

The Effect of Inquiry-Based Learning on Eighth-Grade Students' Descriptive Writing Skills at SMP Negeri 10 Palu

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ABSTRACT

This study investigates the effectiveness of Inquiry-Based Learning (IBL) in improving descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu. A quasi-experimental design was employed involving 52 students selected through purposive sampling and divided into an experimental group and a control group. Both groups were given pre-tests and post-tests to measure their writing performance. The results show that the experimental group's mean score increased from 60.54 to 75.88, while the control group also improved from 62.12 to 72.04. The independent-samples t-test showed no significant difference in pre-test scores between the two groups, indicating that both groups had similar initial writing ability. Although both groups showed improvement after the learning process, the experimental group showed a greater increase in mean score than the control group. The findings suggest that Inquiry-Based Learning contributed positively to students' development of descriptive writing.

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1. INTRODUCTION

Writing is one form of human communication used to organize ideas. According to Sadiku [1], a person with good writing skills is always victorious in expressing ideas. Writing has several important elements, such as grammar, vocabulary, spelling, and punctuation, that students should master to produce good sentences [1], [2], [3], [4], [5], [6]. According to Harmer [7], writing requires accuracy in the use of language components, including grammar, vocabulary, and mechanics. Similarly, Brown [8] states that writing involves various micro-skills, such as producing correct grammatical forms, using appropriate vocabulary, and applying proper writing conventions, such as spelling and punctuation. According to Brown [8], these skills are essential for effective communication.

Among them, writing is considered a productive skill that enables students to express their ideas, feelings, and opinions in written form. Writing is also an important academic skill because it helps students organize ideas and develop language competence in learning.

Despite its importance, many students face several problems in writing [1], [9], [10], [11], [12], [13], [14], [15], [16]. They often struggle to express ideas clearly, construct grammatically correct sentences, use appropriate vocabulary, and maintain motivation while writing. These difficulties affect their ability to produce coherent and effective texts. Previous research indicates that students commonly experience weaknesses in grammatical competence, limited vocabulary, and insufficient understanding of writing mechanics [17]. To overcome these difficulties, teachers need an appropriate instructional approach. One alternative method is Inquiry-Based Learning (IBL). Dillard and Charles [18] explain that vocabulary mastery is very important in writing because it helps students avoid repetition and express ideas more effectively. In descriptive writing, students need a sufficient vocabulary to describe people, places, or objects clearly. Duran & Dökme [19] explain that Inquiry-Based Learning is a student-centered approach that encourages questioning, critical thinking, and problem-solving, which can support students in addressing learning difficulties.

The implementation of Inquiry-Based Learning in writing instruction generally follows several stages, namely: (1) orientation, where students are introduced to the topic; (2) question formulation, where students generate questions about the topic; (3) investigation or data collection, where students gather relevant information; (4) discussion and analysis, where students organize and interpret ideas; and (5) presentation or writing stage, where students produce their final descriptive text. These stages help students actively construct knowledge and improve their writing process step by step. Although several studies have investigated Inquiry-Based Learning in writing instruction, most have been conducted in senior high school or university contexts. There is still limited research focusing on junior high school students, particularly in SMP Negeri 10 Palu. Moreover, few studies have specifically examined its effectiveness in improving descriptive writing skills at this level. Therefore, this study addresses this gap by focusing on eighth-grade students in a junior high school context.

Based on the researcher's observation, students at SMP Negeri 10 Palu still face difficulties in writing descriptive text. They find it hard to express ideas in written form, arrange English sentences, and use appropriate vocabulary, and they also show low motivation in writing activities. Therefore, the researcher is interested in applying Inquiry-Based Learning to improve students' descriptive writing skills.

This study aims to examine the effect of Inquiry-Based Learning on the descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu.

The research question of this study is: "Is there a significant effect of Inquiry-Based Learning on the descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu?"

Accordingly, the hypothesis of this study is: "There is a significant effect of Inquiry-Based Learning on the descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu?"

2. METHOD

This study adopted a quasi-experimental research design to examine the effectiveness of implementing an inquiry-based learning (IBL) method on the descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu. Quasi-experimental designs are commonly applied in educational research when it is impractical or impossible to assign participants to groups through full randomization. In this design, an experimental group that receives the instructional intervention is compared with a control group that does not, allowing researchers to estimate the treatment effect under real classroom conditions [20].

In this study, the experimental group was taught using the inquiry-based learning (IBL) method during writing lessons. The implementation of Inquiry-Based Learning followed several stages: identifying topics, asking questions, collecting information, discussing findings, and composing descriptive texts based on the gathered information. During the learning process, students were encouraged to actively participate, explore ideas, and develop their writing through guided inquiry activities. The control group was taught using conventional teaching methods, primarily teacher explanation, textbook-based instruction, individual writing exercises, and direct teacher correction, without inquiry-based learning activities.

Both the experimental and control groups were taught by the same English teacher to minimize differences in teaching style and classroom management during the research process. To measure students' descriptive writing performance and evaluate the effectiveness of the instructional intervention, both groups were administered a pre-test before the treatment and a post-test after the treatment. The research employed a nonequivalent control group design, in which intact classes were used, and no random assignment was conducted. Purposive sampling was applied to select participants based on their relevance to the research objectives [21].

The participants of this study were eighth-grade students of SMP Negeri 10 Palu, specifically class 8A (experimental group) and class 8C (control group). The selection of these classes was based on teacher recommendations and similarities in students' writing abilities. The research instrument was a writing test in the form of a pre-test and post-test. The pre-test was given with the topic "My Idol" (100 words), while the post-test was given with the topic "My Destination" (100 words). The purpose of these tests was to measure students' improvement in writing descriptive text after the treatment. The writing assessment used a scoring rubric consisting of five aspects: grammar, vocabulary, mechanics, content, and organization. English education experts reviewed the rubric to ensure its validity. To ensure scoring reliability, two raters independently assessed students' writing, and the final score was the average of the two raters. The treatment in the experimental class was conducted in six meetings. Each meeting followed the Inquiry-Based Learning stages: orientation, problem formulation, hypothesis generation, data collection, hypothesis testing, and conclusion. Students actively participated in exploring topics such as "My Favorite Food," "My Cute Pet," "Favorite Place," and "My Hobby".

Table 1. Scoring Rubric

Aspect	Score 4 (Excellent)	Score 3 (Good)	Score 2 (Fair)	Score 1 (Poor)
Grammar	Demonstrates excellent control of grammar structures with no or only 1 minor error.	Minor grammatical errors that do not interfere with meaning.	Frequent grammatical errors that sometimes hinder meaning.	Consistent and serious errors that make understanding difficult.
Vocabulary	Uses a wide variety of appropriate and precise vocabulary.	Adequate vocabulary; occasionally uses inappropriate word choices.	Limited vocabulary with frequent repetition or errors in word usage.	Very poor range of vocabulary; many inappropriate or incorrect word choices.
Mechanics	Correct use of punctuation, capitalization, and spelling throughout the writing.	Few mechanical errors that do not affect comprehension.	Noticeable errors in punctuation, capitalization, or spelling.	Frequent and serious mechanical errors that interfere with understanding.

The data were analyzed using SPSS version 30 for Windows to conduct descriptive and inferential statistical analysis [22].

English education experts validated the writing test instrument to ensure content validity. To ensure scoring reliability, two raters independently assessed students' writing, and the final score was obtained from the average of both raters, indicating inter-rater reliability.

3. RESULTS AND DISCUSSION

The analysis results revealed that the implementation of Inquiry-Based Learning improved the descriptive writing skills of eighth-grade students at SMP Negeri 10 Palu. The data collected from the students' pre-test and post-test scores showed that Inquiry-Based Learning effectively enhanced their writing performance.

3.1. Results

Data from both experimental and control groups were analyzed using descriptive and inferential statistics. The pre-test was administered to measure students' initial writing ability, while the post-test was conducted to evaluate their improvement after the treatment. The descriptive statistics results are presented in Tables 2 and 3.

Table 2. Mean Scores of Experimental and Control Groups in Pre-test

Class	N	Minimum	Maximum	Mean	Std. Deviation
Experimental Group	26	42	83	60.54	7.59
Control Group	26	45	80	62.12	6.75

Table 3. Mean Scores of Experimental and Control Groups in Post-test

Class	N	Minimum	Maximum	Mean	Std. Deviation
Experimental Group	26	61	100	75.88	6.47
Control Group	26	61	100	72.04	6.69

The results show that both groups improved after the learning process. However, the experimental group showed a greater increase in mean score than the control group, indicating that Inquiry-Based Learning had a stronger impact on students' writing achievement.

Before performing the t-test, a normality test was conducted to ensure the data were normally distributed. The results of the normality test are shown in Table 4.

Table 4. Normality Test

No	Variable	Statistic	df	Sig.	Interpretation
1	Pre-test Experimental	0.946	26	0.183	Normal distribution
2	Post-test Experimental	0.959	26	0.368	Normal distribution
3	Pre-test Control	0.952	26	0.254	Normal distribution
4	Post-test Control	0.926	26	0.063	Normal distribution

Since all significance values were greater than .05 ($p > .05$), it can be concluded that the data were normally distributed. Therefore, parametric tests were appropriate for further analysis.

Next, a homogeneity test was conducted using Levene's Test to determine whether the variances of both groups were equal. The results are shown in Table 5.

Table 5. Homogeneity Test

No	Variable	Levene Statistic	df1	df2	Sig.	Interpretation
1	Pre-test	0.784	1	50	0.380	Homogeneous
2	Post-test	0.370	1	50	0.546	Homogeneous

The results show that the significance values were greater than .05 ($p > .05$), indicating that the data variances were homogeneous. Thus, the assumption for parametric testing was fulfilled.

After the assumptions of normality and homogeneity were met, a paired sample t-test was conducted to examine whether there was a significant difference between the pre-test and post-test scores of the experimental group. This test was used to determine the effect of the Inquiry-Based Learning (IBL) method on students' descriptive writing skills. The results of the paired sample t-test are presented in Table 6.

Table 6. Paired Sample T-test

Pair	Mean Difference	Std. Deviation	Std. Error Mean	95% CI (Lower)	95% CI (Upper)	t	df	p (One-tailed)
Pre-test – Post-test	-15.34	9.54	1.87	-19.19	-11.49	-17.91	25	< .001

The result shows a significant difference between pre-test and post-test scores in the experimental group ($t = -17.91$, $p < .05$). It indicates that students' writing performance improved significantly after being taught using Inquiry-Based Learning.

Furthermore, an independent-samples t-test was conducted to compare post-test scores between the experimental and control groups.

Table 7. Independent Sample T-test

No	Variable	Df	Sig. (2-tailed)	Mean Difference	Interpretation
1	Pre-test	50	> .05	-1.58	no significant difference between groups
2	Post-test	50	< .05	3.84	The experimental group showed significantly higher post-test scores

The results of the independent-samples t-test showed no significant difference between the experimental and control groups in pre-test scores, indicating that both groups had similar initial writing ability before the treatment. Meanwhile, the post-test results showed that the experimental group achieved higher scores than the control group after implementing Inquiry-Based Learning.

The findings indicate that both groups experienced improvement after the learning process. However, the experimental group showed greater improvement in writing performance than the control group. This suggests that Inquiry-Based Learning contributed positively to students' descriptive writing skills. Nevertheless, the findings should still be interpreted carefully, as quasi-experimental research cannot fully control all classroom variables.

In addition to statistical significance, the effect size was calculated to determine the practical significance of the findings. The result showed a large effect size (Cohen's $d = 1.14$), indicating that Inquiry-Based Learning had a strong impact on students' writing achievement compared to the conventional method. Furthermore, the within-group effect size of the experimental class also showed a very large effect, confirming substantial improvement after the treatment.

3.2. Discussion

The findings of this study indicate that students in the experimental group showed greater improvement in writing performance compared to those in the control group. This improvement can be explained by the characteristics of Inquiry-Based Learning (IBL), which encourage students to construct knowledge through questioning, exploration, and discussion actively. These learning processes helped students develop ideas more effectively and improve their ability to organize and express their thoughts in writing[23]. The

experimental group improved more than the control group because IBL provided students with more opportunities to engage in the learning process actively. Unlike conventional instruction, students in the IBL class were involved in exploring topics, generating questions, and discussing ideas collaboratively. This active engagement helped them build a deeper understanding, which was reflected in their improved writing performance.

In terms of writing, the most significant improvement was in content and organization. Students were able to generate ideas more clearly and structure their descriptive texts more systematically through guided inquiry activities. Vocabulary also improved as students were exposed to peer interaction and teacher scaffolding during the learning process. Grammar and mechanics improved gradually through continuous feedback and revision activities throughout the writing process.

These findings are consistent with previous studies, which reported that inquiry-based writing instruction significantly improves students' writing performance compared to conventional teaching methods [24]. The improvement observed in this study suggests that Inquiry-Based Learning supports descriptive writing by guiding students to observe, investigate, and describe real or contextual topics, which helps them produce more meaningful and structured texts. This aligns with the view that inquiry-based learning promotes active knowledge construction rather than passive learning [25]. The effectiveness of IBL in improving descriptive writing is also supported by its learning stages, namely orientation, questioning, investigation, data collection, and presentation. In the orientation and questioning stages, students were guided to identify and explore topics for writing. During the investigation and data collection stages, students gathered relevant information and developed supporting ideas. In the presentation stage, students organized and produced their descriptive texts. These stages contributed directly to improvements in content, organization, vocabulary, grammar, and mechanics.

However, this study has several limitations, including the relatively short treatment duration and the limited sample size, which may limit the generalizability of the findings.

Despite these limitations, the study provides important practical implications for English teachers at the junior high school level. Inquiry-Based Learning can be applied as an alternative teaching strategy to improve students' descriptive writing skills. Teachers are encouraged to design learning activities that promote questioning, exploration, and collaboration. Moreover, scaffolding strategies such as guided questions, vocabulary support, and group discussion are recommended to assist students with lower writing proficiency.

4. CONCLUSION

Based on the findings and discussion, Inquiry-Based Learning (IBL) has the potential to support students' descriptive writing skills at the eighth-grade level of SMP Negeri 10 Palu. Students taught using IBL showed greater improvement in developing ideas, organizing content, and overall writing quality than those taught using conventional methods. In addition, IBL encourages students' active participation, independence, and engagement in the learning process. Therefore, Inquiry-Based Learning can be considered

an effective instructional approach for improving students' writing skills at the junior high school level.

For future research, it is recommended to use larger sample sizes to improve the generalizability of the findings, to apply randomized group assignment to ensure better group equivalence, to develop more reliable and detailed scoring rubrics for writing assessment, and to extend the duration of treatment to examine the long-term effects of Inquiry-Based Learning better better.

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