts that were previously simple and repetitive grew into procedure texts with safety tips, measurement details, and step variations. This happened because group discussions encouraged deeper thinking and allowed students to learn from each other's ideas. As students revised and edited together, they discovered new ways to improve their writing, demonstrating how collaboration supports creative thinking.

In conclusion, PjBL helped students strengthen both collaboration and creativity by providing opportunities to work together, solve problems, and produce meaningful projects. Through group discussion, shared drafting, peer feedback, and the use of hands-on tools, students not only improved their writing but also developed important 21st-century skills such as communication, teamwork, problem-solving, and creative thinking. These gains show that PjBL is an effective approach for supporting students' learning and preparing them for future academic and real-world challenges.

5. Conclusion

This study shows that Project-Based Learning (PjBL) effectively answers the research question by helping students overcome their difficulties in collaboration and creativity when writing procedure texts. Before using PjBL, many students struggled to share ideas, work equally in groups, and take responsibility. Through PjBL, students improved these skills because the learning activities required them to plan together, discuss ideas, divide tasks fairly, and check each other's work. They became more confident in expressing opinions, more active in helping their teammates, and more responsible in completing group tasks. These improvements show that PjBL builds important collaboration skills such as shared understanding, collective contribution, and peer regulation.

PjBL also helped students become more creative. Students who previously repeated simple ideas or felt unsure about writing began adding unique steps, giving practical tips, and making their instructions clearer and more useful. They explored different ways to present their procedure texts, such as using decorations, visuals, and digital tools. This hands-on learning experience encouraged them to think more deeply and develop original ideas. Challenges like lack of vocabulary, limited imagination, and passive participation decreased because students were more engaged and motivated.

The success of PjBL is also influenced by several supporting factors. Active group leaders helped guide discussions, the teacher provided clear instructions and feedback, and students received motivation from appreciation, teamwork, and healthy competition. Self-reflection activities also made students aware of their progress and encouraged them to keep improving. These elements created a positive learning environment where students felt supported and confident to collaborate and create.

To continue improving the use of PjBL, several suggestions can be made. Teachers are encouraged to act as facilitators who guide students through structured yet flexible projects, give deeper and more meaningful feedback, and use interactive media to inspire creative ideas. Students should learn to take more initiative, share ideas confidently, and divide tasks equally so everyone can contribute. They can also use systematic brainstorming to ensure all members participate.

For future researchers, there are opportunities to explore PjBL further. Studies could investigate the long-term effects of PjBL on students' collaboration, creativity, and 21st-century skills. Researchers may also examine how cultural background, personality differences, or learning styles influence group work and creative thinking. In addition, future studies could develop improved PjBL models that include technology tools, gamification, or digital collaboration platforms to increase student engagement even more.

6. Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

7. Author Contributions

S.S and M. conceptualized the research idea, designed the study, developed the diagnostic questionnaire, collected the data, conducted the initial data analysis, and drafted the manuscript. A.A. contributed to the refinement of the research methodology, data interpretation, discussion of findings, manuscript revision, and final approval of the article. All authors confirm that they have read and approved the final version of this manuscript. The percentage contributions for the conceptualization, drafting, analysis, and revision of this paper are as follows: S.S.: 25, M.: 40% and A.A.: 35%.

7. Data Availability Statement

The authors declare that data sharing is not applicable, as no new data were created or analyzed in this study.

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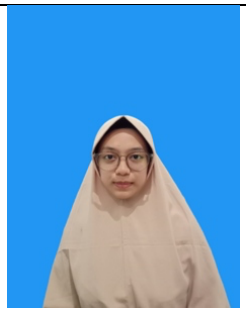	**Agustin Pratiwi,** was a student at the English Language Education Study Program, Faculty of Teacher Training and Education (FKIP), Universitas Tanjungpura. Her research interests include language teaching, and teaching materials development. Email: agustinpratiwi008@gmail.com
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