

THE IMPLEMENTATION OF PROBLEM-BASED LEARNING (PBL) MODEL TO IMPROVE STUDENTS' VOCABULARY MASTERY

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Abstract

Background: Vocabulary is an important aspect of learning English for students, Mastering vocabulary allows students to understand English and to produce sentences easily. This research aims at improving students' vocabulary mastery by implementing Problem-Based Learning (PBL) Model. Methods: It applied Classroom Action Research. The sample was 17 students of eleventh grade at SMA Utama Widya Pasraman Wira Dharma Palu. The research was conducted in two cycles. Each cycle consists of planning, action, observation and reflection. The researcher employed some instruments to collect data, the instruments were test, observation checklist and field notes. Result: The result of data analysis indicated that the percentage of students who passed score above KKM which is 70 in cycle 1 was 47.06 percent or 8 students. In cycle 2, the result increased to 82.35 percent or 14 students. It significantly increased 35.29 percent compared to cycle 1. Conclusion: Problem-Based Learning (PBL) is effective to improve students' vocabulary mastery of grade XI students at SMA Utama Widya Pasraman Wira Dharma Palu.

Keywords: *Vocabulary Mastery, Problem-Based Learning (PBL) Model*

INTRODUCTION

English learning is directed to improve students' ability to communicate with good and correct English, both orally and in writing, and to foster an appreciation for the work of human literature throughout the world (Liando, Tatipang, & Lengkoan, 2022; Rondonuwu, Liando, & Oliy, 2022). Vocabulary is an important aspect of learning English for students. It is difficult for students to learn English if they do not understand a word or do not know what it means. Mastering vocabulary allows students to understand English and to produce sentences easily. Fauziati (2010) states that vocabulary is central to language and critical

importance to typical language learner (Fauziati, 2010). Without a sufficient vocabulary, one cannot communicate effectively or express their ideas both in spoken and written form.

Learning vocabulary helps students to master English because it connects the four skills of listening, speaking, reading, and writing. In senior high school, students are expected to be able to produce English words, introduce themselves, or retell a short story. To fulfill the standard, students have to learn English but it will be hard for students who lack of vocabulary because they will be difficult in understanding what their teacher is explaining, or what the other person is talking to, students will also find it difficult to understand a reading text and to understand what they are listening to, all because of their limited vocabulary. English language learners with low vocabulary development are less able to comprehend a text at grade level than other learners who have fast vocabulary development. It means that vocabulary is the main capital for someone to learn a language (Arifah & Kusumarasyati, 2013).

The researcher found some problems related to vocabulary when she teach in the grade XI students. For example, when the students are asked to mention the things in their classroom, they can only mention no more than twenty nouns and only five students who passed Minimum Mastery Criterion (KKM), whereas the KKM of English is 70 when they are given an examination about vocabulary.

The researcher would like to solve the students' problem by implementing Problem-Based Learning (PBL) Model. PBL Model is one of the right models developed in learning to respond to the issue of improving the quality of learning and anticipating changes in the working world (Nurhadiyanto & Wagiran, 2007). There are some reasons why she chooses this learning model. First, PBL Model includes the active role of students in teaching and learning activities. Second, PBL Model can involve students' activity to make learning fun, because the stages of the PBL Model involve the active role of students.

Therefore, if they can solve the problem, active in learning and think critically, it is expected that the students will more easily remember every core of the learning material presented so that the new knowledge they gain is recorded properly and can help them be able to master vocabulary.

The researcher has found some previous studies which were related to this study. First, a research conducted by Siswidyatmi, The result is an average of 1 both at the pre-cycle to cycle 1 and cycle 1 to cycle 2 have increased in Learning English using PBL (Siswidyatmi,

Indriani, & Prajoko, 2019). The second research conducted by Suhendri & Kurniawan (2022) found that the data in cycle 2 indicates that Problem-based Learning can improve students' motivation and reading ability in learning Narrative text, other studies conducted by Hidayati & Wagiran (2020) The study show that the implementation of PBL Model can improve problem-solving skills in vocational high school (Hidayati & Wagiran, 2020; Suhendri & Kurniawan, 2022). Another study by Pratiwi, Ain, & Igut (2019) found that PBL model successfully improved the motivation and critical thinking skills of students beginning the pre-cycle, cycle I, and cycle II (Pratiwi, Ain, & Igut, 2019).

Based on the studies above, the researcher assumes that Problem-Based learning is effective to improve some of students need in learning. Despite the researchers have same learning model in teaching, but they have different level of school and sample. Furthermore, the researcher will use Classroom Action Research (CAR) in the grade XI of Senior High School and will be focus on improving students' vocabulary mastery.

METHODS

The researcher conducted this research by applying Classroom Action Research (CAR). It is aimed to improve students' vocabulary mastery in learning by implementing PBL Model for the second grade students of SMA Utama Widya Pasraman Wira Dharma Palu. The approach to action research in two cycle namely cycle I and cycle II. Each cycle consists of four steps namely: planning, action, observation, and reflection. The participants of this study was the grade XI students which consists of 17 students. The researcher employed some instruments to collect data, the instruments were test, observation checklists, and field notes. In each cycle, the researcher will employ tests to collect quantitative data. The condition during the teaching process was represented by the qualitative data, and the students' scores was determined by the quantitative data. The implementation of action in cycle 1 was conducted on 8th – 20th March 2023, and the implementation of action in cycle 2 was conducted on 27th March 2023 until 5th April 2023 and every meeting took 90 minutes.

RESULTS

The researcher found the data that increased was affected by using Problem-Based Learning (PBL) as a model of learning. Students' score was significantly increased.

Table 1 The Result of Students' Achievement Test in Cycle 1

No	Initial	Test				OBTAINED	TOTAL SCORE	QUALIFICATION
		A	B	C	D			
1	AAS	4	4	3	2	13	40.63	FAILED
2	GNC	3	5	4	4	16	50.00	FAILED
3	KCW	5	8	8	5	26	81.25	SUCCESSFUL
4	ACW	4	3	5	4	16	50.00	FAILED
5	PPS	5	6	6	7	24	75.00	SUCCESSFUL
6	IPW	6	6	5	6	23	71.88	SUCCESSFUL
7	IWK	6	7	7	6	26	81.25	SUCCESSFUL
8	KAC	3	3	7	4	17	53.13	FAILED
9	KPJ	6	5	7	6	24	75.00	SUCCESSFUL
10	NKR	4	7	7	5	23	71.88	SUCCESSFUL
11	NKS	3	2	2	4	11	34.38	FAILED
12	NKA	4	6	8	7	25	78.13	SUCCESSFUL
13	NNS	3	5	7	4	19	59.38	FAILED
14	NWS	4	2	6	2	14	43.75	FAILED
15	NRA	3	3	5	5	16	50.00	FAILED
16	WS	3	2	3	3	11	34.38	FAILED
17	NPA	5	8	7	4	24	75.00	SUCCESSFUL
FAIL (%)							52.94	
SUCCESS (%)							47.06	

Table 1 indicates the result test of cycle 1, it was found that there were 8 of 17 students in the eleventh class who gained score above 70 which is standard of successful in English subject and the rest was still failed. The highest score was achieved by KCW and IWK with total score is 81.25 and the lowest score is 34.38 achieved by WS and NKS. The percentage of cycle 1 in fail category was 52.94 percent while the success category was only 47.06 percent.

Actually the percentage should reach at least 80 percent to be in the criteria of achievement in each cycle and the result was still far from the expectation of achieving 80 percent completeness in class, it means the percentage did not reach the criteria of success in each cycle. The result of cycle 1 decided the researcher to conduct the cycle 2 in order to improve students' vocabulary mastery through this model of learning

Table 2 The Result of Students' Achievement Test in Cycle 2

No	Initial	Test				OBTAINED	TOTAL SCORE	QUALIFICATION
		A	B	C	D			
1	AAS	4	4	5	4	17	53.13	FAILED
2	GNC	5	8	7	5	25	78.13	SUCCESSFUL
3	KCW	8	8	7	5	28	87.50	SUCCESSFUL
4	ACW	6	6	8	5	25	78.13	SUCCESSFUL
5	PPS	5	6	8	6	25	78.13	SUCCESSFUL
6	IPW	4	8	5	7	24	75.00	SUCCESSFUL
7	IWK	7	7	7	5	26	81.25	SUCCESSFUL
8	KAC	5	6	7	5	23	71.88	SUCCESSFUL
9	KPJ	6	7	7	6	26	81.25	SUCCESSFUL
10	NKR	5	7	8	5	25	78.13	SUCCESSFUL
11	NKS	3	4	5	4	16	50.00	FAILED
12	NKA	6	5	6	7	24	75.00	SUCCESSFUL
13	NNS	4	7	7	5	23	71.88	SUCCESSFUL
14	NWS	5	6	8	5	24	75.00	SUCCESSFUL
15	NRA	4	6	8	5	23	71.88	SUCCESSFUL
16	WS	3	3	5	3	14	43.75	FAILED
17	NPA	5	6	7	6	24	75.00	SUCCESSFUL
FAIL (%)								17.65
SUCCESS (%)								82.35

Table 2 indicates the result test in cycle 2, it was found that there were 14 students who got score above 70 with the highest score is 87.50 achieved by KCW and only 3 students who were still in fail category with the lowest score is 43.75 achieved by WS. The percentage of cycle 2 in success category reached 82.35 percent and the fail category was 17.65 percent which means that the category of achievement in cycle 2 already reached the criteria of achievement in each cycle which is 80 percent. The percentage of both cycles indicates that the post test result of the cycle 2 was higher than the post test result of the cycle 1 with the difference 35.29 point.

Cycle 1

This first cycle was done by implementing the four procedures in Classroom Action Research, they were planning, acting, observing, and reflecting. The procedures were implemented in four meetings include one meeting for testing to evaluate the students' progress in getting comprehension after being taught by implementing PBL Model. The topic of the material that given in this cycle 1 was "Personal Letter" In this meeting students who were the object of this research were expected to be able to identify the social function, language features and structure of personal letter, find out vocabulary in personal letter such as nouns, adjectives, verb, and adverbs, and write a personal letter.

Table 3 Observation checklist on Students' Performance

No	Observe Items	Description	CATEGORY								
			Meeting 1			Meeting 2			Meeting 3		
			L	M	H	L	M	H	L	M	H
1	Students' enthusiasm	The students are enthusiastic to give a command or response the command. They are joyful to be in English class	6 35,29%	7 41,17%	4 23,52%	5 29,41%	7 41,17%	5 29,41%	4 23,52%	6 35,29%	7 41,17%
2	Students' motivation	The students are motivated to be involved in the class activities. They compete to do teacher's request or answer the question.	4 23,52%	7 41,17%	6 35,29%	4 23,52%	6 35,29%	7 41,17%	3 17,64%	5 29,41%	9 52,94%
3	Students' interest	The students are active and follow teacher's instruction during teaching and learning process	5 29,41%	7 41,17%	5 29,41%	3 17,64%	6 35,29%	8 47,05%	3 17,64%	5 29,41%	9 52,94%
4	Students' response	The students have good and fast response to their teacher or their class mate	6 35,29%	8 47,05%	3 17,64%	4 23,52%	8 47,05%	5 29,41%	3 17,64%	6 35,29%	8 47,05%
5	Students' progress	The students are time to time grasp teacher's instruction	5 29,41%	8 47,05%	4 23,52%	5 29,41%	6 35,29%	6 35,29%	4 23,52%	6 35,29%	7 41,17%

Source: Modified from Bailey (2005)

The observation in the instructional was focused on five main points of students' performance. They were students' enthusiasm, motivation, interest, response and progress during the implementation of the action in each meeting. The data showed that from the first to the second meetings of the cycle 1 the students' performance has increased even though it is still in small scale. There were some students who reached High category in several aspects of this observation, and there were also those who remain in their positions in Medium category or Low category.

Table 4 Observation checklist on Teacher's Performance

Teaching Stage	Observation items	Meetings					
		1		2		3	
		Yes	No	Yes	No	Yes	No
Orientation	Explaining material and make sure the students understand about the topic	√		√		√	
	Motivates students to be involved in problem solving	√		√		√	
Organizing	Dividing students into groups	*		√		√	
	Giving task to each group and ask them to do based on instruction	√		√		√	
	Guiding students to find out the problem in learning	√		√		√	
	Helping students to define and organize learning tasks related to these problems	√		√		√	
Guiding	Asking the students difficulties in learning	*		√		√	
	The teacher encourages students to collect appropriate information, carry out experiments to get explanations and problem solving	√		√		√	
Developing	The teacher assists students in planning and preparing suitable works such as presentation and helps them to share assignments with their friends.	√		√		√	
Analyzing	Helping students to reflect or evaluate their investigations and the processes they use	√		√		√	
	Giving feedback or reinforcement to the students related to their performance	√		√		√	

Note

√: Conducted

*: Need improvement

The data above showed that researcher had carried out almost all teaching and learning procedures for lesson plan well although there were some points that must be improved such as when asking the difficulties students face in the first meeting. Researcher has to divide students based on their ability considering that grade XI students have different abilities, for example there are students who are very active, there are those who are curious but shy to ask because they often ask questions if the teacher approaches them individually, and there are also those who do not provide feedback at all. If students are allowed to choose their own group members then the results will not be optimal. Researcher must motivate students to be more active in learning and ensure that all students achieve learning targets.

Cycle 2

To achieve the learning objectives at each meeting, the researcher showed the students the objectives of the teaching and learning process so that students have a guide about what to achieve after class. Researchers also ensure that before moving on to a topic, students must really understand what they have learned, and divide study groups as efficiently as possible so that learning outcomes can be achieved properly. Because it is the second cycle, the initial activities do not require as long as the first meeting of the first cycle. Core activities can have more time than in the first cycle. This arrangement provides more opportunities for students to have more practice. Second, the researcher must ensure that each student has the understanding and ability to answer the assignment successfully. In this section, the researcher must re-check each student's management by going around the class. It is very useful for having all students pronounce and discover the meaning of words individually. Finally, students need more guidance on how to spell words then try to make sentences using those words and researcher must guide them to build simple sentences.

Data in cycle 2 are arranged as in cycle 1. There are four steps in classroom action research; plan, act, observe, and reflect. The teaching and learning process is carried out in four meetings, three meetings for learning and one meeting for test achievement. . The results of the reflection in cycle 1 became the main consideration for the action in the cycle 2. The

topic of the material that gave in the first and second meeting was “Cause and Effect”. The students were expected to be able to analyse the components of cause and effect from a text (a cause, an effect, signal words), find out the vocabulary (nouns, adjectives, verbs, adverbs) from a text and make a text related to cause and effect.

Table 5 Observation checklist on Students’ Performance

No	Observe Items	Description	CATEGORY								
			Meeting 1			Meeting 2			Meeting 3		
			L	M	H	L	M	H	L	M	H
1	Students’ enthusiasm	The students are enthusiastic to give a command or response the command. They are joyful to be in English class	4 23.52%	6 35.29%	7 41.17%	2 11.76%	6 35.29%	9 52.94%	1 5.88%	3 17.64%	13 76.47%
2	Students’ motivation	The students are motivated to be involved in the class activities. They compete to do teacher’s request or answer the question.	3 17.64%	6 35.29%	8 47.05%	3 17.64%	4 23.52%	10 58.82%	2 11.76%	4 23.52%	11 64.7%
3	Students’ interest	The students are active and follow teacher’s instruction during teaching and learning process	4 23.52%	5 29.41%	8 47.05%	2 11.76%	5 29.41%	10 58.82%	1 5.88%	4 23.52%	12 70.58%
4	Students’ response	The students have good and fast response to their teacher or their class mate	4 23.52%	6 35.29%	7 41.17%	3 17.64%	6 35.29%	8 47.05%	1 5.88%	6 35.29%	10 58.82%
5	Students’ progress	The students are time to time grasp teacher’s instruction	5 29.41%	6 35.29%	6 35.29%	2 11.76%	7 41.17%	8 47.05%	3 17.64%	3 17.64%	11 64.7%

Source: Modified from Bailey (2005)

Remark:

L= Low (1 % - 40 %)

M= Medium (41 % - 55 %)

H= High (56 % - 100 %)

The observation in the instructional was focused on five main points of students' performance. They were students' enthusiasm, motivation, interest, response and progress during the implementation of the action in each meeting. The data showed that from the first to the third meetings of the cycle 2 the students' performance has increased and better than cycle 1. There were most of students who reached High category in several aspects of this observation, and there were also those who remain in their positions in Middle category or Low category.

Tabel 6 Observation checklist on Teacher's Performance

Teaching Stage	Observation items	Meetings					
		1		2		3	
		Yes	No	Yes	No	Yes	No
Orientation	Explaining material and make sure the students understand about the topic	√		√		√	
	Motivates students to be involved in problem solving	√		√		√	
Organizing	Dividing students into groups	√		√		√	
	Giving task to each group and ask them to do based on instruction	√		√		√	
	Guiding students to find out the problem in learning	√		√		√	
	Helping students to define and organize learning tasks related to these problems	√		√		√	
Guiding	Asking the students difficulties in learning	√		√		√	
	The teacher encourages students to collect appropriate information, carry out experiments to get explanations and problem solving	√		√		√	
Developing	The teacher assists students in planning and preparing suitable works such as presentation and helps them to share assignments with their friends.	√		√		√	
Analyzing	Helping students to reflect or evaluate their investigations and the processes they use	√		√		√	
	Giving feedback or reinforcement to the students related to their performance	√		√		√	

Note

√: Conducted

The data above showed that researcher had carried out all the teaching and learning procedures in the lesson plan. The researcher made good preparation and manage the classroom better than cycle 1. She always asked the students to share their opinion about the material and pushed them to be more confident in conveying their ideas. The researcher

also divided the group members, so that the group can complement each other. There was no group that more dominant as in the first meeting in cycle 1.

DISCUSSION

The researcher found the data that increased was affected by using Problem-Based Learning (PBL) as a model of learning. It because Research has shown that PBL is an effective curricular strategy for involving students in higher-order cognitive processes and skills (Moallem, 2019; Tang et al., 2020). Students' score was significantly increased from cycle 1 to cycle 2. First, in cycle 1 the data indicates that from 17 students of grade XI, there were only 8 students who gained score above 70 which is standard of successful in English subject (KKM) and the rest was still failed. The highest score was achieved by KCW and IWK with total score is 81.25 and the lowest score is 34.38 achieved by WS and NKS. The percentage of cycle 1 in fail category or not achieved the standard of KKM was 52.94 percent or 9 students while the success category or obtained score 70 or more was 47.06 percent or only 8 students. It was still far from the expectation of achieving 80 percent completeness in class, it means the percentage did not reach the criteria of success in each cycle. The result of cycle 1 decided the researcher to conduct the cycle 2 in order to improve students vocabulary mastery through this model of learning.

Before carrying out cycle 2, researcher and collaborator revised the plan in cycle 2 based on the results of data acquisition as found in observations, field notes, students' test result, and the teaching and learning process. Reflection in cycle 1 did really help the researcher to improve all the things that need to be improved which already mentioned in reflection of cycle 1. So, the researcher did her best in cycle 2. Before moving on to another topic, the researcher confirmed students' understanding by asking several questions related to the topic. If the student's answers are in accordance with the topic, she could proceed to the next topic, but if not, she would explain again about the topic that students did not understand. She has encouraged and motivated students not to hesitate in asking questions

Next was diving students into group. Each student has different characters and abilities. At the first meeting in cycle 1, when going to work in groups, students asked the researcher to choose their own group members. The researcher allowed this because the researcher expected that students can focus more on the material being taught. It worked, but only for two groups because students who tended to be active and diligently gathered in

one group while students who were less enthusiastic and passive gathered in one group. It makes learning ineffective because the class atmosphere is less active, only the vocal group easily understands the lesson while the others are left behind and they also tend to lack curiosity. Besides that students who prefer to play during learning process gather into one group so that it disrupts the learning process. Based on those reasons, from the second meeting in cycle 1 until the last meeting in cycle, researcher divided each group with different student abilities and characters so that each group is balanced.

After conducting cycle 2 in three meetings, students' test result indicates that there were 14 students who gained score above 70 with the highest score is 87.50 achieved by KCW and only 3 students who were still in fail category with the lowest score is 43.75 achieved by WS. The percentage of cycle 2 in success category or students obtained score above KKM reached 82.35 percent or 14 students and the fail category was 23,53 percent or 3 students did not obtain score 70. It means that the category of achievement in cycle 2 already reached the criteria of achievement in each cycle which is 80 percent. The percentage of both cycles indicates that the test result of the cycle 2 was higher than the test result of the cycle 1 with the difference 35.29 point. It means the students give a positive response to the implementation of problem based learning in their class same as the previous research because through this model, the students' have the opportunity to practice their critical thinking, self-directed learning, discussion in group work, and share their opinion (Apriliadewi, 2017).

After implementing the PBL Model in cycle 1 which is three meetings, students' performance was improved. Same as the previous research found that the Problem-Based Learning method could potentially become an effective method for students as there is a significant change between the first cycle and the second cycle of the use Problem-Based Learning method in the class. It is evidenced by observational data that conducted by the collaborator (Aulia, Laeli, & Ulwiyah, 2023). The observation in the instructional was focused on five main points of students' performance, they were students' enthusiasm, motivation, interest, response and progress. There were most of students who reached High category in several aspects of this observation, and there were also those who remain in their positions in Middle category or Low category.

There were many reasons why some students still in low category in each meeting. For the second meeting in cycle 1 the increase in student performance was not so significant.

This is due to the fact that some students are not particularly pleased to break away from their prior group members, but the researcher encouraged them to keep up their commitment to studying by awarding champions to the group that is able to identify the most vocabulary in personal letters. They enjoyed learning new words and sought to use them in sentences. They competed in their efforts to extract as much vocabulary from the text as they could while working in groups. In work together, the students had good interaction with their friends that can build their self-confident. Based on the observation checklist at the third meeting in cycle 1, 50 percent students of grade XI were interested and motivated in learning to write personal letters. They develop their ideas by working together. Their response and progress were also improved, they were enthusiastic to response the command and the instruction from the researcher.

In cycle 2 students performance was significantly improved from first until third meetings and even better than cycle 1. At the first meetings, students' enthusiasm was better than their enthusiasm at the first meeting in cycle 1. The topic presented was cause and effect, students discussed about passive smoker. They were very good at responding and giving opinions. Likewise in the second meeting, the material presented was about bullying at school. Students were very active in giving their opinions about the impact of bullying and sharing bad experiences when they were bullied. It caused of the materials that prepared by researcher were from real life based on characteristic of PBL Model which the material consists of conflict issues or the problem they face that they should think critically to solve the problem from the material (Sanjaya, 2011). This is also in line with Manurung (2015) arguing that the learners are motivating when the instructional materials are contextual and based in the interest. Thus, students can take an active role in learning activities (Manurung, 2015).

In the last meeting of cycle 2, about 75 percent students were enthusiastic in making a text about cause and effect. They could write based on their own experiences. It helps them to remember the material that they learned. The researcher also guided students not only in groups but also individually. Thus, from the discussion can be concluded that by implementing PBL Model the vocabulary mastery of grade XI students at SMA Utama Widya Pasraman Wira Dharma Palu has improved, and they can learn by solving problems

CONCLUSION

The conclusion of this study is the implementation of Problem-Based Learning (PBL) Model is effective to improve the vocabulary mastery of grade XI students at SMA Utama Widya Pasraman Wira Dharma Palu. This is evidenced by the increasing number of students who obtained score above KKM which is 70 from cycle 1 to cycle 2. It was also affected by students' motivation, enthusiasm, interest, response, and progress that increase in every meeting. It means that the grade XI students can learn by solving problems. For teachers or other researcher who will implement PBL Model has to prepare materials that are in accordance with the characteristics of PBL such as discussing problems that are experienced daily and real life so that students can further explore the potential they have with their daily experiences and motivating students to be more active in thinking critically, discussing and solving a problem.

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