



## THE EFFECT OF PROBLEM-BASED LEARNING MODEL ON STUDENTS' ABILITY IN WRITING NARRATIVE TEXT ASSISTED BY WORDWALL MEDIA AT GRADE XI OF SMAN 1 SIMPANG EMPAT IN 2025/2026 ACADEMIC YEAR

**Elvina Sonita**

Email: [elvinasonita97.es@gmail.com](mailto:elvinasonita97.es@gmail.com)

English Education Study Program, Asahan University, Kisaran, Indonesia

**Putri Lidiana Permata Sari**

Email: [Putrilidiana88@gmail.com](mailto:Putrilidiana88@gmail.com)

English Education Study Program, Asahan University, Kisaran, Indonesia

### Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh model Problem-Based Learning (PBL) berbantuan media Wordwall terhadap kemampuan menulis teks naratif siswa kelas XI SMAN 1 Simpang Empat tahun ajaran 2025/2026. Penelitian ini menggunakan metode kuantitatif dengan desain quasi-eksperimen berupa pre-test dan post-test control group. Populasi penelitian berjumlah 282 siswa, sedangkan sampel terdiri dari dua kelas yang dipilih melalui teknik cluster random sampling, yaitu kelas XI MIPA 3 sebagai kelas eksperimen dan XI MIPA 4 sebagai kelas kontrol dengan total 72 siswa. Data dikumpulkan melalui tes menulis dan dianalisis menggunakan statistik deskriptif dan uji t. Hasil penelitian menunjukkan bahwa kelas eksperimen mengalami peningkatan yang lebih signifikan dibandingkan kelas kontrol. Skor total kelas eksperimen meningkat dari 2100 pada pre-test menjadi 2750 pada post-test (gain score = 650), sedangkan kelas kontrol meningkat dari 2100 menjadi 2270 (gain score = 170). Hasil uji hipotesis menunjukkan bahwa nilai t-hitung (2,93) lebih besar daripada t-tabel (1,99) pada taraf signifikansi 0,05 dengan df = 70. Dengan demikian, dapat disimpulkan bahwa model PBL berbantuan Wordwall berpengaruh signifikan terhadap kemampuan menulis siswa serta meningkatkan motivasi dan keterlibatan belajar.

**Kata kunci:** Problem-Based Learning, Wordwall, menulis, teks naratif.

### Abstract

This study aims to investigate the effect of the Problem-Based Learning (PBL) model assisted by Wordwall media on students' ability in writing narrative text at grade XI of SMAN 1 Simpang Empat in the 2025/2026 academic year. This research employed a quantitative method with a quasi-experimental design using a pre-test and post-test control group. The population consisted of 282 students, while the sample included two classes selected through cluster random sampling, namely XI MIPA 3 as the experimental class and XI MIPA 4 as the control class, with a total of 72 students. The data were collected through writing tests and analyzed using descriptive statistics and t-test. The findings showed that the experimental class experienced a more significant improvement compared to the control class. The total score of the experimental class increased from 2100 in the pre-test to 2750 in the post-test (gain score = 650), while the control class increased from 2100 to 2270 (gain score = 170). The result of hypothesis testing indicated that the t-count value (2.93) was higher than the t-table value (1.99) at the significance level of 0.05 with df = 70. Therefore, it can be concluded that the PBL model assisted by Wordwall media has a significant effect on students' writing ability and improves their motivation and engagement in learning.

**Keywords:** Problem-Based Learning, Wordwall, writing, narrative text.





## **INTRODUCTION**

Education in Indonesia plays a vital role in developing human resources capable of facing global challenges in the era of Industrial Revolution 4.0 and Society 5.0. The Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) has established English as a compulsory subject from secondary to tertiary levels, recognizing its function as a global lingua franca essential for communication, higher education, and professional advancement. Among the four interrelated language skills, writing is frequently regarded as the most complex and challenging for English as a Foreign Language (EFL) learners to master. It demands proficiency in language use, grammar, coherence, and the ability to articulate ideas in a logical and meaningful way (Wulandari & Hastini, 2024).

Writing is fundamentally a productive skill that enables students to express thoughts and emotions through structured text. According to (Permata Sari et al., 2023), literacy encompasses not only reading but also the ability to write and reason, implying that students must be capable of expressing ideas coherently and logically through written communication. Furthermore, writing is defined as a critical academic and cognitive talent that integrates critical thinking, creativity, and linguistic accuracy all of which are essential competencies in the 21st century.

In the Indonesian EFL curriculum, one of the primary text types taught is the narrative text. Narrative writing is a meaning-making process where learners engage emotional and cognitive dimensions to communicate human experiences, typically through a staged structure comprising orientation, complication, and resolution. Mastering narrative text is crucial as it cultivates a student's expressive, organizational, and linguistic abilities by requiring them to organize experiences into a purposeful sequence while applying appropriate grammatical and lexical choices (Permata Sari et al., 2023).

However, observations at SMAN 1 Simpang Empat reveal a significant disparity between curriculum expectations and actual student performance. Many Grade XI students continue to face substantial hurdles in narrative writing, including limited vocabulary and difficulty distinguishing the functions of various narrative structures. These foundational constraints often lead to grammatical errors, particularly in using the simple past tense, and a general inability to develop ideas adequately.

The persistence of these difficulties is often exacerbated by conventional teacher-centered teaching methods. Instructional practices dominated by lectures and rote memorization limit student interaction and restrict their creativity, causing them to become passive recipients of information rather than active participants in constructing meaning. Consequently, there is an urgent need for innovative pedagogical strategies that promote engagement, critical thinking, and collaboration.

Problem-Based Learning (PBL) is proposed as an effective solution to these challenges. Grounded in constructivist theories, PBL is a student-centric approach where authentic problems initiate the learning process, encouraging students to gain new information through inquiry, reasoning, and cooperation (Susanti et al., 2023). Furthermore, the integration of Wordwall media can strengthen this model. Wordwall is a gamified digital platform that allows educators to create interactive activities such as quizzes and matching games, which capture learners' attention and foster a pleasurable learning atmosphere (Almuafa & Alqurashi, 2025).

The effectiveness of PBL is supported by various studies. For instance, (Erawati & Adnyana, 2024) demonstrated that PBL significantly improves students' writing performance, critical thinking, and creative thinking compared to conventional methods. Similarly, (Kusumahati et al., 2023) found that PBL markedly enhanced vocational students' writing abilities in drafting complex texts. These findings suggest that combining PBL with interactive



technology like Wordwall can create an engaging environment that supports linguistic development and independent learning.

Building upon these considerations, this research aims to investigate "The Effect of the Problem-Based Learning Model on Students' Ability in Writing Narrative Text Assisted by Wordwall Media at Grade XI of SMAN 1 Simpang Empat in the 2025/2026 Academic Year". The study seeks to determine whether this integrated approach significantly strengthens students' ability to develop ideas and apply correct narrative structures, thereby providing practical benefits for both teachers and students in the field of English education.

## **METODE**

This research employed a quantitative research method with a quasi-experimental design. Quantitative research is a systematic investigation that involves collecting numerical data and applying statistical analysis to test hypotheses and examine the relationships between variables. This method aims to determine cause-and-effect relationships and to generalize the findings to a larger population.

In this study, an experimental strategy was applied using a pre-test and post-test control group design. Two groups were involved: an experimental group and a control group. Both groups were administered a pre-test to measure their initial ability in writing narrative texts before the treatment. After that, the experimental group received treatment through the implementation of the Problem-Based Learning (PBL) model assisted by Wordwall media, while the control group was taught using conventional teaching methods. At the end of the treatment, both groups were given a post-test to measure their improvement in writing ability.

This research was conducted at SMAN 1 Simpang Empat, located in Asahan Regency, North Sumatra, during the second semester of the 2025/2026 academic year, specifically in February 2026. The population of this research consisted of all eleventh-grade students, totaling 282 students from eight classes.

The sample of this research was selected using cluster random sampling technique, since the population was naturally grouped into classes. Two classes were chosen as the sample: class XI MIPA 3 as the experimental group and class XI MIPA 4 as the control group. Each class consisted of 36 students, so the total sample was 71 students.

The instrument used to collect the data was a writing test in the form of an essay, which was divided into pre-test and post-test. The pre-test was administered to assess students' initial ability in writing narrative texts, while the post-test was conducted to evaluate their improvement after the treatment.

Students' writing was assessed using an analytic scoring rubric based on five components: content, organization, vocabulary, language use (grammar), and mechanics. These criteria were used to evaluate students' ability in constructing narrative texts, including their understanding of generic structure (orientation, complication, and resolution), use of simple past tense, and coherence of ideas.

The collected data were analyzed using statistical techniques, particularly the t-test, to determine whether there was a significant difference between the experimental and control groups. The results of the analysis were used to test the research hypothesis and to determine the effectiveness of the Problem-Based Learning model assisted by Wordwall media on students' narrative writing ability.

## **RESULT AND DISCUSSION**

### **Data Analysis of the Research**

Data analysis in this research refers to the process of organizing, calculating, and interpreting the collected data in order to answer the research question and test the hypothesis.



The purpose of this analysis is to determine whether there is a significant effect of the Problem-Based Learning (PBL) model assisted by Wordwall media on students' ability in writing narrative texts.

In this study, the data were obtained from the results of pre-test and post-test administered to both the experimental and control groups. The pre-test was conducted to measure students' initial ability before the treatment, while the post-test was used to evaluate their improvement after the treatment was implemented.

To analyze the data, the researcher applied descriptive and inferential statistical techniques. Descriptive statistics were used to present a general overview of the data, including the calculation of the mean scores of both groups in the pre-test and post-test. This analysis aimed to identify the level of students' writing ability and to observe the improvement in each group after the treatment. In addition, measures of data dispersion, such as standard deviation, were calculated to determine the variation of students' scores within each group.

### **Data Description**

This section presents the statistical data obtained from the pre-test and post-test results of both the experimental and control groups. The purpose of these tests was to measure students' ability in writing English texts, specifically narrative texts, before and after the implementation of the treatment.

The data were collected from two classes of eleventh-grade students at SMAN 1 Simpang Empat. The experimental group consisted of class XI MIPA 3, while the control group consisted of class XI MIPA 4. The experimental group was taught using the Problem-Based Learning (PBL) model assisted by Wordwall media, whereas the control group was taught using conventional teaching methods.

The pre-test was administered at the beginning of the research to determine the students' initial writing ability in both groups. After that, the treatment was conducted for several meetings in the experimental class by applying the PBL model assisted by Wordwall media, while the control class received traditional instruction. At the end of the treatment, a post-test was administered to both groups to evaluate the students' improvement in writing narrative texts.

### **Treatment Description**

Based on the research conducted at SMAN 1 Simpang Empat, many eleventh-grade students still faced difficulties in writing English, particularly in composing narrative texts, including limited vocabulary, lack of confidence, and problems in organizing ideas, applying generic structures, and using appropriate language features such as the simple past tense. This study involved 282 students as the population, with two classes selected as the sample: XI MIPA 3 as the experimental group and XI MIPA 4 as the control group, each consisting of 36 students. The experimental group was taught using the Problem-Based Learning (PBL) model assisted by Wordwall media, where students actively engaged in problem-solving activities, group discussions, and interactive digital exercises to develop their writing skills. In contrast, the control group was taught using conventional teacher-centered methods. This treatment was designed to compare the effectiveness of PBL assisted by Wordwall media with traditional instruction in improving students' narrative writing ability.

#### **1. Experimental Class**

The experimental class (XI MIPA 3) received treatment using the Problem-Based Learning (PBL) model assisted by Wordwall media. Before the treatment began, the researcher administered a pre-test in the form of a writing test to measure the students' initial ability in writing narrative texts. This pre-test aimed to identify the baseline of students' writing proficiency, including their ability to organize ideas, apply the generic structure



(orientation, complication, and resolution), and use appropriate language features such as the simple past tense.

After conducting the pre-test, the researcher implemented the teaching and learning process using the Problem-Based Learning (PBL) model. In this process, students were actively involved in learner-centered activities. First, the teacher introduced contextual problems related to narrative texts to stimulate students' thinking. Then, students were divided into groups to discuss and analyze the problems collaboratively. During the investigation stage, students explored ideas, gathered relevant information, and constructed their own narrative texts based on the problems given.

To support the learning process, Wordwall media was used as an interactive tool to enhance students' engagement and understanding. Through Wordwall activities such as quizzes and games, students were able to improve their vocabulary, grammar, and comprehension of narrative text structure in an enjoyable and motivating way. Furthermore, students presented their work and received feedback, which helped them refine their writing. At the end of the treatment, the researcher administered a post-test to measure the students' improvement after being taught using the PBL model assisted by Wordwall media. The results of the post-test were then compared with the pre-test scores to determine the effectiveness of the treatment.

## **2. Control Class**

In the control class (XI MIPA 4), the researcher did not apply the Problem-Based Learning model or use Wordwall media. Instead, the teaching and learning process was conducted using conventional or traditional methods. Before the treatment, a pre-test was administered to measure the students' initial writing ability, similar to the experimental group. During the learning process, the teacher explained the material related to narrative texts, including their definition, generic structure, and language features. Students were asked to listen to the explanation, take notes, and complete individual writing tasks based on the examples provided by the teacher. The learning activities were more teacher-centered, with limited interaction and collaboration among students.

After completing the teaching sessions, the researcher administered a post-test to evaluate the students' writing performance after learning through conventional methods. The post-test given to the control group was the same as the one administered to the experimental group to ensure a fair and valid comparison of the results. Through these procedures, the researcher was able to compare the effectiveness of the Problem-Based Learning model assisted by Wordwall media with conventional teaching methods in improving students' ability to write narrative texts.

## **The Analysis of the Data**

To ensure that the data met the assumptions required for statistical analysis and that the sample was representative, the researcher conducted prerequisite tests before hypothesis testing. One of the main tests applied was the normality test, which aimed to determine whether the data distribution of students' scores followed a normal distribution pattern. In this research, the normality test was conducted using the Chi-Square method, as presented in the data analysis section of the study, for both the experimental class (XI MIPA 3) and the control class (XI MIPA 4).

The basic assumption of the normality test is that the data are considered normally distributed if the calculated value meets the required statistical criteria, namely when the obtained value is lower than the critical value at a certain level of significance ( $\alpha = 0.05$ ). If the data are normally distributed, it indicates that further parametric statistical analysis, such as the t-test, can be appropriately applied.



By conducting the normality test, the researcher ensured that the distribution of pre-test and post-test scores in both groups met the necessary assumptions, allowing for accurate comparison and valid interpretation of the effectiveness of the Problem-Based Learning (PBL) model assisted by Wordwall media on students' narrative writing ability.

### **Independent Sample T-Test**

The Independent Sample T-test is a statistical test used to determine whether there is a significant difference between the means of two independent groups. In this research, the test was used to compare the writing ability of the experimental group (XI MIPA 3) and the control group (XI MIPA 4) after receiving different treatments.

The result of hypothesis testing using the Independent Sample T-test (B.L. Welch, 1947) showed that the t-count (t-test) value was 2.93, which was higher than the t-table value of 1.99 at a significance level of 0.05 with a degree of freedom (df) of 70. Because the t-count exceeded the t-table value, the Null Hypothesis ( $H_0$ ) was rejected and the Alternative Hypothesis ( $H_a$ ) was accepted.

This result indicates that there is a significant difference in students' writing ability between those who were taught using the Problem-Based Learning (PBL) model assisted by Wordwall media and those who were taught using conventional methods. Therefore, it can be concluded that the implementation of the Problem-Based Learning (PBL) model assisted by Wordwall media has a significant positive effect on students' ability in writing narrative text.

### **Research Findings**

Based on the data analysis conducted in this research, it can be concluded that the implementation of the Problem-Based Learning (PBL) model assisted by Wordwall media had a significant effect on students' ability in writing narrative text at grade XI of SMAN 1 Simpang Empat. The application of this learning model was proven to be effective in enhancing students' ability to generate ideas, organize narrative structure, and apply appropriate language features in their writing.

The findings show a clear improvement in students' writing performance in the experimental group (XI MIPA 3). The total score of the pre-test in this group was 2100, which increased to 2750 in the post-test, resulting in a total improvement score of 650. This indicates a substantial enhancement in students' writing ability after being taught using the PBL model assisted by Wordwall media. Most students showed progress in vocabulary mastery, organization of ideas, and the use of grammatical structures. In addition, the lowest score increased from 40 in the pre-test to 55 in the post-test, showing improvement even among lower-performing students.

In contrast, the control group (XI MIPA 4), which was taught using conventional teaching methods, showed a less significant improvement. The total pre-test score was 2100, increasing to 2270 in the post-test, with a total improvement score of only 170. Although there was some progress, many students still struggled with writing aspects such as grammar, vocabulary, and text organization. The improvement in this group was not as substantial as in the experimental group. When comparing both groups, it is evident that the experimental group achieved a significantly higher improvement than the control group. The difference in total gain scores (650 vs 170) clearly indicates that the PBL model assisted by Wordwall media is more effective than conventional teaching methods in improving students' narrative writing skills.

Furthermore, the result of hypothesis testing supports this finding. The t-test analysis showed that the t-score (2.93) was higher than the t-table value (1.99) at the significance level of 0.05 with the degree of freedom (df) = 70. This result leads to the rejection of the null hypothesis ( $H_0$ ) and the acceptance of the alternative hypothesis ( $H_a$ ). Therefore, it can be



concluded that there is a statistically significant effect of using the Problem-Based Learning model assisted by Wordwall media on students' ability in writing narrative text. In addition, the findings revealed that the use of PBL assisted by Wordwall not only improved students' writing scores but also increased their motivation, participation, and engagement in the learning process. Students became more active in discussions, more confident in expressing ideas, and more capable of organizing narrative texts effectively.

## **CONCLUSION**

Based on the data analysis and research findings, it can be concluded that the implementation of the Problem-Based Learning (PBL) model assisted by Wordwall media had a significant effect on students' ability in writing narrative text at grade XI of SMAN 1 Simpang Empat. The use of this model not only improved students' writing performance but also increased their motivation, participation, and engagement during the learning process.

The statistical results showed that the experimental class (XI MIPA 3), which was taught using the PBL model assisted by Wordwall media, experienced a more substantial improvement compared to the control class (XI MIPA 4), which was taught using conventional methods. In the experimental class, the total score increased from 2100 in the pre-test to 2750 in the post-test, resulting in a gain score of 650. This indicates a significant enhancement in students' ability to develop ideas, organize narrative structure, and apply appropriate language features in writing.

In contrast, the control class showed a smaller improvement, with the total score increasing from 2100 in the pre-test to 2270 in the post-test, resulting in a gain score of 170. Although both groups demonstrated progress, the improvement in the experimental class was considerably higher and more consistent than in the control class.

The hypothesis testing further confirmed the effectiveness of the treatment. The result of the t-test showed that the t-count value (2.93) was higher than the t-table value (1.99) at the significance level of 0.05 with the degree of freedom ( $df = 70$ ). This result led to the rejection of the null hypothesis ( $H_0$ ) and the acceptance of the alternative hypothesis ( $H_a$ ). Therefore, it can be concluded that there is a statistically significant difference between students who were taught using the PBL model assisted by Wordwall media and those who were taught using conventional teaching methods.

Moreover, the success of this implementation was supported by students' active participation and enthusiasm throughout the learning process. The PBL model encouraged students to think critically, collaborate in groups, and engage with meaningful problem-solving activities. The integration of Wordwall media also made the learning process more interactive and engaging, helping students to better understand and apply narrative text structures.

In conclusion, the Problem-Based Learning model assisted by Wordwall media is an effective and appropriate strategy for improving students' narrative writing skills. This model not only enhances students' academic performance but also fosters a more active, creative, and student-centered learning environment.

## **SUGGESTION**

Based on the findings of this study and the researcher's experience during the implementation of the Problem-Based Learning (PBL) model assisted by Wordwall media at grade XI of SMAN 1 Simpang Empat, several recommendations are proposed to enhance students' writing skills, particularly in narrative text.

1. English teachers are strongly encouraged to adopt innovative and student-centered learning models, such as the Problem-Based Learning (PBL) approach integrated with



- digital media like Wordwall. The findings of this study demonstrate that this combination is effective in improving students' ability to develop ideas, organize text structure, and apply appropriate language features. Therefore, incorporating PBL into classroom instruction can serve as an alternative strategy to replace or complement conventional teaching methods, which are often less engaging and less effective in promoting active learning.
2. It is recommended that teachers create a more interactive and collaborative learning environment. The implementation of PBL allows students to actively participate in problem-solving activities, group discussions, and idea-sharing processes. This collaborative approach not only enhances students' writing competence but also fosters critical thinking, creativity, and learning motivation. The integration of Wordwall media further supports this process by providing interactive and engaging learning experiences that stimulate students' interest and participation.
  3. Future researchers are encouraged to further investigate the effectiveness of the PBL model in different contexts. Subsequent studies may explore its application in teaching other text genres, such as recount, descriptive, or analytical exposition texts, or examine its impact on other language skills, including speaking, reading, and listening. In addition, future research could involve larger sample sizes or different educational levels to provide more comprehensive and generalizable findings.

In conclusion, the integration of Problem-Based Learning with interactive digital media presents a promising approach to improving English language learning outcomes. Therefore, continued exploration and application of this model are highly recommended to support more effective and meaningful language instruction.

## REFERENCES

- Almuafa, H. A., & Alqurashi, H. S. (2025). The Impact of Using Wordwall Interactive Games on English Vocabulary Acquisition: Evidence From Saudi Arabia. *International Journal of Linguistics*, 17(2), 64–79. <https://doi.org/10.5296/ijl.v17i2.22685>
- B.L. Welch. (1947). The Generalization of Student's Problem when Several Different Population variances are Involved. *Biometrika*, 34(1–2), 28–35.
- Erawati, N. K., & Adnyana, P. B. (2024). Implementation of Jean Piaget's Theory of Constructivism in Learning: a Literature Review. *Indonesian Journal of Educational Development (IJED)*, 5(3), 394–401. <https://doi.org/10.59672/ijed.v5i3.4148>
- Kusumahati, A., Adi, A. P. K., & Sumarjo, S. (2023). the Implementation of Problem Based Learning (PBL) in Students Writing Skills on Analytical Exposition Text. *Didaktik : Jurnal Ilmiah PGSD STKIP Subang*, 9(4), 1867–1875. <https://doi.org/10.36989/didaktik.v9i04.1773>
- Permata Sari, P. L., Supiatman, L., & Aryni, Y. (2023). Improving Students' Literacy: Successful Efforts of the School Literacy Movement (SLM). *Journal of English Language and Education*, 8(2), 236–242. <https://doi.org/10.31004/jele.v8i2.439>
- Susanti, M., Suyanto, S., Jailani, J., & Retnawati, H. (2023). Problem-based learning for improving problem-solving and critical thinking skills: A case on probability theory course. *Journal of Education and Learning*, 17(4), 507–525. <https://doi.org/10.11591/edulearn.v17i4.20866>
- Wulandari, R. S., & Hastini, H. (2024). The Use of Problem Based Learning In Developing Writing Skills of Grade VII Students of MTS Al-Khairaat Tondo. *Journal of General Education and Humanities*, 3(2), 133–142. <https://doi.org/10.58421/gehu.v3i2.215>