

## The Influence of Problem-Based Learning Model on Persuasive Writing Ability

Irfan Lestusen<sup>1</sup>, Martha Maspaitella<sup>2\*</sup>

<sup>1</sup>Pendidikan Bahasa dan Sastra Indonesia, Universitas Pattimura, Ambon, Indonesia

<sup>2</sup>Bahasa dan Seni, Universitas Pattimura, Ambon, Indonesia

\*[martha.maspaitella@lecturer.unpatti.ac.id](mailto:martha.maspaitella@lecturer.unpatti.ac.id)

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### Abstract

The Problem-Based Learning (PBL) model is a learning paradigm that aims to engage students in critical thinking through the presentation of authentic problems and enhance their learning capabilities. This study aims to examine the influence of the PBL model on the persuasive writing ability of grade VIII students at MTs Negeri 6 Central Maluku. This research employed a quantitative experimental method with a quasi-experimental design. The research procedure was conducted using data collection methods including observation, interviews, learning processes, questionnaires, and documentation. The research population consisted of all grade VIII students at MTs Negeri 6 Central Maluku, with a sample of 60 students divided into experimental class (30 students) and control class (30 students). The research instruments comprised persuasive writing ability tests, observation sheets, and learning motivation questionnaires. Data were analyzed using paired sample t-tests with SPSS 25.0 software. The results showed a significant difference in persuasive writing ability between the experimental and control classes. The experimental class implementing the PBL model achieved an average post-test score of 52.5, while the control class using conventional methods achieved an average of 48.8. The t-test results showed a Sig. (2-tailed) value of  $0.005 < 0.05$ , thus  $H_0$  was rejected and  $H_a$  was accepted. These findings confirm that the PBL model significantly influences the improvement of students' persuasive writing ability by enhancing active engagement, critical thinking skills, and argumentation competencies in Indonesian language learning.

**Keywords:** *influence; innovative learning model; persuasive text writing; Problem-Based Learning.*



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## INTRODUCTION

Language serves as one of the primary communication tools for humans, both orally and in writing, enabling individuals to convey thoughts, feelings, and opinions. In the context of social life, language becomes a crucial component that determines the quality of interaction and understanding among individuals (Ministry of National Education, 2006). Indonesian, as the national language, is a mandatory subject at all educational levels from elementary to higher education, with the aim of building knowledge, language proficiency, and positive attitudes toward Indonesian language and literature.

According to the Ministry of National Education (2006), the Indonesian language learning program aims to build knowledge, language proficiency, and positive attitudes toward Indonesian language and literature. Through this learning, students are guided to improve their oral and written communication abilities in Indonesian. The foundation of good communication lies in the ability to convey meaning and messages, which includes interpretation, assessment, and effective expression of ideas.

Writing skills, as one of the four language skills, play a strategic role in developing students' communication abilities. International research demonstrates that good writing skills contribute significantly to academic achievement and future career success (Ferretti & Graham, 2019). In the context of Indonesian language learning, writing skills encompass various types of texts, including persuasive texts that require argumentation abilities and the capacity to convince readers.

Persuasive text is a type of text that aims to convince readers to accept viewpoints or take specific actions through the use of logical arguments, strong evidence, and effective rhetorical techniques (Öğülmüş & Açıkgöz, 2024). Persuasive writing ability involves not only linguistic skills but also critical thinking abilities, argument analysis, and deep understanding of target audiences (Hutchison et al., 2024). Research shows that students who master persuasive writing skills tend to have better argumentation abilities in various academic and social contexts. However, field reality shows that students face various challenges in developing persuasive writing abilities. Research by Alghamdy (2023) identified several main obstacles faced by students in persuasive writing, including: (1) limited vocabulary and language structure, (2) difficulty in organizing ideas logically, (3) lack of understanding of effective argumentation techniques, and (4) low learning motivation due to monotonous teaching methods. Similar conditions are also found in Indonesia, where students' Indonesian language scores are often still below the established Minimum Mastery Criteria (KKM) standards.

Based on preliminary observations at MTs Negeri 6 Central Maluku, it was found that grade VIII students experienced difficulties in creating attractive and effective persuasive texts. The main problems identified include: (1) students' low ability to develop logical and convincing arguments, (2) limitations in using appropriate persuasion techniques, (3) lack of creativity in idea presentation, and (4) low learning motivation due to conventional teaching methods that do not actively engage students. To address these problems, innovation in teaching methods is needed that can increase students' active engagement, develop critical thinking abilities, and improve persuasive writing skills. One potentially effective learning approach is the Problem-Based Learning (PBL) model. International research shows that PBL is proven effective in improving various academic skills, including writing abilities (Sari et al., 2021; Wambsganss et al., 2021).

The PBL model is a student-centered learning approach that involves students in solving authentic and contextual problems (Al-Tabany, 2014). In the context of writing instruction, PBL provides opportunities for students to explore relevant topics, analyze various perspectives, and develop strong arguments based on evidence and real experiences (Serra et al., 2023). This approach aligns with constructivism theory, which emphasizes that learning occurs through active construction of knowledge by students through interaction with the environment and experiences. Several empirical studies support the effectiveness of PBL in improving writing abilities. Research by Alotaibi (2020) on high school students in Saudi Arabia showed that implementing project-based learning (a variant of PBL) significantly improved EFL students' persuasive writing abilities. Similarly, research by Nafisah et al. (2022) found that PBL is effective in improving students' writing skills by providing meaningful and relevant contexts. Research by Salem (2025) also confirmed that collaborative problem-based learning can improve students' persuasive writing skills and self-efficacy.

The advantages of the PBL model in persuasive writing instruction lie in several aspects: (1) providing authentic contexts that motivate students to write, (2) developing critical thinking abilities through complex

problem analysis, (3) improving argumentation skills through discussion and debate, (4) encouraging collaboration and peer-to-peer learning, and (5) integrating various language skills in meaningful contexts (Waruwu *et al.*, 2020). Based on the problem background and literature review above, this research aims to empirically examine the influence of the Problem-Based Learning model on the persuasive writing ability of grade VIII students at MTs Negeri 6 Central Maluku. This research is expected to provide theoretical and practical contributions to the development of Indonesian language learning, particularly in improving students' persuasive writing abilities at the secondary school level.

## METHODS

This research employed a quantitative method with a quasi-experimental design, comparing learning outcomes between the experimental class implementing the PBL model and the control class using conventional teaching methods. The research population consisted of all grade VIII students at MTs Negeri 6 Central Maluku, with a sample of 60 students divided into experimental class (30 students) and control class (30 students) through purposive sampling technique. The research instruments consisted of: (1) persuasive writing ability tests developed based on persuasive writing ability indicators, (2) learning observation sheets, (3) learning motivation questionnaires, and (4) interview guidelines. Data were collected through pre-tests and post-tests, learning observations, questionnaires, and documentation. Data analysis used descriptive and inferential statistics. Prerequisite tests included normality tests (Kolmogorov-Smirnov) and homogeneity tests (Levene's test). Hypothesis testing used paired sample t-tests with SPSS 25.0 software and a significance level of  $\alpha = 0.05$ .

## RESULTS AND DISCUSSION

The research results demonstrated significant improvement in persuasive writing ability across both groups, with notably greater enhancement in the experimental class. The experimental class exhibited a substantial increase from a pre-test average of 45.2 to a post-test average of 52.5, representing a 16.1% improvement. In contrast, the control class showed a more modest increase from 44.8 to 48.8, reflecting an 8.9% improvement. This differential improvement pattern aligns with previous findings by Sari *et al.* (2021), who reported similar effect sizes when comparing PBL interventions with traditional instruction methods. The statistical analysis revealed robust evidence supporting the effectiveness of the PBL intervention. Normality testing using the Kolmogorov-Smirnov test confirmed that data from both groups were normally distributed ( $p > 0.05$ ), satisfying the parametric test assumptions. The Levene's test for homogeneity of variance also indicated homogeneous data distribution ( $p > 0.05$ ), further validating the appropriateness of the statistical approach employed.

The paired sample t-test results provided compelling evidence of the intervention's effectiveness. The experimental group demonstrated  $t = 5.193$  with a significance level of  $p = 0.005$ , while the control group showed  $t = 4.691$  with the same significance level. Given that the p-value (0.005) was substantially less than the alpha level of 0.05, the null hypothesis ( $H_0$ ) was rejected in favor of the alternative hypothesis ( $H_a$ ), confirming a statistically significant difference in persuasive writing ability between the experimental and control groups.

Qualitative analysis of the questionnaire data revealed additional insights into the intervention's impact on student engagement and self-efficacy. In the experimental class, 56% of students achieved 'good' levels of persuasive writing ability, while 44% reached 'adequate' levels. This distribution contrasts sharply with the control class, where only 9% attained 'good' levels and 90% remained at 'adequate' levels. This pattern suggests that PBL not only improves average performance but also increases the proportion of students achieving higher proficiency levels, consistent with findings by Salem (2025) regarding collaborative learning's impact on writing self-efficacy.

### Theoretical Framework and Empirical Validation

The findings of this research provide robust empirical support for the effectiveness of Problem-Based Learning (PBL) in enhancing students' persuasive writing abilities. These results align comprehensively with Vygotsky's social constructivism theory, which posits that learning occurs through social interaction and the active construction of knowledge within meaningful contexts (Ferretti & Graham, 2019). The significant

improvement observed in the experimental group can be attributed to several interconnected theoretical mechanisms that PBL activates in the learning process.

From a cognitive development perspective, the results support Piaget's constructivist learning theory, which emphasizes that learners actively construct knowledge through interaction with their environment. The PBL model's emphasis on authentic problem-solving scenarios provided students with opportunities to engage in what Piaget termed "accommodation" – the process of modifying existing cognitive schemas to incorporate new information. This theoretical foundation explains why experimental group students demonstrated superior performance in organizing ideas, constructing logical arguments, and employing persuasive techniques effectively.

### **Mechanisms of PBL Effectiveness in Writing Instruction**

**Authentic Context and Motivation Enhancement.** The superior performance of the experimental group can be primarily attributed to PBL's provision of authentic learning contexts that significantly enhance student motivation and engagement. As documented by Sari et al. (2021), problem-based learning creates challenging situations that compel students to employ higher-order thinking skills, including analysis, synthesis, and evaluation – competencies that are fundamental to effective persuasive writing. The authentic problems presented in the PBL intervention required students to assume real-world roles and address genuine concerns, thereby increasing their intrinsic motivation to produce high-quality persuasive texts.

This finding resonates with Self-Determination Theory (Deci & Ryan, 2000), which identifies autonomy, competence, and relatedness as core psychological needs that drive intrinsic motivation. The PBL approach satisfied these needs by allowing students autonomy in problem-solving approaches, building competence through scaffolded learning experiences, and fostering relatedness through collaborative group work. The questionnaire data supporting increased student engagement in the experimental group provides empirical evidence of this motivational enhancement.

**Development of Argumentation and Critical Thinking Skills.** The research findings demonstrate that PBL significantly enhances students' argumentation abilities through structured discussion and debate processes inherent in collaborative problem-solving. Research by Wambsganss et al. (2021) established that interactive dialogue in learning environments substantially improves students' capacity to construct logical and convincing arguments. In this study, experimental group students exhibited marked improvement in their ability to organize ideas coherently, utilize supporting evidence effectively, and construct persuasive arguments with clear logical progression.

This improvement can be explained through Toulmin's model of argument structure, which identifies six components of effective argumentation: claim, data, warrant, backing, qualifier, and rebuttal. The PBL intervention required students to engage with all these components as they developed solutions to authentic problems, thereby providing systematic practice in argumentation skills that directly transferred to their persuasive writing performance. The significant difference in post-test scores between experimental and control groups (52.5 vs. 48.8) reflects this enhanced argumentation competency.

**Metacognitive Development and Self-Regulation.** A crucial finding of this research relates to PBL's capacity to foster metacognitive skills – students' ability to monitor, evaluate, and regulate their own learning processes. Serra et al. (2023) emphasized that reflection in academic writing significantly enhances students' cognitive control and self-awareness of their learning strategies. The experimental group students demonstrated superior ability to revise and refine their writing based on peer and instructor feedback, suggesting enhanced metacognitive awareness of their writing processes.

This metacognitive development aligns with Flavell's (1979) metacognition theory, which distinguishes between metacognitive knowledge (awareness of one's cognitive processes) and metacognitive regulation (control of those processes). The PBL intervention systematically developed both aspects through reflective activities, peer review processes, and explicit strategy instruction embedded within problem-solving contexts. The observed improvement in writing quality can be attributed partly to students' enhanced ability to self-monitor and self-regulate their writing processes.

**Collaborative Learning and Social Knowledge Construction.** The research results strongly support the effectiveness of collaborative learning components inherent in PBL methodology. Salem (2025) demonstrated that wiki-mediated collaborative writing significantly improves students' persuasive writing skills and self-efficacy. In this study, the experimental group's superior performance can be attributed to the social knowledge construction processes facilitated by collaborative problem-solving activities. Vygotsky's concept of the Zone of Proximal Development (ZPD) provides a theoretical framework for understanding these collaborative learning benefits. The PBL intervention created opportunities for peer scaffolding, where more capable peers assisted others in achieving higher performance levels than they could attain independently. The questionnaire data showing increased confidence and motivation in the experimental group reflects this social learning dynamic. Students reported feeling more supported and engaged when working collaboratively on authentic problems, leading to improved writing outcomes.

**Comparative Analysis with International Research.** The findings of this research demonstrate remarkable consistency with international studies examining PBL effectiveness in writing instruction across diverse cultural and linguistic contexts. Alghamdy (2023) reported similar positive effects of PBL on EFL students' paragraph writing and grammar skills in Saudi Arabia, with effect sizes comparable to those observed in this study. The cross-cultural validity of these findings suggests that PBL's effectiveness transcends specific cultural or linguistic boundaries, supporting its potential for widespread implementation in diverse educational contexts.

Research by Alotaibi (2020) on project-based learning's impact on persuasive writing skills among Saudi EFL secondary school students revealed similar patterns of improvement, with experimental groups demonstrating significantly superior performance compared to control groups receiving traditional instruction. The consistency of these findings across different cultural contexts (Indonesia, Saudi Arabia) and student populations (L1 vs. EFL learners) strengthens the evidence base for PBL's universal applicability in writing instruction.

Furthermore, the research by Ögülmüş and Açıkgöz (2024) on improving persuasive writing skills among students with specific learning disabilities using structured strategy instruction provides additional context for understanding the mechanisms underlying PBL effectiveness. Their findings suggest that explicit strategy instruction, combined with authentic practice opportunities, produces significant improvements in persuasive writing quality – elements that are inherently embedded within well-designed PBL interventions.

### **Pedagogical Implications and Theoretical Contributions**

From a pedagogical perspective, the success of the PBL model in this research validates several key principles of effective writing instruction identified in contemporary literacy research. The integration of authentic contexts, collaborative learning opportunities, and explicit strategy instruction within PBL methodology addresses multiple dimensions of effective writing pedagogy simultaneously.

**Cognitive Load Theory Considerations.** The research findings can also be interpreted through the lens of Cognitive Load Theory (Sweller, 1988), which distinguishes between intrinsic, extraneous, and germane cognitive load. The PBL intervention appeared to optimize cognitive load by: (1) managing intrinsic load through scaffolded problem complexity, (2) minimizing extraneous load by providing clear task structures and support materials, and (3) promoting germane load through activities that directly contributed to schema construction and knowledge transfer. The superior performance of experimental group students suggests that PBL effectively managed cognitive demands while promoting deep learning processes essential for persuasive writing development. This theoretical perspective helps explain why PBL interventions often produce superior learning outcomes compared to traditional instructional approaches that may impose higher extraneous cognitive load without corresponding benefits for schema construction.

**Social Cognitive Theory Applications.** Bandura's Social Cognitive Theory provides additional theoretical support for the observed research findings. The theory's emphasis on observational learning, self-efficacy, and reciprocal determinism aligns closely with PBL's collaborative and authentic learning environment. Students in the experimental group had multiple opportunities to observe effective problem-solving and

writing strategies employed by peers, contributing to their own skill development through vicarious learning processes. The increased self-efficacy reported by experimental group students, as evidenced in the questionnaire data, reflects Bandura's concept of self-efficacy as a crucial determinant of performance and persistence. The authentic success experiences provided by PBL activities likely enhanced students' confidence in their writing abilities, creating a positive feedback loop that supported continued improvement and engagement.

### **Limitations and Contextual Considerations**

While the research findings provide strong support for PBL effectiveness, several limitations and contextual factors warrant consideration. Hutchison et al. (2024) identified that students with diverse linguistic backgrounds may require additional digital scaffolding to fully benefit from PBL interventions in writing instruction. In this study, some students initially required additional guidance during the early implementation phases, particularly in understanding problem structures and organizing solution processes. The cultural context of Indonesian education, with its traditional emphasis on teacher-centered instruction and rote learning, may have initially created challenges for students adapting to the student-centered, constructivist approach inherent in PBL methodology. However, the significant improvements observed in the experimental group suggest that students can successfully adapt to this pedagogical shift when provided with appropriate support and scaffolding.

### **CONCLUSION**

Based on the research results and comprehensive discussion, it can be conclusively established that the Problem-Based Learning (PBL) model significantly and positively influences the persuasive writing ability of grade VIII students at MTs Negeri 6 Central Maluku. This conclusion is supported by robust statistical evidence demonstrating significant differences between experimental and control groups, with the experimental class implementing PBL showing superior improvement in persuasive writing performance.

The effectiveness of the PBL model in this research can be attributed to its multifaceted approach to learning enhancement: (1) providing authentic and meaningful learning contexts that increase student motivation and engagement, (2) systematically developing students' critical thinking and argumentation abilities through collaborative problem-solving processes, (3) fostering metacognitive awareness and self-regulation skills essential for effective writing, and (4) facilitating collaborative learning experiences that support social knowledge construction and peer scaffolding.

The theoretical contributions of this research extend beyond empirical validation of PBL effectiveness to include comprehensive integration of multiple learning theories – including social constructivism, cognitive load theory, and social cognitive theory – in explaining the mechanisms underlying PBL's impact on writing instruction. These theoretical insights provide valuable guidance for educators and researchers seeking to understand and implement effective writing pedagogy.

From a practical perspective, this research provides compelling evidence for educational stakeholders to consider PBL implementation in Indonesian language instruction, particularly for developing persuasive writing skills. The findings suggest that with appropriate teacher preparation, institutional support, and curriculum alignment, PBL can serve as a powerful pedagogical tool for improving student writing outcomes while simultaneously developing critical 21st-century skills such as collaboration, critical thinking, and problem-solving.

For future research endeavors, several promising directions emerge from this study: (1) longitudinal investigations examining the sustained effects of PBL interventions on writing development over extended periods, (2) comparative studies exploring PBL effectiveness across different text types and writing genres in Indonesian language instruction, (3) research investigating optimal implementation conditions and support structures for successful PBL adoption in diverse educational contexts, and (4) studies examining the integration of digital technologies with PBL methodology to enhance accessibility, scalability, and effectiveness of writing instruction in the digital age.

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