
The application of the problem-based learning model to improve second-grade elementary school students' writing skills in spelling, word meaning, and conjunctions

VINA DESRAMAYANA,^{1*} SYAHRIAL², AND SUKENDRO³

Abstract

This study aimed to improve the writing skills of second-grade elementary school students through the Problem-Based Learning (PBL) model, focusing on spelling, word meaning, and conjunctions. The study employed Classroom Action Research (CAR) based on the Kemmis and McTaggart model. It was conducted in two cycles of three meetings each, and each cycle comprised planning, acting, observing, and reflecting. The participants were 10 second-grade students at SD Negeri 86/IV Kota Jambi. Data were collected through observation, writing tests, semi-structured interviews, and documentation. Qualitative data were analyzed through data reduction, data display, and conclusion drawing. Quantitative data were analyzed using mean scores and class-wide mastery percentages. The results show a gradual improvement in students' writing skills. The mean observation score rose from 46.80% in the pre-cycle to 57.56% in Cycle I and 69.02% in Cycle II. In Cycle II, spelling reached 73.33%, conjunctions 68.40%, and word meaning 65.33%. The mean test score increased from 57 in the pre-cycle to 69 in Cycle I and 88 in Cycle II, and class-wide mastery rose from 10% to 30% and then to 90%. The qualitative data also show that students responded positively to problem-solving, discussion, and group work. However, some students still needed reinforcement in punctuation, word meaning, and certain conjunctions. These findings indicate that PBL supports second-grade students' writing development through active, contextual, collaborative, and problem-oriented learning.

Keywords

Problem-based learning, writing skills, spelling, word meaning, conjunctions, elementary school

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*Universitas Jambi, Indonesia, Corresponding email: vinadesramayana42@guru.sd.belajar.id

^{2,3}Universitas Jambi, Indonesia

Introduction

Indonesian language learning in elementary school plays a central role in building students' literacy, especially their writing skills. Writing is more than putting ideas on paper; it requires students to choose words, build sentences, and apply language rules correctly (Dalman, 2018). Writing also does not develop on its own. It grows through regular practice and explicit instruction, which many students around the world do not receive (Graham, 2019). In second grade, these abilities are still forming. Young writers therefore need concrete, contextual learning experiences and opportunities to notice and correct their own mistakes.

This need is pressing at the national level. In PISA 2022, Indonesian students scored below the OECD average in reading, and Indonesia's results were among the lowest it has ever recorded in PISA (OECD, 2023). The share of Indonesian students below the baseline level of reading proficiency (Level 2) rose by 19 percentage points from 2012 (OECD, 2023). Although PISA assesses 15-year-olds, its results still carry implications for primary schools: literacy foundations, including accurate writing habits, must be built early and well.

Lower-grade students often face obstacles in spelling, word choice, and conjunctions. Pratama et al. (2022), for example, identified 390 capitalization errors and 110 full-stop errors in compositions written by 26 second-grade students. These errors, together with misspelled words and context-inappropriate word choices, can blur the intended message. Inaccurate conjunctions can also weaken the links between sentences. Error-analysis studies of this kind are valuable, but they mostly describe problems and rarely test how teachers can help children correct them in class.

Feedback is central to such correction. In a meta-analysis of 435 studies, Wisniewski et al. (2020) found a medium overall effect of feedback on learning ($d = 0.48$). The effect was stronger for cognitive and motor skills than for motivational and behavioral outcomes. The study also showed that the impact of feedback depends on how much information it contains. For young writers, this suggests that correction works best when students understand why a form is wrong; simply marking an error is not enough. Writing instruction should therefore allow students to identify, analyze, and correct errors step by step.

An initial observation of the second-grade class at SD Negeri 86/IV Kota Jambi revealed several difficulties. Some students still struggled with capital letters and punctuation, while others had trouble choosing words that fit the context or using conjunctions correctly. These conditions indicate that students' writing skills had not yet developed optimally. The pre-cycle observation showed a mean score of 46.80%, placing students in the "needs guidance" category. The initial test yielded a mean score of 57, and only one of the 10 students (10%) scored 75 or higher.

One learning model relevant to this problem is Problem-Based Learning (PBL). PBL uses a problem as the starting point for learning (Barrows, 1986). Students investigate the problem, discuss it, develop solutions, and reflect on the outcomes (Hmelo-Silver, 2004). The teacher acts as a facilitator who guides this process rather than supplying answers (Yew & Goh, 2016). In writing instruction, the problem may take the form of sentences or short texts containing errors in spelling, word choice, and conjunctions. Students identify the problem, discuss possible corrections, compile their results, and receive feedback from the teacher.

PBL also gives students room to develop critical thinking, communication, collaboration, and problem-solving skills. This emphasis aligns with student-centered learning and allows students to learn through meaningful experience (Arends, 2012; Yew & Goh, 2016). Research in Indonesia supports this potential, though with some reservations. Muslim et al. (2023) conducted a meta-analysis because earlier findings on PBL and learning outcomes were varied and at times contradictory. In elementary-level Indonesian language learning, Yusita et al. (2021) found that PBL improved third-grade students' learning outcomes in Indonesian language lessons. However, Palupi et al. (2020) reported a less favorable result for writing. Comparing guided inquiry learning (GIL) with PBL among fifth-grade students, they found PBL less effective than GIL for explanatory writing. One plausible explanation is that PBL's emphasis on general problem-solving gives less direct attention to language features.

Taken together, these studies reveal several gaps. First, most evidence on PBL measures general learning outcomes, not specific features of students' writing. Second, studies of PBL in writing mostly involve upper grades and full genre texts, while lower-grade classrooms, where basic writing conventions are first formed, receive far less attention. Third, error-analysis research in elementary schools describes students' mistakes but seldom tests an instructional response. Finally, the finding by Palupi et al. (2020) raises a practical question: Does PBL help writing when the problem itself is linguistic rather than a general real-world issue?

This study addresses that question directly. Its novelty lies in four features. First, it places students' own language errors at the center of the PBL problem. Second, it targets three measurable linguistic aspects: spelling, word meaning, and conjunctions. Third, it works with second-grade students, a group rarely studied in PBL writing research. Fourth, the PBL cycle is paired with direct teacher feedback, so students learn why each correction is needed. The study therefore extends PBL research from general outcomes toward precise, observable features of early writing.

Based on this background, the study has two objectives. The first is to describe the implementation of the PBL model in teaching writing to second-grade students at SD Negeri 86/IV Kota Jambi. The second is to analyze the improvement in students' writing skills in spelling, word meaning, and conjunctions after the model was applied.

Methodology

This study employed Classroom Action Research (CAR) using the Kemmis and McTaggart model (Kemmis et al., 2014). The study was conducted in two cycles of three meetings each, and each cycle consisted of planning, acting, observing, and reflecting. It took place at SD Negeri 86/IV Kota Jambi during the even (second) semester of the 2025/2026 academic year. The participants were 10 second-grade students.

The instructional actions followed the five phases of the PBL syntax (Arends, 2012): orienting students to the problem, organizing them for learning, guiding investigation, developing and presenting results, and analyzing and evaluating the problem-solving process. In the writing lessons, students received short texts or simple stories containing errors in spelling, word meaning, and conjunctions. Students identified the problems, discussed them

in groups, and revised the texts. They then presented their results and received feedback from the teacher.

Data were collected through observation, tests, semi-structured interviews, and documentation. Observation assessed students' writing development across three aspects: spelling, word meaning, and conjunctions. The instrument used a five-point rating scale (1–5). Scores were converted to percentages (score obtained ÷ maximum possible score × 100) and categorized as very good (86–100), good (71–85), fair (56–70), or needs guidance (≤ 55).

Writing tests were administered in the pre-cycle, at the end of Cycle I, and at the end of Cycle II. Test scores were compared against the minimum mastery criterion (KKM/KKTP) of 75. Class-wide mastery was calculated as the number of students scoring 75 or higher divided by the total number of students, multiplied by 100. Five students were interviewed to provide supporting data. The interviews explored their learning experiences, their responses to PBL, and the difficulties they still faced.

Qualitative data were analyzed through data reduction, data display, and conclusion drawing, following Miles et al. (2014). Quantitative data were analyzed using mean scores and class-wide mastery percentages. The study was considered successful if at least 85% of students scored 75 or higher and if observation scores improved in all three aspects.

Results

The study was conducted in two cycles, preceded by a pre-cycle measurement. The initial results showed that students' writing skills were still low. The main difficulties lay in spelling, choosing words that matched the intended meaning, and using conjunctions. After PBL was implemented, writing skills improved from one cycle to the next.

Table 1. *Development of writing skills based on observation*

Stages	Mean	Categories
Pre-cycle	46.80%	Needs Guidance
Cycle I	57.56%	Fair
Cycle II	69.02%	Fair

Source: Research data (2026)

Table 1 shows that the mean writing score rose from 46.80% in the pre-cycle to 57.56% in Cycle I and 69.02% in Cycle II. This increase reflects students' growing ability in spelling, word choice, and conjunction use under PBL instruction. The overall category in Cycle II remained "fair," but the rising scores show that students' abilities developed gradually.

Table 2. *Development of writing test results*

Stages	Mean Scores	Students Achieving Mastery	Class-wide Mastery
Pre-cycle	57	1 of 10	10%
Cycle I	69	3 of 10	30%
Cycle II	88	9 of 10	90%

Source: Research data (2026)

The test results show a clearer improvement in Cycle II. The mean score rose from 57 in the pre-cycle to 69 in Cycle I and 88 in Cycle II, and class-wide mastery increased from 10% to 30% and then to 90%. The Cycle II result therefore exceeded the 85% success indicator.

Table 3. *Observation results by writing aspect in cycle II*

Aspects	Percentages	Categories
Spelling	73.33%	Good
Conjunctions	68.40%	Fair
Word meaning	65.33%	Fair

Source: Research data (2026)

In Cycle II, spelling had the highest percentage (73.33%), followed by conjunctions (68.40%) and word meaning (65.33%). These findings suggest that students performed best in spelling, while word meaning still required reinforcement. The differences across aspects also show that writing skills did not develop uniformly.

Interviews with five students revealed generally positive responses to PBL. Students said that learning felt more enjoyable when it involved problem-solving and group work. They frequently mentioned reading, writing together, discussing, revising sentences, and choosing words as memorable learning activities. Regarding spelling, most students found capital letters and full stops easier to use after receiving explanations, although some still struggled to apply spelling rules when writing. Regarding word meaning, some students found it easier to choose appropriate words, while others still had difficulty understanding the meaning of certain words. Regarding conjunctions, students generally recognized *dan* (“and”) and *karena* (“because”), but their understanding of *sehingga* (“so that”) was less consistent. The interview findings corroborate the observation and test results. PBL provided learning experiences that supported writing development. However, the qualitative data also show that several linguistic aspects still require continued practice and guidance.

Discussion

The improvement in writing skills can be understood through a core feature of PBL: problems serve as the starting point for learning. Students did not simply receive explanations about spelling, word meaning, and conjunctions. Instead, they worked with sample texts that needed analysis and correction. This process allowed them to link knowledge to concrete problems and find solutions together (Barrows, 1986; Hmelo-Silver, 2004). The improvement can also be attributed to the collaborative activities that emerged during PBL. Group discussions let students compare answers, explain their word choices, and receive feedback from peers and the teacher. Such activities reflect PBL’s emphasis on inquiry, communication, and collaboration (Arends, 2012; Yew & Goh, 2016).

The rise in mean test scores from 57 to 69 and then to 88 shows that improved learning processes were followed by better achievement. Class-wide mastery reached 90% in Cycle II, indicating that most students met the required score. This result is consistent with Indonesian studies reporting that PBL improves learning outcomes (Muslim et al., 2023; Yusita et al.,

2021). It also qualifies the less favorable finding of Palupi et al. (2020): when the problem itself is linguistic, PBL appears to support accuracy in early writing. Nevertheless, the Cycle II observation shows that writing skills did not develop equally across all aspects: spelling reached 73.33%, conjunctions 68.40%, and word meaning 65.33%. Although the learning activities supported writing development, word meaning and certain conjunctions still require more contextual examples and sustained practice, as the interview findings also indicate. Overall, the results show that PBL can serve as an instructional approach that supports second-grade writing development. Its success is reflected not only in higher scores but also in students' more active engagement: they identified problems, discussed them, revised their writing, and shared their thinking.

Conclusion

PBL was implemented in the second-grade writing lessons at SD Negeri 86/IV Kota Jambi through five phases: orienting students to the problem, organizing them for learning, guiding investigation, developing and presenting results, and analyzing and evaluating the problem-solving process. Students identified errors in texts, discussed them, and revised sentences. They then presented their results and received feedback from the teacher.

Observation results show that students' writing skills improved. The mean observation score rose from 46.80% in the pre-cycle to 57.56% in Cycle I and 69.02% in Cycle II. In Cycle II, spelling reached 73.33%, conjunctions 68.40%, and word meaning 65.33%. Test results also improved, with the mean score rising from 57 in the pre-cycle to 69 in Cycle I and 88 in Cycle II. Class-wide mastery increased from 10% to 30% and then to 90%. With 90% mastery in Cycle II, the study exceeded the minimum success indicator of 85%.

Interview data show that students responded positively to PBL and group work. Students found several aspects of writing easier to understand and became more engaged in learning. However, some students still need reinforcement in applying spelling rules, understanding word meanings, and using certain conjunctions.

Recommendations

Teachers may use PBL as an alternative approach to writing instruction. The problems presented should be concrete, simple, and close to students' experiences. Guidance and feedback should be provided incrementally, especially on spelling, accurate word meaning, and conjunctions. Students should build habits of reading, writing, discussing, and revising their work to continue developing their spelling, contextual word choice, and conjunction use.

Schools can support PBL by providing learning media, resources, and facilities for student-centered Indonesian language instruction. Because this study involved a single class of 10 students without a comparison group, future researchers may expand the sample, extend the study period, or develop more varied writing indicators to obtain a more comprehensive picture.

Disclosure Statement

No potential conflicts of interest were reported by the authors.

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