



Problem Based Learning Using Word Wall Website to Improve Students' Writing Achievement

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ABSTRACT: This study examines if modified Problem Based Learning utilizing Word Wall Website improves students' writing skills. This is a quantitative quasi-experimental study. Students took pre- and post-tests on writing. One class has 30 pupils. Students were treated utilizing modified PBL. SPSS 22 uses paired samples t-test to analyze data. After adjusted PBL instruction, students' writing scores improved significantly. The post-test score (72.90) was 16.50 higher than the pre-test (56.40). At 0.000, the t-value is 35.169, below 0.05. After treatment, students' writing scores improved significantly. Teachers should utilize this modified strategy to improve pupils' writing skills. This encouraged researchers to combine PBL with video and song to boost students' writing skills.

KEYWORDS: Game, Modified Problem Based Learning, Technology, Word Wall Website, Writing Achievement.

INTRODUCTION

Teaching writing in an EFL class is not an easy task for teachers. Though there are many methods to be applied, they always have the weaknesses. At present, the generation called 'Gen Z' who are students in schools is different from the previous generation. Their personalities, mental processes, and educational tendencies are unique to traditional classrooms. The way teachers teach is also changing. Problem-based learning can help teach writing.

Problem based learning (PBL) is an instructional method where students learn by engaging in the process of solving real-world and problems. PBL was found by Barrows around 1969. Dastgeer, et al. (2015), PBL method is a more effective pedagogy method than traditional methods for improving English writing skill. From this statement, the researcher concludes that problem-based learning can make students more active and stimulate them to think more creatively to get their ideas in writing. The students can be encouraged to explore ideas and write or work in groups. Student who are reluctant to ask the teacher, can ask friends in the group or other groups.

According to Leong's (2009) study, PBL can be complex for certain students, they may be unwilling to communicate their opinions on the topic, and teachers may struggle to create an open-ended problem for learning. Ribeiro (2011) added that PBL implementation, preparation, and management are complex. Those are due to PBL needs an arrangement of an open-ended problem before its implementation and the obstacles found during its implementation, such as the losses perceived by the teacher, e.g., reduced control over content coverage and teaching-related workload.

Thus, the researcher intended to modify Problem Based Learning using Word Wall Website so that it can cover the weaknesses of the original PBL. Word Wall is an interactive game learning medium that is accessible online and has an attractive look. It is expected to attract student interest in learning because the game can be answered by students (Gandasari & Pramudiani in Novianti, et al., 2023).

Moreover, Swari (2023) argue that Wordwall is a gamification tool that can make learning more fun and improve children's reading skills. The integration of Wordwall within the teaching and learning process is believed to increase students' reading interest since it has various features that can create new learning material innovation. Since words play an important role in communication, mastering vocabulary makes it easier for students to create meaningful sentences. In this research, the researcher used word wall media in the features: random wheel and labeled diagram to increase writing achievement. The research question of this research



is 'Is there any statistics significant improvement of the students' writing achievement after the students were taught through the Problem Based Learning using Word Wall Website?'. Furthermore, the objective of this research is to improve the students' writing achievement.

LITERATURE REVIEW

Byrne in Wibowo (2022) states that writing is more than just put the signs or symbols into a written form, but it needs to be arranged by following the process to form words, then those words are established into the sentences. Harmer (2004) divides the process of writing into four steps: planning; drafting; editing; and final version. Teaching writing means guiding the students to utter their ideas into a written form. Based on the curriculum, the students are taught about descriptive text in term of describing tourism places. According to Gerot and Wignell in Anggun (2016), descriptive text is a text type we use when we want to tell how something looks, smells, feels, acts, tastes, sound etc.

In this research, the researcher chose Problem Based Learning as a method to guide students in creating descriptive text by using Word Wall Website as the media. Cristine (2004) who proposed Word Wall, say that Word Wall media is a bulletin board display of vocabulary words grouped together in a way that makes sense to students. It allows students to see key words daily and use the visual support to deepen their understanding of new words. The purpose of teaching writing by using the Word Wall program is to provide students with a certain level of English vocabulary when writing descriptive texts. Since words play an important role in communication, mastering vocabulary makes it easier for students to create meaningful sentences. The researcher used word wall media in the features: random wheel and labeled diagram to overcome this problem to increase writing achievement.

This research uses the theory of Maastricht (1960s) about problem based learning steps for students to develop students' responsibilities, that is included in Schmidt (2011). Then, the researcher conducts problem based learning using word wall website. The differences between Maastricht's Problem Based Learning and the implementation of the Problem Based Learning using Word Wall Website in process approach are jotted below.

Table 1. The Differences between the original Problem Based Learning and Problem Based Learning using Word Wall Website

Process Approach	Problem Based Learning	Problem Based Learning using Word Wall Website
1.Planning	1. Clarifying terms A presentation of the problem or problems should be made to the students at the beginning of the group session. When using paper cases, it is recommended that one of the students reads it out loud in order to get the group discussing right from the start. It is recommended that the first activity of the group be the clarification of difficulties, terms, and concepts that were not grasped at the beginning of the exercise. The objective of the first phase is to reach a consensus on the meaning of the numerous words and terminology presented in the problem, as well as on the scenario that is being described. It is possible to make use of the knowledge that is already possessed by the members of the group or to obtain it from a dictionary in order to implement problem-based learning.	1. Clarifying terms The problem(s) should be given to the students at the start of the lesson. A descriptive writing is shown on the LCD projector by the teacher. The teacher teaches the students about grammar rules, the structure of general texts, and the social purpose of detailed texts. It also has parts about writing, like structure, words, grammar, and mechanics.
	2. Defining the problem Defining problem is the major goal at this phase. The group should discuss and achieve an agreement on the hard events, which demand explanation. Occasionally, an issue has been purposefully presented on the way to test	2. Defining the problem The teacher asks students to identify which one of name of place, address, sights, sounds, smells, textures, emotions to make descriptive text. Those words can help the students to generate a



	<p>students' capacity to recognize certain symptoms. Though they have some past knowledge to spot a problem, the prior information doesn't allow them to remedy the problem immediately away.</p>	<p>number of ideas. Then, teacher also explains how to write sentence (simple present tense). Teacher asks students to mention some tourism places in Lampung and write them down.</p>
2. Drafting	<p>3. Brainstorming This should result in ideas to structure the problem. Each individual may express his or her ideas free and without immediate discussion: it is important not to discuss and not to comment the ideas of others during this step, but to collect many ideas (prior knowledge). Together, students will compile ideas of the underlying circumstances of the problem (explanatory approach) and/or of implications arising from the problem (procedural approach).</p>	<p>3. Brainstorming The teacher introduces Word Wall Website and explains how to play the game. All of the students play this game use their own phones. The objective of the third phase is to agree on the meaning of the various phrases and concepts and on the situation described in the problem. The use can be made of the knowledge of the group members' or reached out from a dictionary.</p>
3. Editing	<p>4. Structuring and hypothesis During this step, which constitutes the basis of the analysis, the problem is explained on several ways. Ideas, which seem to be related, are fleshed out in connection to each other. Each group member is free to completely communicate ideas about matter. Group members can draw on all the prior information they possess. This prior knowledge may be based on information acquired in earlier education, facts and ideas received by reading different articles or on another means. The other members of the group and the tutor are allowed to examine the students' knowledge to the full, to suggest alternate explanations and question specific perspectives. The practice of brainstorming and conversation is a collaborative methodology. It results in to more creativity and output than each member of the group could generate on his own.</p>	<p>4. Structuring and hypothesis Teacher asks students to create sentences by using the words which are available in the picture. The teacher helps students to develop the ideas and write a descriptive with the proper diction or words. In the fourth step, which constitutes the essence of the analysis, the problem is elucidated through several perspectives. Ideas, which seem to be related, are fleshed out in connection to each other. Each group member is allowed to completely communicate ideas about matter. Group members can draw on all the prior information they possess. Each group discusses which opinions are suitable to produce a good descriptive text.</p>
	<p>5. Learning objectives Each group agrees on the learning objectives; the tutor ensures that the objectives are focused, attainable, comprehensive, and suitable. So, the primary goal of this step is to develop learning objectives for which groups will focus their efforts in phase six. In this stage, conceptual maps can be used to summarize research, make associations, integrate information, and transfer it to long-term knowledge, as well as to defy new learning objectives.</p>	<p>5. Learning objectives The teacher explains the learning objective, the logistics needed, generic structures are used in making descriptive text, so that students can understand what kind of results are expected. Students review the steps and completion processes that have been carried out, such as generic structure, content, vocabulary, organization language use and mechanic. Group members are assigned with the tasks they have carried out. The task can be assigned in terms of learning objectives and based on the level of students.</p>
	<p>6. Searching for Information This phase is designed to provide answers to the problems prompted in the problem-analysis phase and offer students</p>	<p>6. Searching for Information The group participants collect information independently with regard of established</p>



option to acquire a more comprehensive knowledge of theories at the base of the problem. The group participants collect information independently with regard of established learning objectives. Information is acquired from the books but also from other sources (library, journals, internet etc.). PBL is also essential because it gives option to pupils to find their own resources.

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7. Synthesis

The group disseminates findings from a confidential study. The instructor verifies learning and may assess the group. So, the final stage is synthesizing and testing the newly collected information. They also deliberated on whether they have now attained a more proficient, accurate, and detailed comprehension of the underlying issues related to the situation. If some of the students haven't comprehended the concerns adequately, responsibility of other students is to try to explain them approach of their work. In this phase, it is essential to examine the specific types of challenges to assess students' decision-making processes and the algorithms underlying their choices.

7. Synthesis

Each group presents the result of the written form to other groups. The instructor assists students in reflecting on or assessing their investigations and the methodologies employed.

4.Final Version

8. Feedback

It includes input of all students on the case, the method and the instructor, to improve the learning process. Also, it is vitally necessary for the students to validate the course and give their views on the quality of the problem as well as the group process and the tutor's performance.

8. Feedback

From student feedback, teacher gets information about whether the learning activities are effective and acceptable to all students or not. Thus, a teacher can take corrective actions if there is something that is deemed lacking in implementing the new learning process.

The Word Wall website was employed in Problem-Based Learning to address the aforementioned issues. This visual medium was chosen to enable students to more easily visualize and develop their ideas, as well as to elaborate on their ideas more effectively than text, particularly descriptive text. By using technology, the students felt more fun and interested in the learning process. The researcher believed that using the Problem Based Learning utilizing Word Wall Website may boost the students' writing achievement in descriptive text.

METHODOLOGY

To answer the formulated research questions, the researcher conducted a quantitative study in the form of one-group pre-test-post-test design.

Figure 1. Research Design



T1 = Pre-test X = Treatment T2 = Post-test

The figure above illustrates that pre-test is administered before the treatment to obtain information about the students' writing achievement which is prior to the treatment. The researcher then gives the treatments which entail teaching writing through the modified PBL at one class. Afterward, a post-test is given to see the difference of students' writing achievement as a result of the treatments.



PARTICIPANTS

Participants of this research are one class of the 8th grade C of SMP N 9 Bandar Lampung that consisted of 30 students. It was chosen by using an interview to one of the English teachers in that school. It was known that the students of the class had low score in writing. They seemed to be the English beginner learners

INSTRUMENT

The researcher used one instrument to collect the data, i.e. writing test that was divided into pre-test and post-test. The tests are based on the aspects of writing by Jacob, et al. (1981). Below are the elaborations as the construct validity of this research.

Table 3.2 Scoring Rubric for Writing Test by Jacob, et al (1981)

Content	30 – 27	Excellent to very good	Knowledgeable, through development of thesis, relevant to the topic
	26 – 22	Good to average	Some knowledge of subject, limited development of thesis, mostly relevant to the topic, but lack details.
	21 – 17	Fair to poor	Fair to poor limited knowledge of subject, inadequate development of topic.
	16 – 13	Very poor	Very poor does not show knowledge of subject, not enough to evaluate.
Organization	20 – 18	Excellent to very good	Ideas clearly stated, well-organized, logical sequencing, cohesive.
	17 – 14	Good to average	Loosely organized but main idea stand out , limited support, logical but incomplete sequencing.
	13 – 10	Fair to poor	Ideas confused or disconnected, lack logical sequencing and development.
	9 – 7	Very poor	No organization, not enough to evaluate.
Vocabulary	20 – 18	Excellent to very good	Sophisticated range, effective word choice, word form mastery
	17 – 14	Good to average	Adequate range, sometimes errors of word choice, usage but meaning not obscured.
	13 – 10	Fair to poor	Frequent errors of word choice, usage but meaning confused or obscured
	9 – 7	Very poor	Essentially translation, little knowledge of English vocabulary, not enough to evaluate.
Language Use	25 – 22	Excellent to very good	Effective complex constructions, few errors of agreement, tense, number, word order, articles, pronouns and prepositions.
	21 – 18	Good to average	Effective but simple constructions, minor problems in complex constructions, several errors of agreement, tense, number, word order, articles, pronouns and prepositions.
	17 – 11	Fair to poor	Major problem in simple/complex constructions, frequent errors of negation, agreement, tense, number, word order, articles, pronouns and prepositions, meaning confused and obscured.
	10 – 5	Very poor	Almost no mastery of sentence construction rules, dominated by errors, does not communicative, not enough to evaluate.



Mechanics	5	Excellent to very good	Few errors of spelling, punctuation, capitalization, and paragraphing.
	4	Good to average	Occasional errors of spelling, punctuation, capitalization, and paragraphing.
	3	Fair to poor	Frequent errors of spelling, punctuation, capitalization, and paragraphing.
	2	Very poor	Dominated by error.

RESULTS AND DISCUSSIONS

The research question is: ‘Is there any statistics significant improvement of the students’ writing achievement after the students were taught through the Problem Based Learning using Word Wall Website?’. The researcher calculated the data of the post-test and pre-test. Through paired sample t-test, the data were truly computed to seek whether there is a significant difference in the students’ writing achievement of the students who are taught through the modified PBL using WWW. The following table is the result of the Paired Samples T-Test.

Table 3. Paired Samples T-Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Post-test Pre-test	16.50000	2.56972	.46916	15.54045	17.45955	35.169	29	.000

From the tables above, the post-test and the pre-test are compared. The mean difference between the tests is 16.50. It means that there is a difference between the pre-test and post-test. Moreover, the sig (2-tailed) is 0.000. It is lower than 0.05. 0.05 is the decision threshold. If the value is less than 0.05, the result is considered significant, while if it is greater, the result is considered not significant. It can be concluded that there is a significant difference between the post-test towards the pre-test. The hypothesis (H₁) is then accepted. Equally, it proves that there is a significant improvement in students’ writing achievement after the students are taught through the Problem Based Learning using Word Wall Website.

This proves the theory of Cristine (2004) who says that Word Wall media is a bulletin board display of vocabulary words grouped together in a way that makes sense to students. It allows students to see key words daily and use the visual support to deepen their understanding of new words. Word wall media is a part of visual media. Students may learn more easily and retain information when using visual media. It successfully helped the students broaden up their mind. Related to the Cognitive Load Theory (Sweller, 1988), the design of Wordwall activities (short tasks, repetition, visual aids) helps reduce cognitive overload, making it easier for students to focus on learning specific English language skills.

When the original Problem Based Learning was modified with word wall website, the weakness could be covered. By modifying this method, the students were not only active in the discussion that talked about a problem, but also influenced by the word wall website that brought technological touch to students where they felt so happy in doing the learning activities. This is in line with a research by Kepekisan (2024), which investigated how PBL integrated with technology can improve students' writing skills. The study revealed that problem-solving technology improves students' knowledge. Recent research and technology have changed students' writing patterns, making learning more effective and enjoyable.

The advantages of using word wall website had cover a weakness of PBL where some students are struggled to cope with the problem in PBL that they had never done before, that often occurred in the early stage of Problem-Based. The improvement of writing skill occurred because the modified method utilized an up-to-date technology that made the students enjoy the learning



activities. They felt fun and happy when using the word wall website, because they could play a game while studying. The various features of the website which consisted of the colours, pictures and games made the students rise many ideas. It eased them to construct sentences with the new vocabularies in the website, even the students got easier to create a descriptive text. This is supported by a research done by Marensi, et al. (2023) who conducts a classroom action research about word wall media. Word wall-based media helps lethargic, tired, and slow learners in the classroom become engaged learners.

Moreover, the most affected aspect that rose the highest of all was vocabulary. WWW provide many new words to the user. Understanding the meaning of the words were also provided with pictures and games like *find the match*. In the pre-test, students wrote a short descriptive text. While in the post-test, their vocabulary was getting more. They knew the new words by playing the games. It helped them construct sentences, even a descriptive text. There were also many pictures to help them understand what the meaning of the words were. This is why it is related to the theory of Cristine (2004), who introduced the Word Wall concept, describes it as a bulletin board that showcases vocabulary words arranged in a way that holds significance for students. This visual tool allows students to consistently engage with key terms, thus improving their understanding through visual support. Word Wall, as a visual medium, facilitates enhanced learning and improves information retention among students.

Thus, the modified PBL method using WWW can improve students' writing ability. Based on the results, there is a significant improvement in students' writing achievement after the students are taught through Problem Based Learning using Word Wall Website.

CONCLUSIONS AND SUGGESTIONS

Based on the results of this research, it can be concluded that the implementation of the modified PBL using WWW significantly improved students' writing achievement. Wordwall can be used to create structured learning paths with prompts and hints to guide students through the problem-solving process. WWW also streamlines the learning process. By providing pre-designed activities and resources, Wordwall can save time and effort for both students and educators, making PBL more manageable.

Based on the condition occurred when this research was held, the researcher suggests teachers that they have to be creative in applying the modified method of PBL using WWW because it can only be implemented in the schools that have technological stuffs like laptop, internet connection, projector and audio. This might be a limitation in classes with unsophisticated media. The effective implementation of the modified method relies on the capability of the school that can provide technology. To enrich the modification, it is suggested for further researchers to modify the problem based learning method with other technological media, such as videos and songs that can lead students to be joyful in learning English.

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Cite this Article: Hayrunnisa, N.R., Flora, Mahpul (2025). Problem Based Learning Using Word Wall Website to Improve Students' Writing Achievement. International Journal of Current Science Research and Review, 8(6), pp. 2830-2837. DOI: <https://doi.org/10.47191/ijcsrr/V8-i6-14>