*Ed Process Int J*

**www.edupij.com**

ISSN 2147-0901 (Print), 2564-8020 (Online)

EDUCATIONAL PROCESS
INTERNATIONAL JOURNAL

# Project Based-Learning (PjBL) as Pedagogical Framework and Poetry Learning Outcomes Among Indonesian Students: An Experimental Study

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**Research Article**

**Cite this article:** Rindengan, M. E., & Merentek, R. M. (2025). Project Based-Learning (PjBL) as Pedagogical Framework and Poetry Learning Outcomes Among Indonesian Students: An Experimental Study. *Educational Process: International Journal, 19*, e2025595. https://doi.org/10.22521/edupij.2025.19.595

**Received** September 11, 2025
**Accepted** November 7, 2025

**Keywords:** Elementary students, experimental research, project-based learning, teaching poetry

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## Abstract

**Background/purpose.** This study investigates the efficacy of Project-Based Learning (PjBL) as a pedagogical framework for teaching poetry in Indonesian elementary schools. Despite the prevalence of PjBL in Western contexts, there is a dearth of empirical research on its effects in Indonesian educational settings

**Materials/methods.** This quantitative study utilized a pretest-posttest quasi-experimental design to examine the effect of Project-Based Learning (PjBL) on the poetry-reading-literacy skills of fifth-grade students. The analysis of the data revealed a statistically significant enhancement in students' poetry-reading-literacy skills following the implementation of PjBL.

**Results.** The findings suggest that PjBL can be an effective pedagogical approach for enhancing student learning outcomes in Indonesian elementary education. However, to fully leverage the benefits of PjBL, it is essential to ensure adequate interaction time between students and teachers and access to relevant resources.

**Conclusion.** The results imply that PjBL can be an effective approach to improve students' literacy skills, including poetry reading. The study's findings also highlight the importance of engaging students in the learning process and fostering critical thinking, problem-solving, and collaboration skills.

## 1. Introduction

Over the past decades, Project-Based Learning (PjBL) has been adopted as a framework for teaching students across a wide range of educational contexts (Azizah et al., 2025; Gunawan et al., 2025; Marini et al., 2025; Novalia et al., 2025). PjBL is an instructional strategy focused on students, in which they collaborate in groups to tackle open-ended projects. This approach highlights independence, teamwork, and practical application, enabling students to delve into and address intricate issues over a prolonged timeframe (Fernandez & Williamson, 2003; Shpeizer, 2019; Zhang et al., 2023). PBL fosters profound learning and enhances advanced cognitive skills by involving students in tasks that necessitate the application, analysis, synthesis, and evaluation of information (Sulistyo & Waluyo, 2019). While it is especially beneficial in STEM fields, it can be tailored to fit various educational settings (Kokoktsaki et al., 2016; Sahin, 2013; Sheikh et al., 2011). For this reason, PjBL can be adopted as a framework for teaching poetry in elementary school contexts.

Prior research has explored teaching poetry in elementary schools. For example, Love et al. (2024) reported on integrating poetry into science instruction in elementary education. Pre-service teachers (PSTs) who were simultaneously enrolled in literacy and science methods courses developed poems along with related lesson plans. This strategy boosted PSTs' confidence in teaching science and highlighted poetry's ability to foster engagement and creativity in science education. Another relevant study by Concannon-Gibney (2019) indicated that a poetry genre in a first-grade classroom underscored the importance of teaching poetry in elementary schools. The study described instructional methods for engaging students in reading and writing poetry, illustrating how poetry can enhance literacy skills within a meaningful framework. A study conducted in a Greek public kindergarten by Aravani (2021) demonstrated that regular poetry lessons increased children's enthusiasm for reading, expanded their vocabulary, and encouraged creative thought. Data was gathered through observation checklists, diaries, and interviews, which showed that the children enjoyed the poetry program and found it advantageous for their literary development.

Although there is increasing research emphasizing the advantages of PjBL in enhancing educational outcomes, autonomy, creativity, and critical thinking, several areas remain unexplored. Most previous studies have concentrated on the overall effects of PBL on cognitive, affective, and psychomotor domains (Cai et al., 2023; Padmadewi et al., 2023; Putri & Sari, 2022). However, there is a scarcity of research specifically investigating how PjBL promotes students' learning poetry in elementary school landscape. This research is crucial for addressing the current gap by providing empirical data on the relationship between PjBL, a pedagogical framework, and poetry learning outcomes among elementary students in Indonesia. Although earlier studies have primarily focused on the effects of PjBL on overall learning outcomes and the development of soft skills, there has been limited investigation of how PjBL specifically fosters students' critical thinking and problem-solving through poetry learning. To fill this gap, this study examined the effect of PjBL, compared with traditional instruction, on teaching poetry to elementary school students in Indonesia. The results of this study will assist educators and stakeholders in crafting more effective PjBL strategies to foster self-directed learning, which is crucial for students' long-term academic and real-world achievements. Additionally, by exploring how teachers implement PjBL stages and how students respond through portfolio learning, this study offers valuable insights for enhancing teaching methods and curriculum development, especially in the elementary school context. Drawing on the background of the study, we propose the following research question and hypotheses:

### *1.1. Research question*

What is the effect of implementing project-based learning (PjBL) on Indonesian students' poetry learning outcomes compared to traditional instruction?

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### *1.2. Hypothesis*

- $H_o1$ (Null Hypothesis): There is no significant difference in poetry learning outcomes between students taught using project-based learning and those taught using traditional instruction.

- $H_1 1$ (Alternative Hypothesis): Students taught using project-based learning achieve significantly higher poetry learning outcomes than those taught using traditional instruction.

## 2. Literature Review

### *2.1. Constructivist theory*

Constructivist theory asserts that learners actively construct their own knowledge through experience, reflection, and interaction with their environment, rather than passively receiving information from instructors. Learning is perceived as a dynamic, student-centered process in which meaning is developed through engagement with authentic tasks and social collaboration (Allen et al., 2017; Vagele-Kričina, 2021; Allen, 2008; Fosnot, 2013; Piaget, 1972). Consequently, the classroom becomes a space where students experiment, inquire, and co-construct knowledge, with the teacher serving as a facilitator rather than a mere transmitter of facts (Bruner, 1996).

PjBL embodies constructivist principles by involving learners in sustained projects that necessitate inquiry, exploration, and the application of knowledge to meaningful contexts. Rather than memorizing abstract concepts, students in PjBL settings collaborate to investigate questions, design solutions, and produce tangible outcomes that reflect their learning (Thomas, 2000; Bell, 2010). This approach aligns closely with constructivism, as it fosters active participation, scaffolding, and reflection throughout the learning process (Hmelo-Silver, 2004).

When applied to poetry instruction in elementary schools, PjBL provides an effective framework for transforming what is often perceived as an abstract subject into a meaningful and engaging learning experience. By situating poetry in real-world and creative contexts, young learners can connect their personal experiences, emotions, and imaginations to poetic forms. For instance, students may engage in a project where they create a class poetry anthology based on themes from their community (e.g., nature, friendship, or local culture). This enables them to read and analyze poems and construct their own, integrating language, creativity, and self-expression (Larmer et al., 2015).

Key Features of PBL within Constructivist Poetry Instruction:

- Student-Centered Learning: Children take ownership of their poetic explorations by selecting themes or writing styles, fostering autonomy and intrinsic motivation (Bruner, 1996; Fosnot, 2013).

- Real-World Relevance: Projects such as writing poems about the environment or school life connect poetry to learners' lived experiences, making it more engaging and relatable (Larmer et al., 2015).

- Collaboration: Working in groups to draft, edit, and perform poems encourages peer learning, discussion, and mutual feedback, aligning with the constructivist emphasis on social interaction (Vygotsky, 1978).

- Critical Thinking and Problem-Solving: Learners analyze language use, imagery, and rhythm in poetry and solve creative challenges (e.g., how to express emotions in metaphor), thereby enhancing higher-order thinking skills (Hmelo-Silver, 2004; Bell, 2010).

Thus, PBL serves as a concrete pedagogical approach rooted in constructivist theory, rendering poetry instruction in elementary schools more interactive, meaningful, and developmentally appropriate.

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### 2.2. Project-based Learning (PjBL)

PjBL focuses on engaging students with intricate, real-world challenges that demand thorough exploration and comprehension (Farrow et al., 2024; Wu, 2024; Zen et al., 2022). This method promotes active learning by encouraging students to delve into various educational content through experiential projects, thereby sparking curiosity and fostering critical thinking. By positioning students at the heart of the educational experience, PBL moves away from passive information intake and towards active participation. It motivates students to thoroughly examine issues, explore possible solutions, and apply their knowledge in real-world scenarios. This approach is particularly effective in cultivating vital 21st-century skills such as problem-solving, creativity, and critical thinking (Kong et al., 2024).

One of the primary advantages of PjBL is its capacity to promote student-centered learning experiences in which learners assume greater responsibility for their education. By collaborating with teachers and classmates, students are encouraged to engage in reflective practices, receive constructive feedback, and continually enhance their work (Alemneh & Gebrie, 2024; Goyal et al., 2022). This collaborative setting also aids students in developing interpersonal skills such as communication and teamwork, which are essential in both academic and professional environments (Asmayawati et al., 2024). Furthermore, PBL enables students to relate their learning to personal interests, which can boost motivation and make learning more meaningful (LaForce et al., 2017).

PjBL not only fosters collaborative learning but also engages students in intricate tasks that compel them to take charge of their educational journey (Splichal et al., 2018; Zhou et al., 2019). These activities often demand extensive planning, decision-making, and problem-solving, positioning students as the leaders of their learning experience (Maor et al., 2023; Seo et al., 2023). In contrast to conventional teaching methods, in which the instructor guides the learning process, PBL motivates students to be proactive, seek out resources, and develop strategies to tackle the challenges presented in their projects. This self-reliance is crucial for cultivating students' autonomy, as they learn to manage their time, make informed choices, and adapt their methods in response to feedback (Lee & Hannafin, 2016).

Despite the extensive body of literature highlighting the benefits of PjBL in fostering autonomy, collaboration, and problem-solving skills from a wide range of perspectives (Wibawa et al., 2025), a theoretical gap persists regarding its application in teaching poetry at the elementary school level. The majority of PjBL research has focused on science, technology, engineering, and mathematics (STEM) disciplines or broader literacy practices. In contrast, poetry—a field that necessitates creativity, personal expression, and nuanced interpretation—has received limited attention within PBL research in the elementary school context. The integration of PjBL into poetry instruction prompts significant inquiries concerning how young learners can balance creative freedom with structured project tasks, how collaboration affects individual poetic voices, and how project outcomes (e.g., anthologies and performances) influence students' appreciation and comprehension of poetry. Addressing this gap will enhance our understanding of how PjBL can be adapted to enrich language arts instruction, particularly in cultivating creativity, critical thinking, and literary appreciation among elementary school students.

## 3. Methodology

### 3.1. Research Design

This study utilized a quasi-experimental research design incorporating pre- and post-test control groups to examine the impact of the Project-Based Learning (PjBL) model on students' poetry learning outcomes. The quasi-experimental design was chosen because it can explore cause-and-

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effect relationships in natural classroom environments, where random assignment of participants is often impractical (Creswell & Creswell, 2018).

The research involved two groups of fifth-grade students: an experimental group and a control group. The experimental group received instruction through the PjBL framework, which prioritized student-centered collaborative learning via project tasks such as poetry anthologies and performances. Conversely, the control group was instructed using traditional teacher-centered methods, emphasizing direct instruction, rote memorization, and individual seatwork.

Both groups underwent a pre-test to establish baseline equivalence in poetry literacy skills prior to the intervention. Following the instructional period, a post-test was administered to evaluate the learning gains. This design facilitated a comparison of the relative effectiveness of PjBL in enhancing poetry learning outcomes.

### *3.2. Research context and participants*

The participants were fifty fifth-grade students from an elementary school in Manado, Indonesia. One class was assigned to the experimental group (PjBL), and the other to the control group (traditional instruction). The participants were deemed appropriate for this research because they included poetry learning in their curriculum and had prior exposure to fundamental literary appreciation. Furthermore, the selection of this cohort was consistent with the study's objective, which was to examine the impact of a pedagogical intervention, such as PjBL, on enhancing literary competence and creative interpretation among Indonesian elementary school students. A purposive sampling technique was used to select participants, considering their comparable grade level, curriculum, and prior exposure to poetry instruction. Ethical clearance was obtained, and parental consent was secured before data collection. Ethical approval was obtained from the university's human research ethics committee.

### *3.3. Data collection*

The data collection process in this research consists of observation and written tests (pretest and posttest). The research instrument, a rubric for assessing poetry reading literacy skills, will be used in the study. The tests refer to those administered before the treatment (pretest) and after the treatment (posttest). The pretest of students' poetry-reading literacy skills is administered to both the experimental and control classes before the experimental class receives the PjBL model treatment. At the same time, the control class does not use the PjBL. After the treatment, a posttest is administered to assess students' development in poetry reading literacy skills.

### *3.4. Instrument validation*

All instruments were subjected to expert validation by two specialists in language education and pedagogy. Their feedback was used to refine the clarity, appropriateness, and alignment of test items and rubrics with research objectives. A pilot test was conducted with a small group of students (n = 25) to assess reliability and practicality. Reliability indices, such as Cronbach’s Alpha, were calculated for the test to assess consistency. The validity and reliability procedures can be seen in the following table:

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**Table 1.** Validation and Reliability Procedures for Research Instruments

| Procedure | Description | Outcome |
|---|---|---|
| Expert Validation | Two specialists in language education and pedagogy reviewed instruments for clarity, appropriateness, and alignment with research objectives. | Instruments refined based on expert feedback. |
| Pilot Test | Conducted with a small group of students (n = 25) to assess clarity, practicality, and usability of test items and rubrics. | Minor revisions made for clarity and feasibility. |
| Reliability Testing | Internal consistency was measured using Cronbach's Alpha for the pilot test items. | Reliability indices (α ≥ .70) confirmed acceptable reliability. |

*Note. Validation and reliability processes ensured clarity, appropriateness, and consistency of the instruments used in the study, thereby strengthening the credibility of the findings (Taber, 2018).*

After processing the validity and reliability, the reliability statistics of the pilot test can be seen as follows:

**Table 2.** Instrument Reliability Statistics (Pilot Test, n = 25)

| Instrument | Number of Items | Cronbach's Alpha (α) |
|---|---|---|
| Poetry Reading Literacy Test | 20 | 0.82 |
| Observation Checklist | 10 | 0.79 |

*Note. Cronbach's Alpha coefficients (α ≥ .70) indicate acceptable reliability of the instruments used in the study, ensuring consistency of data collection (Taber, 2018).*

### *3.5. Group Assignment and equivalent test*

Before the implementation of the PjBL intervention, an independent-samples t-test was conducted to examine whether the experimental and control groups differed significantly in their pretest scores on poetry readiness. The analysis revealed that the experimental group (M = 62.4, SD = 14.22, N = 25) had a slightly higher mean than the control group (M = 55.4, SD = 10.20, N = 25). However, this difference was not statistically significant, Welch's t(43.52) = 2.00, p = .052, Cohen's d = 0.57. This finding indicates that both groups were generally comparable in their initial levels of poetry readiness prior to the intervention. However, a moderate effect size suggested a small advantage for the experimental group. Hence, the groups were considered sufficiently equivalent for the purpose of examining the effect of the PjBL approach on poetry learning outcomes.

### *3.6. Procedure*

The study followed these stages:

1. **Pre-test:** Both experimental and control groups completed the same pre-test to establish baseline equivalence.

2. **Treatment:**

The intervention spanned eight weeks, with weekly sessions conducted for both the experimental and control groups. Both groups adhered to an identical syllabus focused on poetry appreciation, albeit employing distinct instructional methodologies. The experimental group was instructed using the PjBL framework, executed through a structured four-stage plan: (1) Planning (Weeks 1–2): introduction of project objectives and group formation; (2) Development (Weeks 3–5):

collaborative engagement in poetry projects, including analysis, composition, and performance preparation; (3) Presentation (Weeks 6–7): execution of project performances or multimedia showcases, accompanied by peer and teacher feedback; and (4) Reflection (Week 8): evaluation of learning outcomes and experiences. Conversely, the control group received conventional instruction, emphasizing teacher-led explanations, reading aloud, and comprehension exercises utilizing textbook materials, conducted with the same duration and frequency as the experimental group. Student progress in both cohorts was systematically documented through weekly observations and formative assessments. By the sixth week, the experimental group began to surpass the control group, demonstrating enhanced engagement, creativity, and interpretative skills, as corroborated by the post-test results.

3. Post-test: Both groups completed the same test administered at the beginning of the study.

Throughout the intervention, student progress for both groups was systematically documented using formative assessments, observation checklists, and weekly reflections. For the experimental group, project milestones and teachers' notes were employed to monitor collaboration and creativity. In contrast, quiz scores and class participation records were utilized for the control group. Preliminary progress data revealed that the experimental group began to surpass the control group by the sixth week, as evidenced by students' enhanced engagement, creativity, and interpretative skills in their project presentations. This early advancement was further corroborated by post-test results, which indicated superior poetry-learning outcomes for the PjBL group compared with the traditional group.

### *3.7. Data analysis*

The data analysis techniques used in this study include descriptive and inferential analyses, with prerequisite tests conducted before hypothesis testing. This hypothesis test is conducted to determine whether applying the PjBL model affects the poetry reading literacy skills of fifth-grade students at the elementary school GMIM 2 Tomohon. The testing was carried out in MS Excel using the Two-Sample T-Test (paired t-test), which tests the difference between the averages of two paired samples (two groups). The comparative hypothesis can be formulated as follows: H0 = There is no effect of using the Project-Based Learning model on the poetry reading literacy skills of fifth-grade elementary school students; Ha = There is an effect of using the Project-Based Learning model on the poetry reading literacy skills of fifth-grade students at elementary school GMIM 2 Tomohon. The significance level testing rule $\alpha = 0.05$: H0 is accepted and Ha is rejected if: (tcount < ttable); Ha is accepted and H0 is rejected if: (tcount > ttable).

## 4. Results

Based on the data analysis, the application of the Project-Based Learning model influenced the poetry-reading literacy skills of Grade V students at SD GMIM 2 Tomohon. This is evidenced by the differences the researcher observed on written tests administered at the beginning and end of the experimental class, after the researcher provided special treatment. Then, the results of both classes were analyzed descriptively to find the mean, standard error, standard deviation, variance, range, maximum, minimum, and sum using Microsoft Excel.

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**Table 4.** Descriptive Statistical Analysis of the Pretest

| *Statistics* | | |
|---|---|---|
| | Pretest Experimental | Pretest Control |
| Mean | 62,4 | 55,4 |
| Standard Error | 2,844878439 | 2,039607805 |
| Median | 65 | 55 |
| Mode | 50 | 60 |
| Standard Deviation | 14,2243922 | 10,19803903 |
| Sample Variance | 202,3333333 | 104 |
| Curtosis | 0,947370886 | 0,830360197 |
| Skewness | 0,117096187 | 0,074865613 |
| Range | 45 | 35 |
| Minimum | 40 | 40 |
| Maximum | 85 | 75 |
| Sum | 1560 | 1385 |
| Count N | 25 | 25 |

According to the data presented in the table, the experimental group attained an average score of 62.4. In contrast, the control group achieved an average score of 55.4, with each group consisting of 25 students. The standard error for the experimental group was 2.844, while that for the control group was 2.039. The standard deviation for the experimental group was 14.224, compared with 10.198 for the control group. The sample variance for the experimental group was 202.333, compared to 104 for the control group. The kurtosis values were -0.947 for the experimental group and -0.830 for the control group. The skewness for the experimental group was 0.117, whereas it was 0.0748 for the control group. The range of scores in the experimental group was 45, compared with 35 in the control group. Both groups had a minimum score of 40; however, the maximum score was 85 in the experimental group and 75 in the control group. The total score for the experimental group was 1560, while it was 1385 for the control group.

**Table 5.** Descriptive Statistical Analysis of Posttest

| *Statistics* | | |
|---|---|---|
| | Posttest Experiment | Posttest Control |
| Mean | 85,8 | 67,6 |
| Standard Error | 1,7 | 3,001666204 |
| Median | 85 | 70 |
| Mode | 90 | 85 |
| Standard Deviation | 8,5 | 15,00833102 |
| Sample Variance | 72,25 | 225,25 |
| Sample Variance | 72,25 | 225,25 |
| Curtosis | -0,093479603 | -1,415650488 |

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| | | |
|---|---|---|
| Skewness | -0,215665625 | -0,217447471 |
| Range | 30 | 40 |
| Minimum | 70 | 45 |
| Maximum | 100 | 85 |
| Sum | 2145 | 1690 |
| Count | 25 | 25 |

As indicated in the table above, the experimental group achieved an average score of 85.8, whereas the control group attained an average score of 67.6, with each group comprising 25 students. The standard error for the experimental group was 1.7, compared to 3.001 for the control group. The standard deviation was 8.5 for the experimental group and 15.008 for the control group. The sample variances were calculated as 72.25 for the experimental group and 225.25 for the control group. The kurtosis values were -0.093 for the experimental group and -1.415 for the control group. Skewness was recorded at -0.215 for the experimental group and -0.217 for the control group. The range of scores was 30 for the experimental group and 40 for the control group. The minimum score observed in the experimental group was 70, while the control group had a minimum score of 45. The maximum score for the experimental group was 100, compared with 85 for the control group. The total sum of data values was 2145 for the experimental group and 1690 for the control group.

Following a descriptive analysis conducted before and after treatment for both groups, the experimental group exhibited a greater increase than the control group. Additionally, the researcher performed inferential data analysis, including normality and homogeneity tests for both groups, prior to conducting the hypothesis test using MS Excel. The normality test results, based on the Lilliefors table, indicated that the calculated Lvalue was 0.168 < 0.173 for the experimental group pre-test and 0.166 < 0.173 for the control group pre-test. For the post-test results, the values were 0.150 < 0.173 for the experimental group and 0.133 > 0.173 for the control group. These findings suggest that the significance results for both the experimental and control groups, in both pre-test and post-test, yielded significance values exceeding the test criteria (Lcalculated < Ltable); thus, the alternative hypothesis (Ha) is rejected. Consequently, the pre- and post-test samples of both the experimental and control groups were normally distributed. The normality test results are detailed in Table 3.

**Table 6.** Normality Test

| | Class | N | Mean | Stdev. | $L_{count}$ | $L_{table}$ |
|---|---|---|---|---|---|---|
| Students reading poetry ability | Pretest exprimental | 25 | 62,4 | 14,2 | 0,168325 | 0,173000 |
| | Pretest control | 25 | 55,4 | 10,2 | 0,166089 | 0,173000 |
| | Posttest Experimental | 25 | 85,8 | 8,5 | 0,150612 | 0,173000 |
| | Posttest control | 25 | 67,6 | 15,01 | 0,133707 | 0,173000 |
| According to the Lilliefors Significance Level with Alpha α = 0.05 | | | | | | |

Subsequently, because the sample was drawn from a normally distributed population, the researcher conducted a homogeneity test (based on the mean) at a significance level of 0.05 for both the pre- and post-tests of the experimental and control groups. The results of the homogeneity test

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indicated that Fcalculated exceeded Ftable at an alpha level of 0.05, as illustrated in the following table of the pretest-posttest homogeneity test.

**Table 7.** Posttest Homogenity

| | *Variable 1* | *Variable 2* |
|---|---|---|
| Mean | 85,8 | 67,6 |
| Variance | 72,25 | 225,25 |
| Observations | 25 | 25 |
| df | 24 | 24 |
| F | 0,320754717 | |
| P(F<=f) one-tail | 0,003595679 | |
| F Critical one-tail | 0,504093347 | |

According to the homogeneity test presented in the preceding table, the Fcount value of 0.320754717 is less than the Ftable value of 0.504093347, which is greater than 0.05. Consequently, based on the significance value, the alternative hypothesis (Ha) is rejected, and the null hypothesis (H0) is accepted. This indicates that the samples from the experimental and control classes originate from populations with homogeneous variance. Given that both samples were determined to be normally distributed and homogeneous, the researcher proceeded to test the hypothesis using the two-sample t-test in MS Excel, assuming equal variances, for the post-test results of the experimental and control classes. The analysis revealed that the calculated T-value (Tcount) of 5.275916424 exceeded the T-table value of 1.677224196. Therefore, the alternative hypothesis (Ha), which posits that implementing the Project-Based Learning model affects the poetry reading literacy skills of Grade V students at elementary school GMIM 2 Tomohon, is accepted. In contrast, the null hypothesis (H0) is rejected, as Tcount > Ttable. Furthermore, a difference in mean values was observed, with the post-test scores being 85.8 for the experimental group and 67.6 for the control group (85.8 > 67.6). This finding supports the research's statistical hypothesis, indicating that "the average post-test score of the experimental class is not equal to the average post-test score of the control class" (Ha: $\mu 1 \neq \mu 2$). Therefore, it can be concluded that the implementation of the Project-Based Learning model has a significant effect on the poetry-reading literacy skills of Grade V students at the elementary school GMIM 2 Tomohon. The following table presents the results of the hypothesis testing.

**Table 8.** Hypothetical Test

| | *Posttest* Experiement | *Posttest* control |
|---|---|---|
| Mean | 85,8 | 67,6 |
| Variance | 72,25 | 225,25 |
| Observations | 25 | 25 |
| Pooled Variance | 148,75 | |
| Hypothesized Mean Difference | 0 | |
| df | 48 | |
| t Stat | 5,275916424 | |

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Table 9. The comparison of the Posttest Average

| | Mean | N | Standard Deviation | Standard Error Mean |
|---|---|---|---|---|
| Posttest experimental | 85,8 | 25 | 8,50 | 1,70 |
| Posttest control | 67,6 | 25 | 15,01 | 3,002 |
| Average margin | 1,268 | | | |

Based on the table above, a difference is observed in the mean scores between the pretest of the experimental class and the posttest of the control class, with a mean score difference of 1.268—Posttest Experimental: 85.8 and Posttest Control: 67.6 (85.8 > 67.6). This finding aligns with the research's statistical hypothesis, which posits that "the mean posttest score of the experimental class is not equal to the mean posttest score of the control class" (**Ha**: $\mu\mathbf{1} \neq \mu\mathbf{2}$). Consequently, it can be concluded that (**Ha**) "There is an effect of implementing the Project-Based Learning model on the poetry reading literacy skills of fifth-grade elementary school students."

## 5. Discussion

The findings of this study clearly demonstrate that implementing the PjBL model significantly enhanced the poetry-reading literacy skills of fifth-grade students at SD GMIM 2 Tomohon. The improvement in the experimental group's mean post-test score (85.8) compared to the control group (67.6) highlights the effectiveness of PjBL in creating meaningful learning experiences. This result aligns with Splichal et al. (2018) and Zhou et al. (2019), who found that PjBL fosters deep engagement and motivates students to take ownership of their learning, leading to measurable gains in academic performance and learning outcomes. The positive outcomes observed in this study suggest that PjBL enables students to develop not only literacy skills but also broader competencies such as collaboration, problem-solving, and critical thinking. These findings echo Bell's (2010) argument that PjBL equips learners with 21st-century skills by situating knowledge in authentic and socially relevant tasks. Similarly, Maor et al. (2023) and Seo et al. (2023) emphasized that PjBL enhances student autonomy by encouraging learners to collaboratively plan, manage, and execute projects. In the context of poetry learning, such autonomy is particularly important, as students are given the freedom to interpret texts, share perspectives and creatively express meaning.

Moreover, the observed increase in students' curiosity, motivation, and active participation resonates with earlier studies highlighting the affective benefits of PjBL. Lee and Hannafin (2016) note that PjBL supports self-regulated learning, empowering students to set goals and reflect on progress, while Larmer, Mergendoller, and Boss (2015) stress its ability to connect classroom activities to real-world contexts, thereby heightening engagement. In poetry reading, this model allows learners to experience literature not as a passive decoding of words but as an interactive exploration of rhythm, imagery and meaning. These results fill an important gap in the literature, as most PjBL research has concentrated on STEM disciplines, with limited attention to its application in language arts and poetry. By demonstrating its positive impact on poetry reading literacy, this study contributes new evidence to the field of elementary language education and underscores the adaptability of PjBL across different subjects.

Previous research has shown that PjBL significantly enhances students' motivation, problem-solving abilities, and collaboration skills (Wulandari & Nawangsari, 2024). It promotes active student involvement, thereby reducing fear and increasing enjoyment and self-efficacy related to learning, as demonstrated in physics education settings (Goldstein, 2016). These elements are critical in poetry reading, as students often face challenges in interpreting and appreciating the nuances of poetic

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language.While PjBL's effectiveness in promoting 21st-century skills such as critical thinking and collaborative learning has been evidenced in various subjects, including mathematics (Rehman et al., 2024), it has been relatively less explored in the context of poetry reading. However, the principles remain applicable; students can be encouraged to analyze poems through collaborative projects, helping them develop a deeper understanding of and appreciation for poetic texts.

Challenges similar to those faced in other disciplines, such as balancing depth with content coverage and addressing diverse learning needs, are also present in poetry education (Goldstein, 2016). Nonetheless, the integration of real-world learning activities, as executed in moral education in the UAE, suggests that PjBL can effectively situate poetry in contexts that resonate with students' experiences, potentially improving engagement and comprehension (Almazroui, 2022). Based on the findings, PjBL offers several advantages in teaching poetry to elementary school students. Firstly, PjBL significantly enhances students' motivation and engagement by rendering learning experiences more relevant and meaningful. This is accomplished through real-world learning activities that capture students' interest in poetry. PjBL also facilitates the development of critical thinking, creativity, and communication skills, which are essential for interpreting and appreciating the nuanced language of poetry. The collaborative nature of PjBL encourages students to actively engage with poetry, fostering a deeper understanding and a stronger connection to the material. By integrating PjBL, students experience improvements in both content knowledge and skills development. This holistic enhancement is particularly important in subjects such as poetry, where traditional teaching methods may not effectively engage all learners. Overall, while implementing PjBL to enhance poetry reading skills in elementary settings is promising, it necessitates careful curricular design to align projects with learning objectives and provide ongoing support for both students and educators in bridging traditional methodologies with innovative project-based approaches.

## 6. Conclusion

This study aimed to investigate the effect of implementing the Project-Based Learning (PjBL) model on the poetry reading literacy skills of fifth-grade elementary school students at GMIM 2 Tomohon. The results of the study revealed a significant effect of PjBL on the poetry reading literacy skills of the students, with a mean score difference of 1.268 between the pre-test of the experimental class and the post-test of the control class. The study found that implementing the PjBL model led to a significant improvement in students' poetry-reading literacy skills. The results of the written tests administered at the beginning and end of the study showed a greater increase in the experimental class than in the control class. Inferential data analysis, including normality and homogeneity tests, confirmed that the samples were normally distributed and homogeneous, allowing for hypothesis testing using the T-test: Two-Assuming Equal Variances technique.

The study's findings have significant implications for education, particularly for implementing project-based learning models in elementary education. The results suggest that PjBL can be an effective approach to improve students' literacy skills, including poetry reading. The study's findings also highlight the importance of engaging students in the learning process and fostering critical thinking, problem-solving, and collaboration skills.Despite these contributions, several limitations of this study warrant acknowledgment. Firstly, the research was conducted within a single school setting, thereby limiting the generalizability of its findings. Secondly, the sample was confined to a single grade level (fifth grade), which may not adequately capture variations across different ages and developmental stages. Thirdly, the study predominantly relied on written test scores as indicators of literacy. While these are significant, they may not comprehensively reflect the broader dimensions of poetry literacy, such as oral interpretation, performance, or aesthetic appreciation. Lastly, the study was conducted over a relatively brief intervention period, leaving the long-term effects of PjBL on literacy development unexplored.

https://doi.org/10.22521/edupij.2025.19.595 Published online by Universitepark Press

## 7. Suggestions

Based on the findings, it is recommended that educators integrate Project-Based Learning (PjBL) into poetry instruction by designing projects such as poetry anthologies, performances, or multimedia presentations that connect students' personal experiences with literary expression. Teachers must provide structured scaffolding to help students interpret poetic language while promoting creative independence. At the pedagogical level, educational institutions and policymakers should consider implementing professional development programs to equip teachers with the skills needed to effectively apply PjBL in literacy education. Future research should explore cross-grade applications, evaluate long-term impacts, and investigate the integration of digital platforms to enhance project-based poetry learning in the classroom.

## Declarations

**Author Contributions.** (M.E.R: Literature review, conceptualization. M.E.R: methodology, data analysis. R.M.M: validation, review-editing and writing, original manuscript preparation. All authors have read and approved the published on the final version of the article.

**Conflicts of Interest.** On behalf of all authors, the corresponding author declares that there are no conflicts of interest.

**Funding.** No funding is provided or received for this study.

**Ethical Approval.** The research has been approved by ethics committee of Universitas Negeri Manado.

**Data Availability Statement.** The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request

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