

## Problem-Based Learning Approach to Improve Writing Skills for Post Graduate Students

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### Abstract

*The purpose of this study was to examine the impact of Problem-Based Learning (PBL) on STKIP PGRI Sidoarjo's postgraduate students. The study used a pre-experimental design with a pretest-posttest design, with one group taking both the pretest and the posttest. Participants in the study were postgraduate students in their third semester (Batch 7) at STKIP PGRI Sidoarjo. The sample, on the other hand, was made up of 20 post-graduate students. The one-group pretest-posttest design allowed for only one intact group, which was chosen because the Problem-Based Learning (PBL) approach was appropriate for post-graduate writing students. This result indicated that the students' writing abilities had improved as a result of their involvement in the PBL. Furthermore, the SPSS Statistic 26 analysis reveals that the Sig. (2-tailed) value was .002, which was lower than the Sig. level of 0.05, indicating that the null hypothesis was rejected. Based on the findings from the data examined, it is reasonable to conclude that incorporating Problem-Based Learning (PBL) as a learning approach has a significant impact and is effective on the writing skills of post-graduate students at STKIP PGRI Sidoarjo during pandemic Covid-19.*

### Keywords

problem-based learning; writing skill; post-graduate students



## I. Introduction

Writing is the ability to express ideas that are organized on media or a written form and used to share information with the reader in written form. Writing is the ability to express ideas, opinions, and feelings to other parties through written language (Saragih, 2019). Writing skills are very important to learn because writing skills are very important in supporting student success (Kristyanawati, 2019). Still, the thought of writing in a second language hinders their creativity (Sari, 2020). The practice is frequently beneficial as preparation for other activities such as sharing ideas, feelings, and all of one's thoughts with others (Suastra & Menggo, 2020). Writing has become a difficult language skill to acquire as a productive skill (Karunasree & Francis, 2020) and is a skill that offers complex activity and requires a long process to do critical thinking and idea development (Imelda, Cahyono, & Astuti, 2019). However, because writing has many contributions to daily life, this skill must be improved by practicing a lot in order to get the meaning, interesting, and clear for the reader through written form of writing.

Writing is the process of transforming ideas into meaningful text or sentences. It can be used to express ideas as well as provide information (Linse & Nunan, 2006). Thus, Indonesian students must be able to write well in order to inform the reader. English language teaching aims to improve students' writing skills. Writing involves discovering and organizing ideas, putting them on paper, and revising them. Learning to write is the process of finding and constructing ideas in written form. Writing becomes the most difficult school lesson because students must produce text in English (Richards & Willy, 2002). They must express what they think on paper in the correct manner. Problems always obstruct the success of teaching writing. Thus, students must know how to write well, and teachers must teach students how to write well.

In fact, the Covid-19 disease has spread globally, including to Indonesia. This situation impacts many aspects of community life. The pandemic's social restrictions and quarantine protocols have had the greatest impact on education (Simamora, 2020). Education is one of the most threatened activities. Even though education has played a vital role in human civilization (Haratikka, 2020). Currently, educational fields require additional effective education methods to maintain the teaching learning process. It is stated in the Surat Edaran Nomor 4 tahun 2020 that the teaching and learning system is no longer carried out directly in schools, but learning is carried out at home as the basic point from these policies (Efriana, 2021). This policy changes teachers' and students' habits. With this policy, teachers must change their habits to find appropriate planning for optimal home learning. During pandemics, online learning is the best option.

To be a good writer, one must be able to come up with new ideas. Writing, according to Nunan (2003), is a physical and mental act that involves discovering ideas and thinking about how to communicate them so that they can be developed into statements and paragraphs that a reader can understand. In order to write, one must be able to develop their thoughts. However, it's not as easy as it appears. Even for post-graduate students at STKIP PGRI Sidoarjo, one of the private universities in Sidoarjo, learning English (writing skills) in this current situation presents significant challenges due to the shift from face-to-face learning to online learning as an alternative method to maintain the effectiveness of continuity in English learning. During Online learning in Covid-19, all of the lecturers at STKIP PGRI Sidoarjo must be innovative in their design of interesting learning materials so that post-graduate students can understand the learning material and do not become bored while they are learning it online. However, some of the difficulties encountered by post-graduate students implementing online learning were difficulties with writing, particularly "Writing for academic and scientific purposes".

To address those issues, one of the learning strategies used in online learning during the pandemic was to strengthen post-graduate students' thinking abilities (reasoning, communicating, and connecting). A suitable strategy for learning was considered to be Problem-Based Learning (PBL). PBL is one educational strategy that assists students in developing the reasoning and communication skills necessary for success creativity. It is a method of teaching in which complex real-world problems are used to facilitate student learning of concepts and principles rather than direct presentation of facts and concepts (Sidauruk, Silalahi, Dumaris, & Herman, 2020). As well, PBL is well-known as a group of teaching and learning processes that are centered on scientific problem solving. Thus, while PBL does not deny the importance of content, it rejects the notion that content should be acquired in the abstract, in large chunks, and memorized by rote, ultimately leading to usage and application to specific problems at a later date (Harper-Marinick, 2001). Additionally, learning enables students to solve problems, communicate, and work in groups. Thus, PBL

can assist post-graduate students in resolving a problem that they frequently encountered while writing scientific papers during online learning.

Furthermore, PBL is associated with the use of one's inner man to solve meaningful, relevant, and contextual problems in a community or environment, which is referred to as "community intelligence". According to Boud & Feletti (1997), PBL is the most significant innovation in education since the introduction of the textbook. Margetson (1994) claimed a project-based learning curriculum helps to increase the development of study skills over a long period of time for an open mind-set, reflective, critics, and active learning. PBL curriculum outperforms other strategies in terms of facilitating students' ability to solve problems, communicate, work cooperatively, and develop interpersonal skills (Rusman, 2010).

Previous studies have indicated that using PBL is a comprehensive educational strategy that incorporates a constructivist approach to learning, in which the power of authentic problem solving is used to engage students and improve their learning and motivation (Harper-Marinick, 2001). A learning approach in which students work on authentic problems with the goal of constructing their own knowledge, developing inquiry and higher-level thinking skills, is then used to teach them (Arends, 2008). Problem-based learning (PBL) is a revolution in curriculum that uses problems as learning stimuli. PBL appears to be able to bridge the gap between theory and application (Rideout, 2001). Based on those findings, the researchers concluded that PBL can encourage post-graduate students at STKIP PGRI Sidoarjo to be more active and innovative in their writing, and that they can learn how to solve problems in scientific and academic writing by examining aspects of writing on online learning during the Covid-19 pandemic. Finally, it can be stated that previous studies have proven the significance of project-based learning (PBL) as a learning medium on students' writing skills. When comparing this study to previous studies, there were significant differences in the setting, the sample, and the learning subject. As a result, this study was mainly focused aiming at the PBL to improve the post-graduate students at STKIP PGRI Sidoarjo regarding to online learning during pandemic Covid-19.

### III. Research Methods

The study employed a pre-experimental design with a pretest-posttest design with one group for the pretest and posttest. In this case specifically, there were two major points about the nature of the one-group pre-test and post-test design that stood out. First and foremost, there was no control group for purposes of comparison, and only a single group of participants was used. In terms of treatments and assessments, the participants had a single condition for the purposes of these points. A second step was to administer pre and post-tests to the experimental group several times during the course of the learning activity, which was conducted online using the Google Meet platform. The study's participants were post-graduate students in their third semester (Batch 7) at STKIP PGRI Sidoarjo. The sample, on the other hand, consisted of the 20 post-graduate students. Because it used a one-group pretest-posttest design, the group only consisted of one intact group, which was purposefully chosen because the Problem-Based Learning (PBL) approach was appropriate for post-graduate students in writing, and the group only consisted of one intact group. Table 1 illustrates the study design.

**Table 1. Research Design**

Experimental Group	Pre-test	Treatment	Post-test
	O	X	O

The results of Table 1 suggested that the success of treatment is determined by comparing the pre-test score to the post-test score after the treatment has been completed. If the post-test score was higher than the pre-test score, this indicates that there is a statistically significant effect of PBL on the writing skills of post-graduate students, and vice versa, in this study. The study's instruments included pre- and post-test instruments, as well as writing rubrics. Because the "Writing of an Article" test was administered both before and after the pre-test and post-test. The next instrument was writing rubrics, which served as assessment guidance for students who had completed the first instrument's writing paragraph test. The writing rubrics are comprised of four main descriptors that have been adapted from a variety of sources. The revisions to the rubrics were intended to better align the descriptors with the learning objectives and the students' level of proficiency in academic writing. Following the selection of a single intact group, a pre-test in the form of "Writing of an Article" was administered. This was followed by treatment sessions in which the group was taught using PBL as a learning approach as part of the treatment. During the treatments, there were four meetings, each with a different topic based on RPS (in this case, the lesson plan of the topics of 'Article Writing for Journal' subject). A post-treatment test was administered, which consisted of a writing test, after the treatments were completed. In addition to collecting data from both the pre-test and post-test periods, SPSS Statistics 26 was used to analyze the data descriptively and inferentially. However, before conducting a dependent t-test (paired sample test) to determine whether or not a treatment had a statistically significant effect, the data should have been normally distributed. As a result, it is necessary to measure normality data using the Kolmogorov Smirnov statistic through the use of SPSS Statistics 26. If the level of significance was  $> 0.05$ , the data was classified as normally distributed. Afterwards, if the normality test meets the required results, the paired sample test can be carried out to compare both the pre-test and post-test scores in order to determine whether or not the PBL was effective in improving students' writing skills.

#### IV. Discussion

When the data were gathered, it was analyzed descriptively and inferentially with the support of SPSS Statistics 26 software. During the pretest and posttest, the descriptive analysis was used to determine the mean, standard deviation, minimum and maximum scores, among other things. Meanwhile, the inferential statistical analysis is used to determine the outcome of the hypothesis testing procedure. Table 2 represents the results of the descriptive statistical analysis conducted.

**Table 2. Descriptive Analysis Results of Pretest and Posttest**

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test	20	65	85	76.8	6.564
Post-test	20	80	92	89.6	3.785
Valid N (listwise)	20				

As shown in Table 2, the pretest mean was 76.8, which was lower than the posttest means of 89.6, indicating that the pretest was more accurate. It revealed that there is a

statistically significant difference between the mean of the group before the treatment and the mean of the group after the treatment under PBL had been completed. Additionally, the standard deviation of the pretest was 6.564, whereas the standard deviation of the posttest was 3.785. After the data has been normal distributed, the inferential test (pair sample test) can be performed, as previously mentioned. Because there was only one group in the sample, it was not necessary to perform a homogeneity test. Furthermore, the data's normality was determined using the Kolmogorov Smirnov test. Table 3 shows the outcome of the experiment.

**Table 3.** The Result of Normality Test

	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df.	Sig.
Pre-test	1.31	20	.211
Post-test	1.42	20	.183

As shown in Table 3, the Sig. value of the pretest was .211, whereas the Sig. value of the posttest was .183, both of which were higher than the Sig. level of .05. Similarly, to what was discovered by (Arikunto, 2013), if the Sig. value was greater than .05., the data were normally distributed. Through the use of a pair sample test, it can be inferred that the pretest and posttest data were normally distributed and that the data met the requirements of hypothesis testing. Because the requirement for conducting hypothesis testing has been met, inferential analysis is carried out using a pair sample test. The hypothesis testing was carried out in order to determine whether or not there is a statistically significant effect of Problem-Based Learning on the post-graduate students' writing ability. Table 4 presents the findings of the study.

**Table 4.** The Results of Pair Sample Test

		Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2tailed)
					Lower	Upper			
Pair 1	pretest - posttest	9.221	6.664	1.112	8.011	13.765	8.068	20	.002

On the source of Table 4, it can be concluded that the Sig. value of (Sig. (2-tailed)) was .002, which was less than the significance level of .05. Accordingly, the null hypothesis ( $H_0$ ) "There is no significant effect of using Problem-Based Learning (PBL) as a learning media on writing the post-graduate students' skill" was found to be *'rejected'*. Aside from that, the mean was 9.221. These findings indicate that students' writing skills improved following treatment using PBL as a learning approach during online learning in the era of pandemic Covid-19, as evidenced by these findings. Automatically, it can be asserted that there was a statistically significant effect of PBL on the writing skills of post-graduate students at STKIP PGRI Sidoarjo. A posttest was administered after the treatment, which took place over four meetings. The results of the posttest can be compared to the results of the pretest to determine the effect of PBL as a learning approach on students' writing ability. According to the results of the descriptive analysis, the mean of the posttest group was 89.6, which was higher than the mean of the pretest group, which was 76.8. It is possible to conclude that there is a statistically significant difference between the posttest mean and the pretest mean for the group. This result indicated that the students' writing ability had improved as a result of their

participation in the PBL program. In addition, the inferential analysis reveals that the Sig. value of Sig. (2-tailed) was .002, which was lower than the Sig. level of 0.05, indicating that the null hypothesis was rejected due to the Sig. value of Sig. (2-tailed) was less than the level of significance (0.05) (Sugiono, 2015).

Based on the findings through the data examined, it is reasonable to conclude that integrating Problem-Based Learning (PBL) as a learning approach has a significant impact on the post-graduate students' writing skills in a pandemic situation at STKIP PGRI Sidoarjo. The findings of Dastgeer (2015) in his research entitled "Improving English Writing Skill: A Case Problem Based Learning" supported the findings of this study, which led to the conclusion that PBL was a more effective pedagogy for teaching English to undergraduate students. The study "Using problem-based learning to improve writing skills of students of SMP Islam Sunan Gunung Jati Ngunut" by Maulidya (2014) found that PBL was effective for learning how to write a recount text, which was published in 2014. Students can achieve higher writing scores than the minimum standard in a manner similar to this study (KKM). The 31 students who attempted the test, 25 (80.64%) were able to meet the minimum standard. After the post-test, there was an improvement in writing ability; however, from the pre-test, there were only 7 (12,91%) of the 31 students who could pass the Minimum Standard Score (KKM). The difference was that the previous research was more effective because of a different methodology that was used, whereas the present study used a pre-experiment design with a single group of participants.

During pandemic Covid-19, this study discovered that the project-based learning approach contributed to the improvement of post-graduate students' writing skills. Specifically, the development of post-graduate students' writing abilities includes the improvement of components such as content, organization, vocabulary, grammar, and mechanics, among other things. Furthermore, their writing skills showed significant improvements as a result of the implementation of the PBL approach in online learning environments. Its pedagogical value includes exposing students to real-world challenges, developing higher order thinking skills, encouraging interdisciplinary learning, fostering independent learning, fostering knowledge discovery and information mining skills, as well as encouraging teamwork and communication. This self-directed learning takes place in a collaborative environment where students are encouraged to discuss and compare their findings as well as review and debate what they have learned (Patrick, 2009). According to the findings of the current study, students are generally interested in the application of the PBL method. They look into the problems, come up with a solution, and plan a trip to the site in order to gather information for the assignment. Students retain information more effectively while participating in activities rather than studying from a textbook, and an unstructured problem initiates learning in which new knowledge is formulated and constructed through collaborative learning, rather than studying from a textbook. New knowledge will be retained in the students' minds for a longer period of time as a result of this method. This is consistent with Tan (2003)'s assertion that the goals of the PBL method include content learning, the acquisition of process skills and problem-solving skills, and the development of lifelong learning skills.

As previously stated, there are numerous studies that demonstrate that the PBL method is appropriate and can be implemented at all levels of students when teaching English writing. However, it is worthwhile to conduct additional research to determine whether or not this particular method is appropriate. According to the findings of the current study, the implementation of the PBL method has improved students' writing abilities. Furthermore, the researcher would like to acknowledge that the process of planning the activities had not gone as smoothly as it appeared. Preparing for an English writing class has been shown to take more time according to some theories. Specifically, according to Brown (2001), teachers

must pay greater attention to the writing process, not only being concerned with the writing that students can produce, but also with the manner in which students construct their writing.

Improvements were made in the writing abilities of post-graduate students, particularly in the area of “academic and scientific writing”. Improvements were made by the students in their individual works in order to write about their previous experiences. They could make improvements if they were able to communicate their thoughts clearly in writing. It can be concluded that the implementation of the problem-based learning technique was an effective technique for improving the writing skills of the students in this study. It was discovered that when students were taught through the use of PBL, their writing skills improved. As previously stated by Margetson, facilitating students' ability to solve problems in writing can improve the students' overall writing ability. Finally, the researchers concluded that using a Problem Based Learning (PBL) teaching approach has several advantages, including the following: first, increasing and motivating students to learn by focusing the learning on real-world scenarios; second, increasing and motivating students to learn by focusing the learning on real-world scenarios; and third, increasing and motivating students to learn by focusing the learning on real-world scenarios. Following that, students engage in meaningful learning on their own terms. Students are compelled to assume responsibility for their own learning, which frequently increases motivation and encourages critical thinking. Finally, PBL is driven by challenging, open-ended problems that require students to think critically.

## V. Conclusion

According to the findings of the data analysis, the use of Problem Based Learning (PBL) is effective in increasing the learning ability of post-graduate students in writing at STKIP PGRI Sidoarjo. According to the results of the data analysis, the use of PBL in the experimental group had a statistically significant impact on the learning process overall. Students have gained more experience in the process of writing their written assignments. The ability of students to write was improving more rapidly than it had been before they began using PBL. Following the implementation of PBL in online learning, post-graduate students' development in understanding the material and concepts, as well as in composing and creating written works, has significantly improved. The number of advantages listed above may pique students' interest and assist them in comprehending the material as well as mastering many concepts related to “Writing of Article”. PBL has been shown to result in the development of students' writing skills after they have received treatment. There are some suggestions for those who teach in universities. Lecturers may use Project-Based Learning (PBL) as a learning approach during their teaching activities during the Covid-19 pandemic or even after the pandemic, but they must be careful in selecting the types of projects that will be assigned so that they are compatible with the learning materials and learning objectives. Because the use of the PBL approach has been shown to be effective in improving the writing skills of post-graduate students at STKIP PGRI Sidoarjo, it is recommended that other researchers investigate the PBL approach in other English skills by employing other research designs, such as the mix-method design, in the future.

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