

INTEGRATING CHAT GPT TOWARDS PROJECT BASED LEARNING (PjBL) TO ENHANCE STUDENTS WRITING SKILLS AT SMK NEGERI 3 OKU

Kiyelin Permata sari¹, Neti Lastri², Nurul Afifah³, Emilia Contessa⁴

^{1,2,3}Program Studi Pendidikan Bahasa Inggris, Fakultas Keguruan dan Ilmu Pendidikan

⁴Program Studi Pendidikan Bahasa dan Sastra Indonesia

Universitas Baturaja

kiyelin2903@gmail.com

Abstract

This study examined the effectiveness of integrating ChatGPT into Project-Based Learning (PjBL) in enhancing students' descriptive text writing skills at SMK Negeri 3 OKU. Using a pre-experimental one-group pretest-posttest design, the sample comprised 34 eleventh-grade students from class XI TKJ 2, selected through cluster random sampling. The treatment consisted of PjBL activities producing a Group Descriptive Writing Portfolio, with ChatGPT as a supporting tool. Data were collected via a writing test ("My English Teacher") and a 20-item UTAUT2-based questionnaire, analyzed using the Paired Sample t-test and descriptive statistics. The pre-test average score of 35.88 ("Very Poor") increased significantly to 81.76 ("Good") in the post-test due to the treatment, with a significance value of 0.000 ($p < 0.05$). The questionnaire revealed an overall mean of 3.42 ("Moderate"), highest for Time Efficiency (3.68) and lowest for Dependency Risk (3.06). These findings confirm that integrating ChatGPT into PjBL effectively enhances students' writing skills.

Keywords: ChatGPT, Project-Based Learning, Writing Skills, Descriptive Text

INTRODUCTION

Writing is one of the most important language skills in English learning because it enables students to express ideas, thoughts, feelings, and information in a structured written form. In academic settings, writing is not simply a matter of arranging words into sentences, but a complex process that requires planning, organizing, drafting, revising, and editing ideas so that the message can be understood clearly by readers (Hacker, 2018). Good writing also requires students to apply appropriate vocabulary, grammar, and mechanics. For this reason, writing is often considered one of the most challenging English skills for students to master, especially when they have limited practice and low confidence in expressing their ideas in written form.

In many classrooms, students still experience difficulties in writing. Common problems include generating ideas, developing content, organizing paragraphs, and using correct grammar and spelling. These difficulties often result in writing that is incomplete, less coherent, and less effective in communicating meaning. When students are unable to organize their thoughts well, they may become frustrated and lose motivation during writing activities. As a result, writing lessons can feel difficult and uninteresting if teachers only rely on traditional teaching methods that emphasize explanation rather than active practice. Therefore, an effective teaching strategy is needed to help students improve their writing ability in a more engaging and meaningful way.

One learning model that can support the development of writing skills is Project-Based Learning (PjBL). (Hamidah et al., 2020) explain that PjBL is a student-centered

learning model that promotes meaningful learning, active participation, and collaboration. Through PjBL, students are encouraged to work on projects, solve problems, and produce concrete outcomes that are connected to real-life situations.

This learning model is especially useful in writing instruction because it allows students to go through the writing process in a more practical way. Instead of simply writing for an assignment, students are guided to explore a topic, collect ideas, discuss content, and produce a final text as part of a larger project. In addition, PjBL supports the development of 21st-century skills such as critical thinking, communication, creativity, and collaboration, which are essential in modern education.

Along with PjBL, the rapid development of technology has created new opportunities for English learning. One of the most widely discussed tools in education today is ChatGPT. (Su et al., 2023) describe ChatGPT as an artificial intelligence chatbot based on a large language model that can understand and generate human-like text. In educational contexts, ChatGPT can assist students by providing ideas, giving explanations, suggesting vocabulary, and offering immediate feedback during writing tasks. This makes ChatGPT a potentially useful tool for students who struggle to begin writing or who need support in revising their texts. Because of its interactive nature, ChatGPT can help create a more personalized learning experience and encourage students to be more independent in improving their writing.

The integration of ChatGPT into Project-Based Learning may offer a useful solution for writing instruction. Within a project-based classroom, students usually need support when developing content, expanding ideas, and revising drafts. ChatGPT can serve as a learning partner that helps students during these stages by providing language support and quick responses. This combination can make the writing process more dynamic because students are not only working collaboratively on projects, but also receiving digital assistance that helps them refine their writing. In this way, the integration of Chat GPT and PjBL may create a more effective, interactive, and student-centered learning environment.

Based on preliminary observation at SMK Negeri 3 OKU, students still encounter several problems in writing, especially in writing descriptive text. Many students have difficulty expressing ideas clearly, arranging sentences logically, and using correct grammar. In addition, classroom learning is still relatively conventional, which makes students less active and less motivated during writing lessons. These conditions indicate that students need a more innovative learning approach that can help them become more engaged and confident in writing. Therefore, this study focuses on integrating ChatGPT into Project-Based Learning to enhance students' writing skills.

This study is important because it explores a teaching approach that combines pedagogy and technology in a practical way. By using PjBL, students are encouraged to learn actively through meaningful tasks, while Chat GPT provides additional support during the writing process. The combination of both is expected to improve students' writing performance and make learning more effective in the digital era. Accordingly, this research investigates the effectiveness of integrating ChatGPT into Project-Based Learning in enhancing students' writing skills at SMK Negeri 3 OKU.

METHODOLOGY

This study used a pre-experimental design with a one-group pre-test and post-test model. (Creswell, 2018) This design was chosen to examine whether integrating Chat GPT into Project-Based Learning could improve students' writing skills. In this design, the students were given a pre-test before the treatment, followed by several learning activities using ChatGPT within PjBL, and then a post-test after the treatment. The comparison between the pre-test and post-test scores was used to determine the effect of the treatment.

The research was conducted at SMK Negeri 3 OKU. The participants of this study were eleventh-grade students, specifically class XI TKJ 2, with a total of 34 students. The sample was selected through cluster random sampling. This sampling technique was used

Because the students were already grouped into classes, and one class was chosen as the sample to represent the population.

The instrument used in this study was a writing test in the form of descriptive text. The students were asked to write a descriptive text before and after the treatment in order to measure their writing ability. The topic used in the test was “My English Teacher,” and the students’ written products were scored by two raters. In addition, a questionnaire consisting of 20 items was also used to explore students’ responses toward the integration of ChatGPT in Project-Based Learning. The questionnaire was developed based on the UTAUT2 model and was also supported by the theoretical concepts of (Dwivedi et al., 2023) and (Tlili et al., 2023) to identify the factors that supported the effectiveness of ChatGPT in writing activities. (Venkatesh et al., 2012).

The treatment was carried out through several stages of Project-Based Learning with the support of ChatGPT. First, the teacher introduced the topic and explained the learning objectives. Second, the students worked on project tasks by gathering ideas and drafting their descriptive texts with the help of ChatGPT. Third, the students revised and improved their writing based on feedback and discussion. Finally, the students completed their writing project and submitted the final version. Through these stages, ChatGPT functioned as a supportive tool that helped students develop and refine their writing.

The data obtained from the writing test were analyzed using the paired sample t-test to determine whether there was a significant difference between the pre-test and post-test scores. The questionnaire data were analyzed descriptively by calculating the mean score and the percentage of students’ responses. The significance level used in this study was 0.05. If the significance value was lower than 0.05, the alternative hypothesis was accepted, which meant that integrating ChatGPT into Project-Based Learning was effective in improving students’ writing skills.

FINDINGS AND DISCUSSION

The results of this study are presented based on the data collected from the writing test and the questionnaire. The writing test was used to determine whether integrating ChatGPT into Project-Based Learning could improve students’ descriptive writing skills, while the questionnaire was used to identify students’ responses toward the use of ChatGPT in the learning process. The findings are presented in several parts, including pre-test results, post-test results, normality test, paired sample t-test, and questionnaire analysis.

a. Pre-test Results

The pre-test was conducted before the treatment to determine the students’ initial ability in writing descriptive text. In this stage, students were asked to write a descriptive text entitled My English Teacher based on five aspects of writing, namely content, organization, vocabulary, grammar, and mechanics. The result of the pre-test showed that the total score obtained by the 34 students was 1220, with an average score of 35.88. Based on the score classification, this average fell into the Very Poor category.

The frequency distribution of the pre-test scores also showed that most students still had low writing performance. Out of 34 students, none reached the Excellent, Good, or Fair categories. A total of 8 students, or 23.53%, were classified as Poor, while the majority, 26 students, or 76.47%, were classified as Very Poor. This result indicates that the students experienced serious difficulties in writing descriptive text before the treatment was applied. Their weaknesses were mainly seen in the limited development of ideas, weak paragraph

organization, inappropriate vocabulary choice, and frequent grammar and mechanics errors.

The pre-test findings reveal that the students needed instructional support that could help them write more effectively. At this stage, the writing scores show that their ability was still far from the expected standard. This condition became the basis for implementing

ChatGPT integrated into Project-Based Learning, in which the treatment was carried out through the “Group Descriptive Writing Portfolio” project, as an alternative strategy to improve their writing skills.

b. Post-test Results

After the treatment was completed, the post-test was administered using the same topic and the same scoring rubric as the pre-test. The purpose of the post-test was to determine whether the students’ writing ability had improved after learning through ChatGPT integrated into Project-Based Learning, in which students completed the “Group Descriptive Writing Portfolio” project as the treatment. The result of the post-test showed a total score of 2780 with an average score of 81.76. Based on the score classification, this average was categorized as Good.

The frequency distribution of the post-test scores showed a clear improvement compared to the pre-test. Twelve students, or 35.29%, reached the Excellent category. Eighteen students, or 52.94%, were classified as Good, and four students, or 11.76%, were classified as Fair. None of the students remained in the Poor category, and none of the students were classified as Very Poor. This distribution indicates that most students improved their writing performance after the treatment.

The post-test result demonstrates that the integration of ChatGPT into Project-Based Learning helped students improve their ability to write descriptive text. The increase in students’ scores from the pre-test to the post-test occurred because of the treatment given between the two tests, namely Project-Based Learning in which students worked on the “Group Descriptive Writing Portfolio” project with ChatGPT as a supporting tool. After receiving this treatment, and compared with the pre-test, students became more capable of organizing ideas, expanding content, choosing better vocabulary, and using grammar more accurately. The increase in average score from 35.88 to 81.76 shows a substantial improvement in their writing achievement.

c. Normality Test

Before conducting hypothesis testing, a normality test was carried out using the Shapiro-Wilk test because the sample size was fewer than 50 students. The purpose of this test was to determine whether the pre-test and post-test data were normally distributed, which is a requirement for parametric testing. The result of the normality test showed that the significance value for the pre-test was 0.548, while the significance value for the post-test was 0.590.

Since both values were greater than 0.05, the data were considered normally distributed. This means that the assumptions for further statistical analysis were fulfilled. Therefore, the researcher proceeded with the paired sample t-test to examine whether there was a significant difference between the students’ pre-test and post-test scores.

The normality test result is important because it confirms that the data were suitable for parametric analysis. In other words, the improvement in students’ scores could be tested statistically with a valid method. This step strengthened the reliability of the findings and supported the next phase of hypothesis testing.

d. Paired Sample T-test

After the data were confirmed to be normally distributed, the paired sample t-test was

conducted using SPSS version 27. This test was used to compare the students' writing scores before and after the treatment. The result showed that the mean difference between pre-test and post-test scores was -45.882, which indicates that the post-test scores were much higher than the pre-test scores. The significance value obtained was 0.000, which is lower than 0.05. Because the significance value was less than 0.05, the null hypothesis was rejected and the alternative hypothesis was accepted. This means that integrating ChatGPT into Project-Based Learning had a significant effect on students' writing skills. In practical terms, the students showed a meaningful improvement in their descriptive writing after participating in the treatment.

The result of the paired sample t-test confirms that the treatment was effective. The difference between the pre-test and post-test scores was not only visible descriptively, but also statistically significant. This finding supports the idea that ChatGPT can assist students in generating ideas, improving sentence structure, and revising their writing more effectively when used within a project-based learning environment. In addition to the writing test, a questionnaire was distributed to 34 students to identify their responses toward the use of ChatGPT in Project-Based Learning. The questionnaire consisted of 20 items covering 10 indicators, namely ease of use, usefulness, social influence, facilitating conditions, learning motivation, user experience, time efficiency, productivity, trust accuracy, and dependency risk. The questionnaire data were analyzed descriptively by calculating the mean score for each indicator and the overall mean score.

The overall mean score of the questionnaire was 3.42, which was categorized as Moderate. This result shows that the students generally had a positive perception of ChatGPT in supporting their writing activities, although their responses were not extremely high. Among the indicators, Time Efficiency obtained the highest mean score of 3.68, which was categorized as High. This means that students felt ChatGPT helped them complete writing tasks more quickly and efficiently.

The lowest mean score was found in Dependency Risk, with a score of 3.06, which was also categorized as Moderate. This indicates that students were aware of the possibility of becoming too dependent on ChatGPT, although the concern was not very strong. Other indicators such as Ease of Use, Usefulness, Facilitating Conditions, Learning Motivation, User Experience, Productivity, and Trust Accuracy were also in the moderate to high range, showing that students viewed ChatGPT as useful and relatively easy to use in writing activities.

The response distribution further supports these findings. Many students selected Agree and Strongly Agree for items related to ease of use, usefulness, and time efficiency. (Kasneci et al., 2023) This suggests that ChatGPT was perceived as a helpful tool during the writing process, especially when students needed ideas, vocabulary support, or quick feedback. At the same time, some students remained neutral or cautious regarding dependence on the tool, showing that they still understood the importance of their own thinking and creativity. Overall, the results of this study show a clear improvement in students' writing skills after the integration of ChatGPT into Project-Based Learning. The pre-test average score was 35.88, categorized as Very Poor, while the post-test average score increased to 81.76, categorized as Good. The paired sample t-test confirmed that this improvement was statistically significant with a significance value of 0.000. In addition, the questionnaire results showed that students had moderately positive responses toward the use of ChatGPT, particularly in terms of time efficiency and writing support.

These findings indicate that ChatGPT, when used within a project-based learning framework, can serve as an effective tool to support students' writing development. The results also suggest that students benefited not only from the technology itself, but also from the active and meaningful learning process encouraged by PjBL. The combination of both

elements created a learning environment that helped students become more engaged, more productive, and more confident in writing

The findings of this study show that integrating ChatGPT into Project-Based Learning significantly improved students' writing skills. The mean score increased from 35.88 in the pre-test to 81.76 in the post-test, and the paired sample t-test result confirmed that the difference was statistically significant. This improvement indicates that the treatment successfully helped students develop their descriptive writing ability, especially in terms of content, organization, vocabulary, and grammar. The result supports the idea that a student-centered learning model combined with technology can create a more effective writing environment.

One possible explanation for this improvement is that Project-Based Learning gave students meaningful and structured opportunities to practice writing. In PjBL, students are encouraged to work on real tasks, discuss ideas, and produce a final product, which makes learning more active and relevant. This condition helped students become more engaged in the writing process because they were not only asked to write, but also to plan, revise, and present their work. Such a process may have made students more aware of the writing steps and more motivated to improve their texts.

ChatGPT also appears to have played an important role in supporting students during the treatment. Based on the questionnaire results, students gave a relatively positive response to ChatGPT, especially regarding time efficiency and ease of use. This suggests that ChatGPT helped students generate ideas, enrich vocabulary, and revise grammar more quickly. The tool may have reduced students' anxiety when they faced difficulties in writing because they could receive immediate assistance. In this way, ChatGPT functioned as a supportive scaffold that helped students move from initial drafts to better final versions.

The findings are also in line with previous studies showing that Project-Based Learning can improve students' writing achievement. Research has shown that PjBL promotes collaboration, creativity, and critical thinking, which are important in writing development. When technology is integrated into the learning process, students may gain additional support that makes writing tasks easier and more effective. The present study strengthens this view by showing that ChatGPT can be used not only as a language tool, but also as a learning aid within a project-based classroom.

The questionnaire results provide further insight into students' perceptions of ChatGPT. (Dwivedi et al., 2023) The overall mean score was 3.42, which indicates a moderate positive response. This means that students generally considered ChatGPT helpful, but they also remained aware of its limitations.

The highest score on time efficiency shows that students valued the tool because it saved time and supported them in completing tasks faster. At the same time, the moderate score on dependency risk suggests that students understood the need to use ChatGPT carefully so that they would not rely on it too much. This balance is important because AI tools should support learning rather than replace students' own thinking. (Rahman & Watanobe., 2023)

The improvement in writing scores also suggests that students may have become more confident in expressing their ideas. Writing often feels difficult for learners because it requires them to organize thoughts, select words, and apply grammar correctly. Through repeated project tasks and ChatGPT assistance, students had more opportunities to practice and improve these aspects. As a result, they were able to produce more complete and more coherent descriptive texts in the post-test. This shows that the combination of technology and project-based instruction can create a meaningful impact on students' writing outcomes. Overall, the discussion confirms that integrating ChatGPT into Project-Based Learning is effective in enhancing students' writing skills. The treatment helped students improve both their actual writing performance and their perceptions of the learning process.

The results also suggest that ChatGPT can be a useful tool in English writing instruction when it is used in a guided and structured way. Therefore, teachers can consider combining ChatGPT with PjBL to create a more interactive, supportive, and productive learning experience for students.

CONCLUSION

This study concludes that the integration of ChatGPT into Project-Based Learning is effective in improving students' writing skills at SMK Negeri 3 OKU. The statistical result showed a significant difference between the pre-test and post-test scores, indicating that the treatment had a positive effect on students' descriptive writing achievement. The students' average score increased from a very poor level in the pre-test to a good level in the post-test, which means that the learning treatment successfully helped them develop their ability to write more effectively. This improvement can be explained by the fact that Project-Based Learning provided students with meaningful, active, and collaborative writing experiences, while ChatGPT supplied additional support in generating ideas, improving vocabulary, and revising grammar and sentence structure.

The questionnaire results also support this conclusion because the students showed a moderately positive response toward the use of ChatGPT in their writing activities. Among the indicators, time efficiency received the highest mean score, showing that students felt ChatGPT helped them complete writing tasks more quickly and efficiently. This is in line with previous research that found ChatGPT can offer fast and supportive feedback for writing tasks, making students feel more confident and less stressed during the writing process. At the same time, the moderate score on dependency risk indicates that students were aware of the importance of using ChatGPT wisely so that it would support, not replace, their own thinking. Therefore, the integration of ChatGPT into PjBL not only improved writing performance but also created a more engaging and supportive learning environment for students.

REFERENCES

- Creswell, J. W. (2018). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (6th ed.)*. Pearson.
- Jones, P., Kar, A. K., Kizgin, H., Lal, B., Lucini, B., Rana, N. P., & Williams, M. D. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642.
- Hacker, D. J. (2018). A metacognitive model of writing: An update from a developmental perspective. *Educational Psychologist*, 53(4), 220–237.
- Hamidah, H., Rabbani, T. A. S., Fauziah, S., Puspita, R. A., Gasalba, R. A., & Nirwansyah, N. (2020). HOTS-oriented module: Project-based learning. *SEAMEO QITEP in Language*.
- Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., et al. (2023). *ChatGPT for good? On opportunities and challenges of large language models for education. Learning and Individual Differences*, 103, 102274.
- Rahman, M. M., & Watanobe, Y. (2023). ChatGPT for education and research: Opportunities, threats, and strategies. *Applied Sciences*, 13(9), 5783.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Su, J., & Yang, W. (2023). Unlocking the power of ChatGPT: A framework for applying generative AI in education. *ECNU Review of Education*, 6(3), 355–366.
- Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1), Article 15.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178.