THE EFFECT OF PROBLEM BASED LEARNING TOWARD STUDENTS' VOCABULARY SIZE AND STUDENTS' READING COMPREHENSION

THESIS

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FACULTY OF TEACHER TRAINING AND EDUCATION
DEPARTMENT OF LANGUAGE EDUCATION
STUDY PROGRAM OF ENGLISH EDUCATION
2020 M / 1442 H

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THESIS

Presented to
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in partial fulfillment of the requirements
for the degree of *Sarjana* in English Language Education

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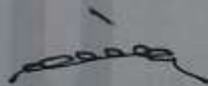Faculty : Teacher Training and Education

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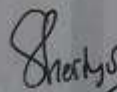
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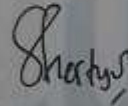
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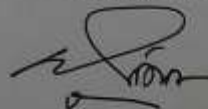NIP. 198709282015032003

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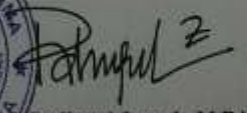(Examiner)

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MOTTO AND DEDICATION

"so let not this present life device you"

(Q.S Fatir:5)

This Thesis is dedicated to:

My beloved Father (Muhammad Mukti Rosyadi and Megawatie, S.Pd) for their valuable endless prayer, sacrifice, and support.

My beloved sister (Dwi Ayu Lestari), thanks always supports me.

And for my Advisor (M. Zaini Miftah, M.Pd and Hesty Widiastuty, M.Pd) who give me suggestions and guidance.

And for My Best friends thanks for the support, who cannot be mention one by one.

DECLARATION OF AUTHORSHIP

بِسْمِ اللهِ الرَّحْمَنِ الرَّحِيمِ

Herewith, I:

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Declare that:

1. This thesis has never been submitted to any other tertiary education institution for any other academic degree.

2. This thesis is the sole work of author and has not been written in collaboration with any other person, nor does it include, without due acknowledgement, the work of any other person.

3. If a later time is found that this thesis is a product of plagiarism, I am willing to accept any legal consequences that may be imposed to me.

Palangka Raya, October 2020

Yours Faithfully,

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Assalamu'alaikum Wr. Wb.

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Dapat diujikan sebagai syarat untuk memenuhi kewajiban dari mencapai gelar Sarjana Pendidikan pada program studi Tadris (Pendidikan) Bahasa Inggris Jurusan Pendidikan Fakultas Tarbiyah dan Ilmu Keguruan di Institut Agama Islam Negeri Palangka Raya.
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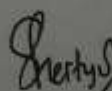
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ABSTRACT

Sari, Intan Permata. 2020. *The Effect Of Problem Based Learning Toward Student's Vocabulary Size and Student Reading Comprehension at SMAN-4 Palangka Raya*. Thesis, Department of Language Education, Faculty of Teacher Training and Education, State Islamic Institute of Palangka Raya. Advisors: (I) M. Zaini Miftah, M.Pd., (II) Hesty Widiastuty, M.Pd.

Keywords: effect, problem based learning, vocabulary size, reading comprehension.

This thesis is motivated by the lack of students' vocabulary size and students' reading comprehension. In fact, students' vocabulary and reading comprehension greatly influence students' reading ability. The success of increasing students' vocabulary and reading comprehension is influenced by the learning methods given by the teacher. Teachers must be able to assist students in improving vocabulary and reading comprehension. In this case the researchers used the Problem Based Learning method. This method requires students to solve a problem in the form of descriptive text so that students' thinking skills increase.

The research aimed at investigating: (1) To measure the effect of Problem Based Learning toward students' vocabulary size. (2) To measure the effect of Problem Based Learning toward students' reading comprehension. (3) To measure the effect of Problem Based Learning toward students' vocabulary size and student's reading comprehension.

The research design was quantitative and the research type was experiment. Instrument used in this study was test. The researcher designed the lesson plan, conducted the treatment and counted the students' score by pre-test and post-test. Then the researcher used one-way ANOVA to analyze the data and the result showed that there was significant differences among groups after doing the treatment with Fvalue was higher than Ftable (66.935>0.05).

The result showed that: (1) post-test of experiment class of reading comprehension showed the significant value (0.000 < 0.05). It meant that there was significant effect of Problem Based Learning toward reading comprehension; (2) post-test of experiment class of vocabulary size showed the significant value (0.999<0.05). It meant that there was significant effect of Problem Based Learning toward student's vocabulary size; (3) Post-test of Experiment class of reading comprehension and vocabulary size showed the significant value (0.999 < 0.05). It meant that there was significant effect of Problem Based Learning toward reading comprehension and vocabulary size.

ABSTRAK

Sari, Intan Permata. 2020. *Pengaruh Problem Based Learning Terhadap Ukuran Kosakata Siswa dan Pemahaman Membaca Siswa di SMAN-4 Palangka Raya*. Skripsi, Jurusan Pendidikan Bahasa, Fakultas Keguruan dan Ilmu Pendidikan Institut Agama Islam Negeri Palangka Raya. Pembimbing: (I) M. Zaini Miftah, M.Pd., (II) Hesty Widiastuty, M.Pd.

Kata Kunci: pengaruh, problem based learning, ukuran kosakata, pemahaman bacaan.

Tesis ini dilatarbelakangi oleh kurangnya ukuran kosakata siswa dan pemahaman bacaan siswa. Faktanya, kosakata dan pemahaman bacaan siswa sangat mempengaruhi kemampuan membaca siswa. Keberhasilan peningkatan kosakata dan pemahaman bacaan siswa dipengaruhi oleh metode pembelajaran yang diberikan oleh guru. Guru harus dapat membantu siswa dalam meningkatkan kosakata dan pemahaman bacaan. Dalam hal ini peneliti menggunakan metode Problem Based Learning. Metode ini menuntut siswa untuk menyelesaikan suatu masalah yang berupa teks deskriptif agar kemampuan berpikir siswa meningkat.

Penelitian ini bertujuan untuk menyelidiki: (1) Untuk mengukur pengaruh Problem Based Learning terhadap ukuran kosakata siswa. (2) Untuk mengukur pengaruh Problem Based Learning terhadap pemahaman bacaan siswa. (3) Untuk mengukur pengaruh Problem Based Learning terhadap ukuran kosakata siswa dan pemahaman bacaan siswa.

Desain penelitian adalah kuantitatif dan jenis penelitian adalah eksperimen. Instrumen yang digunakan dalam penelitian ini adalah tes. Peneliti merancang RPP, melakukan treatment dan menghitung nilai siswa dengan pre-test dan post-test. Kemudian peneliti menggunakan ANOVA satu arah untuk menganalisis data dan hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan antar kelompok setelah dilakukan perlakuan dengan nilai F lebih tinggi dari Ftabel (66,935> 0,05).

Hasil penelitian menunjukkan bahwa: (1) post-test kelas eksperimen pemahaman membaca menunjukkan nilai signifikan (0,000 <0,05). Artinya, ada pengaruh yang signifikan Problem Based Learning terhadap pemahaman membaca; (2) post-test ukuran kosakata kelas eksperimen menunjukkan nilai signifikan (0,999 <0,05). Artinya ada pengaruh yang signifikan Pembelajaran Berbasis Masalah terhadap ukuran kosakata siswa; (3) Post-test kelas Eksperimen pemahaman bacaan dan ukuran kosa kata menunjukkan nilai signifikan (0,999 <0,05). Artinya ada pengaruh yang signifikan dari Problem Based Learning terhadap pemahaman membaca dan ukuran kosa kata.

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The researcher realizes that this thesis is still far from perfect. Therefore some constructive criticism and suggestion are warmly welcome. Hopefully, may Allah keep us on the straight path and rewards us for what we have done, and this can be useful for all of us.

Palangka Raya, October 2020
The Researcher,

Intan Permata Sari
SRN 1501121062

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LIST OF ABBREVIATIONS

Df   : Degree of Freedom

SD   : Standart Deviation

SE   : Standart Error

H_a : Alternative Hypothesis

H_0 : Null Hypothesis

SPSS   : Statistical Package for the Social Science

SMAN   : Sekolah Menengah Atas Negeri

CHAPTER I

INTRODUCTION

In this chapter, the researcher discusses introduction of the study that consists of background of the study, research problem, and objective of the study, hypothesis of the study, scope and limitation, significance of the study and definition of key terms.

A. Background of the Study

According to the English curriculum in teaching English, there are four skills that the students should master, e.g. listening, speaking, reading, and writing. Finnochiaro (1975, p. 23) states that, language learners must be given insight into the place and function of various language items and skills in listening, speaking, reading, and writing activities; that is, in real communication situations. Among these skills, reading is a basic skill. This is supported by Moats (1999, p. 30) as cited in Westwood which states that reading is a basic skill that forms the basis of all formal education. Through reading students indirectly can influence the ability to speak, hear and write. Burns et al. (1996, p. 51) also stated that reading can be a way to share insights, joy, sadness, or other people's creative endeavors. Reading can help readers to add insight and also improve language skills. Bond (1979, p. 60) also states that, "reading is the ability to draw meaning from printed pages and interpret this information appropriately".

The problem that often occurs is that students have not been able to understand the contents of the reading they read well. Based on research by Gibran Arjuna and Jufri (2016, p. 305), students of the English Department of

the Language and Arts Faculty of Padang State University found that there were several problems from the students. First, it is difficult for students to capture the content and meaning of the reading source because they state that they do not have enough participation in the learning process. Second, it is difficult for students to understand the text because they have just read without having an understanding of what they are read.

Allen (1983, p.7) stated that vocabulary is one of the most important elements in a language. Many vocabularies in English textbooks must be learned. Without it, no one can speak or understand the language. This means that the vocabulary is the most important part of language that provides information or explanation in a language term.

Duch (2011, p. 10) stated to be able to read well and improve their vocabulary, students need to be taught by their teachers with appropriate methods because students' learning success depends on their ability to understand what they are reading. If their reading skills are bad, they tend to fail in their studies or at least they will have difficulty making progress. On the other hand, if they have good reading skills, they will have a better chance to succeed in their studies. So, it can be seen that reading skills are very important in the field of education.

In giving lessons Language teachers must be able to make students to be able to build understanding and knowledge. Arifudin (2012, p. 10) stated what students read must be able to be understood by these students. The importance of reading skills has been compiled by the government in the Competency Based English Curriculum in high schools. The purpose of this

skill is to improve students' understanding in receiving information when reading a text. This can be seen from various questions in the English language national exam that are related to reading comprehension skills. Jeff (2019, p. 2) stated understanding of reading teaching in high school requires a kind of communication system. Because when students are taught with conventional methods where the teacher becomes a source of information this can make students ignore the ability to give opinions and communicate with others. This condition can be further modified using other methods. Several methods can be used to improve reading skills of high school students, such as; discussion, group work, presentations, etc. But the strategy tried in this study is Problem Based Learning because students can learn to think and solve their own problems.

Based on observations made by researcher when practicing teaching in SMA 4 Palangka Raya, teaching is still teacher-centered. The teacher introduces and explains the material. After that, students are asked to answer questions about the material that has been taught so that students do not have the opportunity to move forward. Learning like this is continued at each meeting. Burrowes (2003, p. 6) stated that teacher-focused learning emphasizes content recitation, without giving students enough time to reflect on the material presented, relate it to previous knowledge, or apply it to real-life situations. The implementation of teacher-focused learning places more emphasis on learning objectives in the form of additional knowledge, so learning is seen as a process of "imitating" and students are required to be able to re-express the knowledge they have learned through standardized

quizzes or tests. The value of students' reading comprehension ability still does not meet the standards that have been set the score is still below 70.

Based on these events researcher want to find the right method in reading learning where students can play an active role in the learning process. Problem Based Learning (PBL) is one of the learning models that can challenge students 'abilities and give satisfaction to find new knowledge for students, help students to develop new knowledge and be responsible in the learning they do besides, develop students' interest to continuously learning even though learning in formal education has ended. PBL, is a model of teaching where the teacher presents problems that must be solved by students. According to Arends (Trianto, 2007, p. 68), Problem Based Learning (PBL) is a learning approach where students are faced with authentic problems so that they are expected to develop their own knowledge, develop high-level skills and inquiry, empower students , and increase his confidence. The steps of applying learning methods of problem based learning according to Arends (2012, p. 411) are: first, the teacher presents a real problem to students, second, the teacher facilitates students to understand the real problems that have been presented, third, the teacher guides students to collect data / information to find various alternative solutions to problems, furthermore, the teacher guides students to determine the most appropriate problem solving from various alternative problem solving that students find, finally, the teacher facilitates students to reflect or evaluate the process of solving the problem done .

Based on the explanation above, the researcer is interested in examining problem based learning (PBL) on students' reading skills in SMA 4 Palangka Raya.

B. Research Problem

Based on the background of study above, the research problem of this study are:

1. Is there any effect of Problem Based Learning toward students' vocabulary size?

2. Is there any effect of Problem Based Learning toward students' reading comprehension?

3. Is there any effect of Problem Based Learning toward students' vocabulary size and students' reading comprehension?

C. Objective of the Study

Based on the background of study above, the objective of this research are:

1. To measure the effect of Problem Based Learning toward students' vocabulary size.

2. To measure the effect of Problem Based Learning toward students' reading comprehension.

3. To measure the effect of Problem Based Learning toward students' vocabulary size and student's reading comprehension.

D. Hypotheses of the Study

The hypothesis can be formulated as follows

1. Ha: There is an effect of Problem Based Learning toward students' vocabulary size.

    Ho: There is no effect of Problem Based Learning toward students' vocabulary size.

2. Ha: There is an effect of Problem Based Learning toward students' reading comprehension.

    Ho: There is no effect of Problem Based Learning toward students' reading comprehension.

3. Ha: There is an effect of Problem Based Learning toward students' vocabulary size and students' reading comprehension.

    Ho: There is no effect of Problem Based Learning toward students' vocabulary size and students' reading comprehension.

E. Assumption

Assumption of this study is Problem Based Learning is one of effective way to improve students' vocabulary size and students' reading comprehension.

F. Scope and Limitation

The problem in this study is limited to measure the vocabulary size of student and level of reading comprehension in descriptive text using the

Problem Based Learning method for tenth grade students of SMAN 4 Palangka Raya in academic year 2019/2020.

G. Significance of the Study

The researcher hopes this research can contribute to English teaching and learning. It has two major significances, practical and theoretical significances.

1. Theoretically

This research gives a solution to find out the appropriate method in teaching vocabulary size and reading comprehension. This research provides the English teachers a scientific study on the effectiveness of using Problem Based Learning toward student reading comprehension and provides the students an additional reference in searching the teaching of English to improve their vocabulary size and reading comprehension.

2. Practically

a. For the Teachers

The result of this study can help the teacher to present the material about reading using Problem Based Learning. Teacher can used PBL in the process of learning English in class.

b. For the Students

The result of this study can be used as a reference to improve student's vocabulary size and reading comprehension using Problem

Based Learning. Students can apply Problem Based Learning in the process of learning English.

    c.   Other Researchers

To give additional information for other researcher who wants to conduct further research on the related field. Additional information can be in the form of theory, how to apply Problem Based Learning and the results of this research.

H. Definition of Key Terms

To avoid misunderstanding of the concept in this study, the researcher gives some definitions as follows:

1. Problem Based Learning: According to Duch (1995) in Shoimin (2014, p. 130) argues that the understanding of the Problem Based Learning model is: Problem Based Learning (PBL) or problematic learning is a teaching model characterized by real problems as a context for students learning to think critically and problem-solving skills and gaining knowledge. In this study, PBL means learning methods that lead students to think critically and understand a problem and try to solve it.

2. The vocabulary was a word that had meaning and was used to convey a language so that when the word arranged such that formed the wording in accordance with the grammar. In this study, vocabulary means an important structure of a language that cannot be eliminated.

3. Reading Comprehension: According to Alexander (1977), comprehension is a special kind of reader comprehends by actively

constructing meaning internally from interacting with the material that is read. Reading comprehension is the process of actively building knowledge about the text being read. In this study, reading comprehension means a process in understanding reading to obtain information

4. Effect: According to Huang (2011) effect is examining the pattern of causality or the causal function of one or more variables on another variable based on a particular theory. In other words, there are variables that theoretically influence (independent variables) and then see the effect of these variables on other variables that are affected (dependent variable). In this study, effect means an effect that changes students' scores due to treatment.
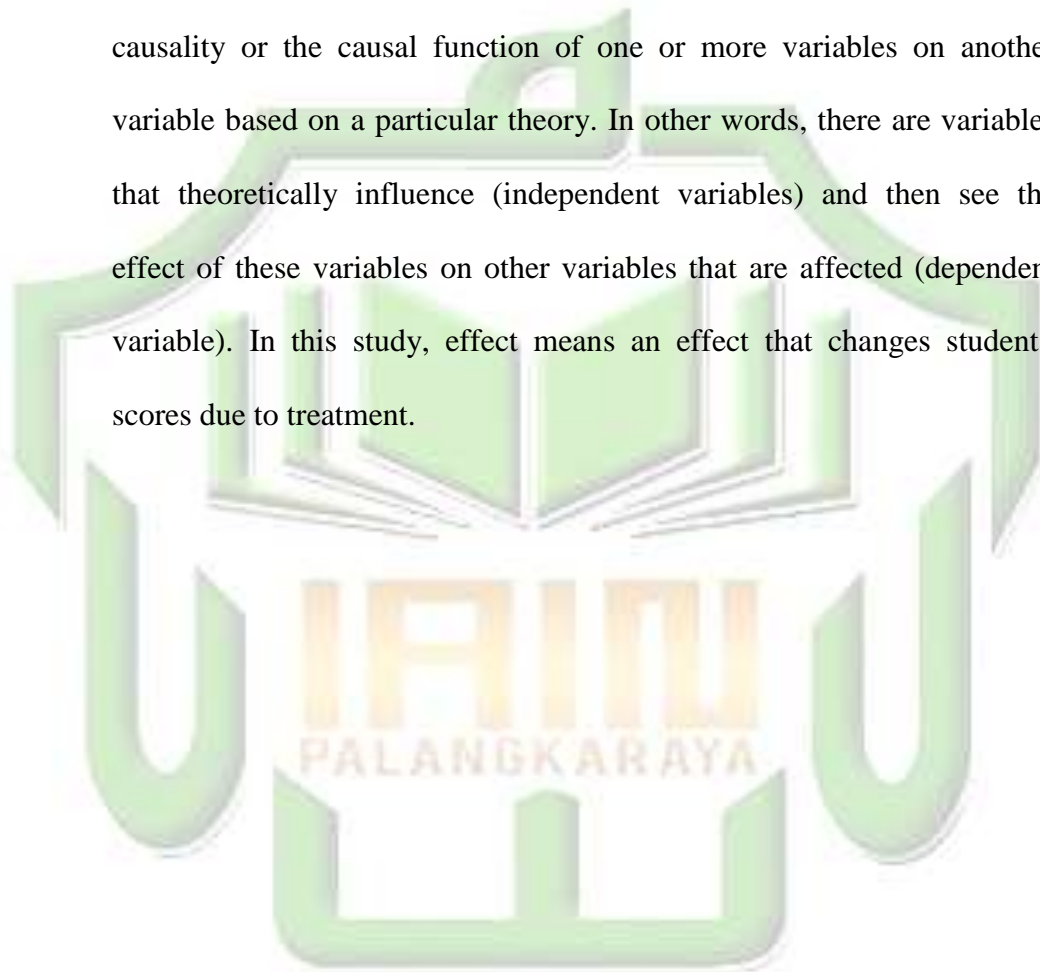
CHAPTER II

RIVIEW OF RELATED LITERATURE

In this chapter, the researcher discusses about review of related literature that consists of related studies, reading, teaching reading skill, procedure text, picture, and the application of teaching reading procedure text.

A. Related Studies

In writing this thesis the researcher delves into information from previous studies as a comparison material, both regarding deficiencies or strengths that already exist. In addition, researchers also dig up information from books and theses in order to obtain a pre-existing information about the theory relating to the title used to obtain a scientific theoretical basis.

The first Amalia (2016). This researcher uses experimental research. From this study, it is known that problem-based learning has an influence on students' reading skills, this is also supported by the results of data that have been calculated using the t-test formula that the t-test score (12.98) is higher than t-table with a significant 1% (2,423). From the research it was found that the similarity of this study is the variable that used. The difference is that the curriculum used by the researchers above at the time of the study was KTSP where the curriculum has now been replaced with the 2013 curriculum.

The second zulkipli (2017). This researcher used the quantitative pre-experimental method. The researcher collected data using a test instrument in the form of multiple choices. In analyzing the data used SPSS 17. From the data obtained it is known that the results of the pre-test are 6.78 and the

results of the posttest 10.34 which means there is a difference between the scores of the pre-test and posttest. The sample from the study is VIIIE class which consists of 8 people. From the research it was found that the similarity of this study is used pre-test and post-test to found the data. The difference is this study only used 1 class as a sample from his research which was in the form of an experimental class.

The third Riswari, Yanto and Sunarso (2018). They conducted a quantitative study of quasy experiment. The samples used in this study were 4th grade students of 1 elementary school and elementary school 2 Demaan. The instrument used in this study is an essay question. Data were analyzed using a score and t-test. The results of this study indicate that there are significant differences when using pbl by using demonstration method in problem solving abilities. From the research it was found that the similarity in this study is used Problem Based Learning as the independent variable. The difference can be seen by the object used in the study is different, namely the ability to solve problems, besides that the sample is in the form of elementary students.

The fourth Safitri (2012). This study used quasi-experimental research in this study found results that there is a significant effect between the value of the pre-test and post-test. From the research it was found that the similarity of this study is the object that used in study is Problem Based Learning. The difference with this study is on the dependent variable of research where in,

the above study examines speech ability while this study examines students' reading comprehension.

The last research was from Dharma, Marhaeni, and Buddha (2011). The results of this study are that there is a significant effect on the competence of reading and writing students when using Problem Based Learning method. From the research it was found that, the similarity of the study above is used Problem Based Learning as an independent variable. The difference is the researchers above use two dependent variables while in this study the focus is to use 1 dependent variable.

Table 2.1 the Similarities and Differences to Previous Study

No	RESEARCHERS	TITLE	SIMILARITY	DIFFERENCE
1	Amalia (2016).	The Effect of Problem Based Learning Model to The Tenth Grade Students' Reading Comprehension	Type of research was the effect and the variable are problem based learning and reading comprehension and the sample of the research was the tenth grade students'	In this research. The researcher use three variable and another one was vocabulary size.
2	Zulkipli (2017)	The Use of Problem Based Learning (PBL) in Teaching Reading. *Voices of English Language Education*	This study use the similar variable that is Problem Based Learning (PBL)	The other variable are different reading comprehension and vocabulary size

		Society		
3	Riswari, Yanto and Sunarso (2018)	The Effect of Problem Based Learning by using Demonstration Method on The Ability of Problem Solving	This study use the similar variable that is Problem Based Learning (PBL). And also the research design was experiment	The other variable are different reading comprehension and vocabulary size.
4	Safitri (2012).	The Effect of Using Problem Based Learning (Pbl) Method Toward Speaking Ability of the Second Year Students At Al-Huda Senior High School Pekanbaru	This study use the similar variable that is Problem Based Learning (PBL) and also the research design was experiment	Meanwhile the other variable is speaking ability
5	Dharma, Marhaeni, and Buddha (2011).	The Effect Of Problem Based Learning And Performance Assessment On Students' Reading And Writing Competencies	The research design of this research was similar experiment and the variable was problem based learning	The other variable are different reading comprehension and vocabulary size

B. **Problem Based Learning**

1. **Definition of Problem Based Learning**

Problem Based Learning (PBL) is one of the learning models that can help students to improve the skills needed in the current era of globalization. Problem Based Learning (PBL) was developed for the first time by Prof. Howard Barrows around the 1970s in learning medical science at McMaster University Canada (Amir, 2009, p. 124). This learning model presents a real problem for students as the beginning of learning then resolved through investigation and applied using a problem-solving approach. According to Duch (1995, p. 201), Problem Based Learning (PBL) is a learning model that challenges students to "learn how to learn", work in groups to find solutions to real-world problems. This problem is used to bind students to curiosity in the intended learning. Then in the opinion of other experts, according to Glazer (2001, p.89), arguing that Problem Based Learning is a teaching strategy where students are actively confronted with complex problems in real situations.

From the explanation of the experts it can be concluded that Problem based learning is a strategy where students deal directly with real world problems to start learning and is an innovative method in the teaching and learning process in the class where students can play an active role in it.

Problem Based Learning model is characterized by the use of real-life problems as a matter for students to learn. With the Problem Based Learning model, students are expected to get more skills than memorized knowledge. Starting from problem solving skills, critical thinking skills,

working skills in groups, interpersonal and communication skills, as well as information search and processing skills (Amir, 2007 p. 35).Savery, Duffy, and Thomas (1995) suggest two things that must be used as guidelines in presenting problems. First, the problem must be in accordance with the concepts and principles to be learned. Second, the problem presented is a real problem, meaning that the problem is real in the daily lives of students.

It can be concluded Problem Based Learning prioritizes is the learning process where students look for solutions in solving the problem and the teacher must focus on helping students, achieving skills in solving problems.

2. **Characteristics of Problem Based Learning**

Some characteristics of the Problem based learning process according to Tan (Amir, 2007, p. 23) include:

a. Problems are used as the beginning of learning.

b. Usually, the problem used is a real-world problem that is presented floating.

c. Problems usually require multiple perspectives. The solution requires students to use and get concepts from several sciences that have previously been taught or crossed knowledge to other fields.

d. Problems make students challenged to get new learning in the realm of learning.

e. Strongly prioritize independent learning (self-directed learning).

f. Utilizing varied sources of knowledge, not only from one source.

g. Learning is collaborative, communicative, and cooperative. Students work in groups, interact, teach each other (peer teaching), and make presentations.

3. **Procedures of Problem Based Learning (PBL)**

Shoimin (2014: 131) suggests that the steps in the Problem Based Learning are as follows:

a. The teacher explains the learning objectives. Describe the logistics needed. Motivate students involved in selected problem-solving activities.

b. The teacher helps students define and organize learning tasks related to the problem (setting topics, assignments, schedules, etc.).

c. The teacher encourages students to gather appropriate information, experiments to get explanations and problem solving, data collection, hypotheses, and problem solving.

d. The teacher assists students in planning and preparing appropriate works such as reports and helping them with various tasks with their friends.

e. The teacher helps students to reflect or evaluate their investigations and the processes they use.

From the steps in applying the Problem Based Learning above, it can be concluded that this PBL model starts by preparing the required logistics then presenting topics or problems, followed by students

conducting discussions in small groups, finding solutions to problems from various sources independently or in groups, deliver solutions to problems in the group in the form of work in the form of reports, and then evaluate what processes they use.

4. Advantages and Weakness of Problem Based Learning (PBL)

Problem-Based Learning has several benefits that can improve students' reading comprehension abilities. Shoimin (2014, p. 132) argues that the advantages of the Problem Based Learning model include:

a. Students are encouraged to have the ability to solve problems in real situations.

b. Students have the ability to build their own knowledge through learning activities.

c. Learning focuses on problems so that material that has no connection does not need to be studied by students. This reduces the burden on students by memorizing or storing information.

d. Scientific activities occur in students through group work.

e. Students are used to using knowledge resources, both from the library, the internet, interviews, and observations.

f. Students have the ability to assess their own learning progress.

g. Students have the ability to carry out scientific communication in discussions or presentations on the results of their work.

h. Individual learning difficulties can be overcome through group work in the form of peer teaching.

Shoimin (2014, p. 132) also argues that besides having advantages, the Problem Based Learning model also has weaknesses, including the following:

a. PBL cannot be applied to any subject matter, there is a part of the teacher playing an active role in presenting the material. PBM is more suitable for learning that demands certain abilities related to problem solving.

b. In a class that has a high level of diversity of students there will be difficulties in the division of tasks.

From the description above it can be concluded that the advantages by using the Problem Based Learning model are train students to have critical thinking skills, problem-solving abilities, and build their own knowledge, students are accustomed to learning through a variety of relevant sources of knowledge, and students more easily understand a concept if they discuss each other's problems with their friends. The weakness by using the Problem Based Learning model are PBL can't be applied to any subject matter and it difficulties used in a class that has a high level of diversity of students.

C. Reading Comprehension

1. Definition of Reading Comprehension

Reading is the process of building meaning through dynamic interaction between the reader's existing knowledge, information

suggested by the written language, and the context of the Dutcher reading situation (1990). This means that reading can be defined as the process by which the reader possesses his own knowledge before understanding the contents of the reading.

In line with this view, Mikukecky (2008, p. 1) says that reading is a process of conscious and unconscious thinking. The reader applies many strategies to reconstruct the meaning assumed to have been intended by the writer. The reader does this by comparing information in the text with background knowledge and previous experience. Thus, reader knowledge plays a role in understanding reading texts.

Reading comprehension is basically an interactive process of meaning making between the reader and the author through the text, which involves mental activities and background knowledge. Comprehension occurs when the reader extracts and integrates various information from the text and combines it with what is already known Grabe (2009, p. 14). Meanwhile Snow and Chair (2002, p. 11) also said that reading comprehension is the process of simultaneously extracting and constructing meaning through interaction and involvement with written language. It can be interpreted that reading comprehension is the process of getting information from texts that are read using prior knowledge.

2. Level of Reading Comprehension

There are three levels of reading comprehension from those with low reading comprehension to those with very good reading comprehension (Khoiriyah: 2010):

a. Literal

The reader finds the answer in the text. The reader might be asked to do any of the following:

1) Identify the main ideas of the paragraph or short story.

2) Recall details that support the main ideas.

3) Organize the sequence in which the main events occurred.

Examples of literal question starters: What happened. . . ? How many. . . ? How did. . . ? Who. . .? What is. . . ?? Which. . . ?

b. Interpretive

The reader interprets the information to find answers. The reader might be asked to any of the following:

1) Predict endings and anticipate consequences.

2) State reasons for events.

3) Make generalizations.

Examples of interpretive question starters: Why did. . . ? What was. . . ? What do you think about. . . ? Can you explain...? How was this similar to. . . ?

c. **Applied**

The reader makes links between the text and his or her own experience and knowledge to develop an answer. The reader asks open-ended questions to promote deeper understanding and do the following:

1) Make generalizations.

2) Make comparisons.

3) Make judgments.

4) Make recommendations and suggestions.

5) Make decisions.

6) Create alternative endings.

Examples of applied question starters: How would you...? Do you agree. . . ? What would have happened if. . . ? How might. . . ? What effect does. . . ? If you were . . . what would you. . . ?

3. **Reading Problems**

Cicerchia (2015) argues that not every student acquires reading skills at the same rate. Reading begins with mastering pre-literacy skills, including learning the alphabet and enhancing phonemic awareness. This is followed closely by phonics instruction that teaches children how to map sounds to letters and sound out words. Three common difficulties of reading problem:

a. **Issues With Decoding**

Decoding is when children are able to put sounds to letters in order to sound out written language. It's common for beginner readers to struggle when they meet new or unfamiliar terms, but typically decoding becomes easier with phonics instruction and repeated practice with reading out loud. If a child continues to struggle, there may be a specific learning difficulty present, or a physical impairment that is preventing them from physically seeing the letters or hearing the sounds in spoken language. Learn more in our posts on dyslexia and visual impairment in the classroom.

b. **Poor Comprehension**

There's a lot going on in reading, from letter and word recognition to understanding meaning at the phrase, sentence, and paragraph level. When a beginner reader encounters vocabulary they do not know or do not recognize due to inaccurate decoding, they are likely to skip ahead. The more blanks in a line of text, the harder it is to make meaning and the more cognitively challenging and frustrating the reading task becomes. That's why poor comprehension can result when a student struggles with decoding, has a limited vocabulary or attempts to read a text that is at too high of a level. However, reading also requires being able to pay attention to narrative. Students need to identify gist, main ideas, and specific details and even make inferences about what they are reading. If a

student has problems staying focused as a result of ADD or ADHD, it can impact on comprehension.

c. **Speed**

The more students read, the more they encounter unfamiliar terms. Quite often the context in which these new words are found gives children all of the clues they need to guess at the meaning. As students expand their vocabulary, they recognize more words by sight and reading speeds up. Students who continue to decode may benefit from overlearning sight words such as those on the Dolch List. If speed is still an issue, there may be an underlying problem, such as slow processing. Reading is a cognitively demanding task and holding so much information in the mind while continuing to process text can exhaust children with slow processing. Strategy instruction may help but it's important that these students be allowed extra time to complete tasks that require extensive reading.

4. **Reading Assessment**

Khairiyah (2010, p. 10) the assessment that must be considered in reading learning focuses on students' abilities in several competencies. These competencies are formulated in the form of assessment aspects. Every time the reading learning is over, students are required to master all the competencies in the aspects of this assessment. Assessment aspects referred to in teaching reading are students able to understand the contents of the reading and students conclude the contents of the reading

in a few sentences. Short fill tests can be used as representative test kits. The test produces an assessment that can measure the level of student understanding of the contents of the reading. The assessment is to see the student's answer is wrong or correct.

The test used in this study is an objective test in the form of multiple choice, according to Anwar (2009, p. 30) objective test in accordance with the nature of the test, which is clear, avoiding engineering elements, and the resulting value is as is and whoever is easy to do it. In addition Anwar (2010 p. 31) argues that multiple choice tests are tests that consist of one question statement with several alternative answers. Of the alternative answers offered, only one answer is correct, the other is deceitful. This test is also said to be objective because there are only one right choices, in addition to the wrong option. There are thirty questions in the form of multiple choice, if all can be answered correctly then the score obtained is 100.

D. **Vocabulary Size**

1. **Definition of Vocabulary Size**

Allen (1983, p. 127) stated that vocabulary is one of the most important elements in a language. Many vocabularies in English textbooks must be learned. Without it, no one can speak or understand the language. This means that the vocabulary is the most

important part of language that provides information or explanation in a language term.

Napa (1991, p. 189) said that vocabulary is one part of language and no language exists without words. Words are signs or symbols of ideas. Hiebert and Kamil (2005, p. 32) state that vocabulary is knowledge about the meaning of words. This means that vocabulary is part of language that explains ideas and feelings in a language.

According to Read (2000, p. 25), vocabulary size refers to the amount a person knows. In the case of second language learners, the goal is usually simpler: to estimate how many more general words they know based on tests of their knowledge of sample items from a list of word frequencies. Based on that statement, vocabulary is the main step in language learning and second language acquisition.

It can be said that the vocabulary not only has a list of words but also has all 24 information about word usage, and has the meaning of words in a language. This is the most important part in language learning to achieve the four skills. A student must have mastered the vocabulary well, and students need to improve their vocabulary mastery as well. It is clear that vocabulary is the basis of language. So, there is no language without vocabulary.

2. Kinds of Vocabulary

Nasr (1972, p. 170) Student vocabulary is divided into two main fields, active and passive. In line with Aerosol and Field the vocabulary is classified into two terms namely:

a. Active Vocabulary

Active vocabulary refers to items that students can use correctly in speaking or writing and is also called a productive vocabulary, although in reality, it is more difficult to practice. This type is often used in speaking and writing skills. This means that to master the vocabulary students must be able to understand the meaning of the word and be able to use the word correctly when speaking and writing.

b. Passive Vocabulary

Passive vocabulary refers to language items that can be recognized and understood in the context of reading or listening and are also called receptive vocabulary. Vocabulary or passive understanding consists of words understood by people, when they read and listen

According to Gate (2003, p. 73) divides vocabulary into two categories, namely: active vocabulary and passive vocabulary. Active vocabulary is words that can be used by someone, and passive words are words that can be understood by someone, but not

used from the explanation above, there are similarities in classifying the types of vocabulary by experts.

It can be concluded that there are vocabularies whose understanding can be expressed that is used to speak and write and sometimes there are vocabularies that are only known by the reader and the listener.

Furthermore, Hatch and Brown classify vocabulary into two based on their functional categories, namely: main class and closed class.

a. **Main Class**

1) Noun: it refers to a person, place or object, e.g. Mary, park, book, etc.

2) Adjectives: refer to words that provide information about nouns or pronouns, namely types, intelligent, beautiful, bad, ugly, etc.

3) Verbs: these refer to words that show action, i.e. walking, reading,

4) Adverb: refers to words that describe or add meaning to verbs, adjectives, other verbs or whole sentences, ie carefully, diligently, honestly, etc.

b. **Class Closed**

1) Pronoun: refers to the nouns that have been mentioned, namely he, they, he, etc.

2) Preposition: refers to words that help find items and actions in time and space, e.g. on, beside, below, between, etc.

3) Conjunction: this refers to words that connect sentences, phrases or clauses, i.e. and, so, but, etc.

4) Determiner: this refers to words used before nouns to show certain examples of nouns that refer to, that is, a, a, an, my, your, that, this, that, these, etc.

Based on the theories above, there are eight types of vocabulary as follows: nouns, adjectives, verbs, adverbs, pronouns, prepositions, conjunctions, and determinants.

3. Vocabulary Assessment

In general, Hughes (2003, p. 11) stated that there are four types of test that used to measure students' ability, such as proficiency test, achievement test, diagnostic test, and placement test. However, in assessing vocabulary, Hughes (2003, p. 180) recommend the use of multiple choices to test vocabularies such as synonyms and definitions. Besides that, Brown (2003, p. 230) also stated that, assessment of vocabulary consists of ordering tasks, short-answer and sentence completion tasks, multiple choice, and gap-fill. In lines with Hughes and Brown, Read (2000, p. 77) stated that, multiple choice format is one of the most widely used methods of vocabulary assessment. Besides that, on page 90, Read recommend a specific multiple choice to assess quality of vocabulary knowledge, that is meaning and synonym.

CHAPTER III

RESEARCH METHOD

In this chapter, the researcher discussed about research method that consists of research design, population and sample, research instrument, data collection procedure, and data analysis procedure.

A. Research Design

Creswell (2012, p. 3) stated "Research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue". The research method used in this research is a quantitative research. In addition, this research design is an experimental. Suryabrata (2003, p. 58) states that experimental design is; "The experiment research is oriented to observe possibility of causal- effect by giving treatment to one or more experimental groups, within it on or more condition of treatment trying to compare the result of the samples".

Based on the statement above, the researcher could determined that experimental research is the sign used for explaining data in future situation and to observe the possibility of causal-effect by giving treatment to compare the result.

B. Population and Sample

1. Population

According to Arikunto (2006, p. 130) "the population is the whole object research". Research can only be done for finite populations and

not too many subjects. The population of the study is 10th grade students of SMAN 4 Palangka Raya with a total of 330 students, which has 11 classes for each classes consist of 36 students.

Table 3.1 Number of Population

Class	Female	Male
X1	24	12
X2	24	12
X3	23	13
X4	20	16
X5	23	13
X6	27	9
X7	22	14
X8	20	14
X9	19	14
X10	19	11
X11	24	12
Total	245	140
Total of Population		**385**

2. **Sample**

Sample is a number of the population of a larger group and it use in tests or use to provide information about the whole group. According to Creswell (2012, p. 142) "sample is a subgroup of the target population that the researcher plans to study for generalizing about the target population".

The sample of this study is limited to two class of 10th grade students of SMAN 4 Palangka Raya with a total 72 students, 36 students for experiment class and another 36 students for control class. Sampling technique used to take samples in this research is cluster sampling. Because all the students in 10th grade students of SMAN 4 Palangka Raya have the same condition.

Table 3.2 Sample of Reseaercher

Group	Class
Experiment	X1
Control	X2

Where:

X1 : Class given treatment

X2 : Class that is not given treatment

C. Research Instrument

1. Research Instrument Development

The instrument of the research was a test. Test is a set of questions or exercises or other tools used to measure the skills, knowledge, intelligence, abilities, or talents of a person or group Rofik (2013). In this study, there are two test, as follow:

a. Test on Vocabulary Size

The instrument of collecting data is used by the researcher to get the data observation is using test. Test is used for getting the research

data. The type of test used in testing students' vocabulary size is a multiple choice test that consists of noun, verb, adjective, and there are twenty items. The time that allocated to do each vocabulary test are 80 minutes. The test that used in this study are pre-test and post-test. The pre-test carried out before Implementing Problem Based Learning method in vocabulary. The function of pre-test is to measure students' vocabulary size at first. Meanwhile, the post-test be implemented after using Problem Based Learning method in vocabulary. The function of post-test is to know how are the students' vocabulary size and students' reading omprehension after they taught by using Problem Based Learning method. The following table is presented for the test item specification.

Table 3.3 Test Item Specification

Numb	Aspect	Item Number
1	Noun	1-10
2	Verb	11-18
3	Adjetive	19-25
Total		25 items

b. **Test on Reading Comprehension**

The test used in form of multiple choice of descriptive text. Black, Dean and Champions (2001, p.1) stated that "the measurement tool at least has two important tools that are of concern to social scientists, namely validity and reliability". To get the

validity and reliability of the right instrument, the researcher adopts the instrument found in the book used by students entitled "Modul Pengayaan Bahasa Inggris".

The test consisted of twenty items about descriptive text. the descriptive text used are, Natural Bridge National Park for questions number 1-6, Chao Phraya for questions number 7-10, Lawang Sewu for questions number 11-15, Cukang Taneuh for questions number 16-20.

In connection with the score of students' test, the writer used scoring rubric were presented in the following table:

Table 3.4 Scoring Rubric for Multiple Choice

Rubric Score	Category
95-100	Excellent
85-90	Very Good
75-80	Good
65-70	Fairly Good
55-60	Fair

Source: Roslina (2017)

If true get a score 5

If true get a score 0

$$Score = \frac{Earnings\ Score}{maximum\ Score} \times 100$$

2. Research Instrument Try Out

The researcher try out the test instrument before it applied to the real sample of the study. The researcher gave test to the students at SMAN-4

Palangka Raya on September 19, 2019. In this case, the students assigned to do a vocabulary test and reading test. The total of the try out test are 50 questions. The result show that there are 40 valid questions and 10 invalid questions. 5 questions invalid are from vocabulary test and 5 questions invalid are from reading test. (*See appendix*).

There are some procedures as bellow: a) the researcher prepare test instrument, b) the researcher gave try out to the respondents, c) the researcher collected the answer and gave score, d) the researcher calculated the result of the test, e) the researcher analyzed the data obtain to know the instrument validity and reliability, f) after that, the researcher know the valid and invalid items, and revised the invalid items to be tested to the real sample of the test.

3. **Research Instrument Validity**

Instrument validity discusses about content validity of the test which use in the research (Heaton, 1988, p. 160). Validity refers to the extent to which an instrument measures what it is intended to measure (Ary, 2010, p. 196). An instrument is consider being a good one of if it meets some requirement. One of them is validity. Validity is a measurement which shows the grades of number of an instrument. A valid Instrument must have high validity, it means that an instrument which lacks validity is said to be Invalid instrument.

According to Heaton (1988, p. 160), content validity is: *"Kinds of validity depends on a careful analysis of the being test and the particular*

course objectives. The test should be as constructed as contain a representative sample of the course. The relationship between the test item and the course objectives always being apparent".

In this study, the researcher used multiple choice item that consists of noun, verb and adjective for vocabulary size and descriptive text for reading comprehension. The researcher analyze and score the answers to know the students' vocabulary size and reading comprehension.

4. **Research Instrument Reliability**

According to Ary (2010, p. 237), Reliability is concerned with the effect of error on the consistency of scores. Reliability is consistent in measuring whatever it is measuring. Then, Heaton (1988, p. 162) stated that reliability is necessary characteristic of any good test: for it to be valid all, a test must be reliable as a measuring instrument.

D. **Data Collection Procedure**

To get the data, the researcher used some procedures as follows:

1. The researcher chose the population of the study.

2. The researcher carried out pre-observation to found out the total of population that be the subject of research.

3. The researcher determined the class that be the sample in this research. Based on taught experience when micro teaching 2 as from the observation, sample of this study were class x-1 and class x-2.

4. The researcher determined two groups, the first group was chosen by used shaking the paper).

5. The researcher conducted a validation test.

6. The researcher analyzes the results of the validation test.

7. The researcher gave a pre-test to both of classes on October 8, 2019.

8. The researcher examined the result of pre-test.

9. The researcher gave the treatment (taught) to the experiment group by used problem based learning method from October 15 to November 5, 2019.

10. The researcher taught the control group by using traditional method that used by the English teacher.

11. After carried out four treatments, the researcher gave a post-test to both classes on November 12, 2019.

12. The researcher examined the result of post-test.

13. The researcher gave the score to students' answer (pretest and posttest).

14. The researcher analyzes the data.

E. Data Analysis Procedure

In this research, the researcher used ANOVA for analysis the data. Simple or one-way analysis of variance (ANOVA) is a statistical procedure used to analyze the data from a research with more than two groups. The data of this research is score of students' pre-test and post-test. Therefore, the data are in quantitative data. The data analyzed by means of inferential statistics.

This statistical analysis is suitable to answer the research problem. In this case, the researcher applied one way ANOVA to examine the students' score vocabulary size and students' reading comprehension use which problem based learning method. In order to analyze the data, the writer did some procedures.

1. Scored the pre-test and post-test.

2. Tabulated the result of the test and calculated the score of the pre-test and post-test.

3. Calculated the mean and median.

4. Calculated standard deviation and standard error.

5. Calculated the normality test.

6. Calculated the homogeneity.

7. Calculated ANOVA using SPSS to examine to hypothesis.

8. Calculated the post-hoc result to saw the difference of the significant.

9. Drawn conclusion from its tabulated-result.

10. Made conclusion of the result of the study.

CHAPTER IV

RESEARCH FINDINGS AND DISCUSSION

This chapter described the obtained data of the students' reading comprehension and vocabulary size before and after taught by Problem Based Learning method. The presented data consists of data presentation, research findings, and discussion.

A. Data Presentation

In this section it would be describe the obtained data of improvement the students' reading comprehension and vocabulary size before and after taught by Problem Based Learning. The presented data consisted of distribution of frequency, the mean of students' score, standard deviation, and standard error.

The result of pre-test and post-test scores of experiment and control class of vocabulary test and reading comprehension test were presented in the following table in the next chapter:

Table 4.1 The Result of Pre-Test and Post-Test Score of Experimental Class and Control Class of Vocabulary Test and Reading Comprehension Test

	Experiment class of reading comprehension			Control class of reading comprehension			Experiment class of Vocabulary size			Control class of Vocabulary size		
No	code	Pre-test	Post-test	code	Pre-test	Post-test	code	Pre-test	Post-test	code	Pre-test	Post-test
1	E1	50	75	C1	45	35	E1	60	85	C1	40	45
2	E2	60	75	C2	40	50	E2	65	75	C2	40	50
3	E3	50	75	C3	65	75	E3	50	80	C3	60	75
4	E4	65	80	C4	60	75	E4	50	80	C4	65	70

5	E5	65	85	C5	80	55	E5	65	90	C5	70	55
6	E6	50	75	C6	80	90	E6	55	80	C6	80	90
7	E7	35	70	C7	65	45	E7	50	75	C7	60	50
8	E8	60	85	C8	35	45	E8	60	85	C8	35	45
9	E9	75	90	C9	40	40	E9	75	90	C9	40	40
10	E10	65	70	C10	50	45	E10	65	80	C10	50	45
11	E11	60	80	C11	50	50	E11	70	80	C11	50	50
12	E12	35	70	C12	55	45	E12	45	75	C12	50	45
13	E13	40	70	C13	55	45	E13	50	70	C13	55	45
14	E14	70	85	C14	50	65	E14	75	80	C14	50	65
15	E15	40	70	C15	40	30	E15	45	70	C15	40	35
16	E16	60	90	C16	40	40	E16	70	90	C16	40	40
17	E17	45	70	C17	55	75	E17	55	70	C17	55	75
18	E18	65	80	C18	45	65	E18	65	80	C18	45	60
19	E19	60	85	C19	30	25	E19	65	85	C19	30	45
20	E20	50	85	C20	50	50	E20	50	80	C20	50	50
21	E21	50	75	C21	25	45	E21	50	75	C21	25	45
22	E22	45	85	C22	35	55	E22	45	75	C22	35	55
23	E23	65	90	C23	70	75	E23	75	90	C23	70	75
24	E24	55	80	C24	60	45	E24	55	75	C24	60	45
25	E25	45	70	C25	55	65	E25	55	75	C25	55	65
26	E26	55	80	C26	55	50	E26	55	70	C26	55	60
27	E27	80	95	C27	57	55	E27	80	95	C27	50	55
28	E28	45	70	C28	65	80	E28	50	70	C28	65	80
29	E29	65	80	C29	70	35	E29	60	85	C29	70	50
30	E30	65	85	C30	75	40	E30	65	80	C30	75	45
31	E31	60	85	C31	65	50	E31	65	80	C31	65	50
32	E32	50	75	C32	50	35	E32	55	75	C32	50	50
33	E33	65	90	C33	45	45	E33	65	90	C33	45	45

34	E34	60	85	C34	40	50	E34	65	85	C34	45	55
35	E35	50	80	C35	50	65	E35	55	80	C35	60	65
36	E36	45	70	C36	55	55	E36	45	75	C36	55	55

1. **The Result of Experiment Class Score**

   a. **The Result Pre-Test of Experiment Class of Reading Comprehension**

   The students' pre-test score of experiment class were distributed in the following table (see appendix) in order to measure the students' reading comprehension before conducting the treatment. To determine the distribution of frequency, the mean of students' score, standard deviation, and standard error were calculated using SPSS 20. The distribution of students' pre-test score can also be seen in the following figure.
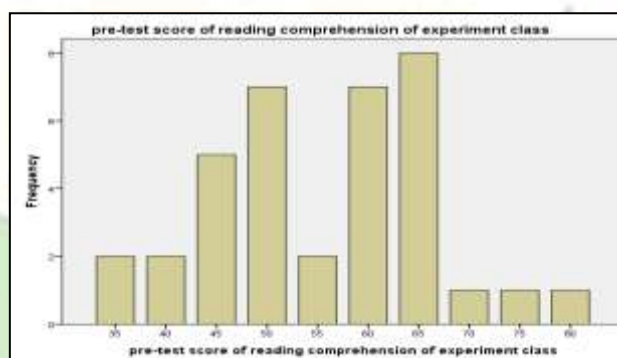
Figure 4.1 the Frequency Distribution of Pre-test of Experiment Class

   Based on bar chart above, the frequency distribution of pre-test score of experiment class can defined there are eighteen students' getting score 35-55, it means that reading comprehension was poor. Sixteen students' getting score 60-70, it means students' reading

comprehension was enough. Two students' getting score between 75-80, it means students' reading comprehension already good.

Based on the data above, the average scores of students' reading comprehension in pre-test was 55.56. It was concluded the students reading comprehension must be improved.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.2 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		55.56
Std. Error of Mean		1.812
Median		57.50
Std. Deviation		10.874

Based on the data above, it was known the lowest score was 35 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 55.56, the standard deviation 10.874 and the standard error of mean was 1.812.

b. **The Result Of Post-Test Experiment Class of Reading Comprehension**

After got a treatment (Problem Based Learning), the students were given a post-test. It is to know whether the treatment gives effect to reading descriptive text using PBL. To determine the distribution of frequency, the mean of students" score, standard

deviation, and standard error were calculated using SPSS 20. The distribution of students" post-test score, can be seen in the figure.
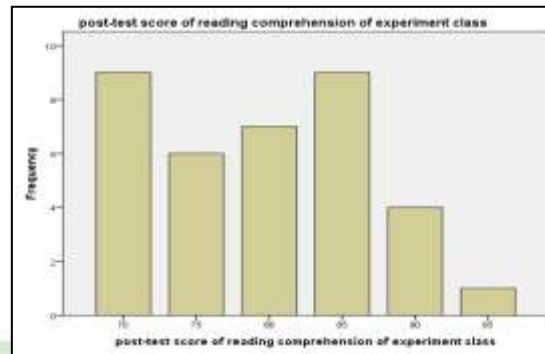
Figure 4.2 the Frequency Distribution of Post-test of Experiment Class

Based on bar chart above, the frequency distribution of post-test score of experiment class can defined there are nine students getting score 70, it means that reading was enough. Thirteen students' getting score 75-80, it means students reading was already good. 8 students' getting score 85-95, it means students' reading very good. Based on the data above, the average scores of students" writing descriptive text in post-test was 79.44.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.3 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		79.44
Std. Error of Mean		1.224
Median		80.00
Std. Deviation		7.346

Based on the data above, it was known the lowest score was 70 and the highest score was 95. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 79.44, the standard deviation 7.346 and the standard error of mean was 1.224.

c. **The Result of Pre-Test Experiment Class of Vocabulary Size**

The students' pre-test score of experiment class were distributed in the following table (see appendix) in order to measure the students' vocabulary size before conducting the treatment. To determine the distribution of frequency, the mean of students' score, standard deviation, and standard error were calculated using SPSS 20. The distribution of students' pre-test score can also be seen in the following figure.
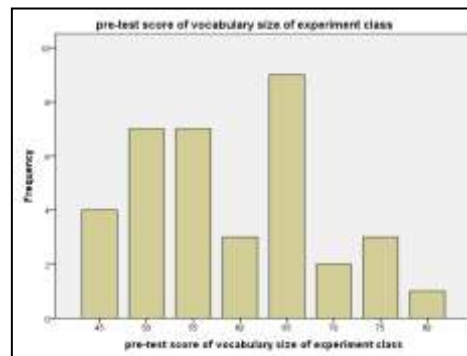
Figure 4. 3 the Frequency Distribution of Pre-test of Experiment Class

Based on bar chart above, the frequency distribution of pre-test score of experiment class can defined there are eighteen students' getting score 45-55, it means that vocabulary size was poor. Twelve students' getting score 60-70, it means students' vocabulary size was enough. Four students' getting score between 75-80, it means students' vocabulary size already good.

Based on the data above, the average scores of students' reading comprehension in pre-test was 55.56. It was concluded the students reading comprehension must be improved.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.4 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		59.03
Std. Error of Mean		1.604
Median		57.50
Std. Deviation		9.623

Based on the data above, it was known the lowest score was 45 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 59.03, the standard deviation 9.623 and the standard error of mean was 1.604.

d. The Result of Post-Test Experiment Class of Vocabulary Size

After got a treatment (Problem Based Learning), the students were given a post-test. It is to know whether the treatment gives effect to vocabulary size text using PBL. To determine the distribution of frequency, the mean of students" score, standard deviation, and standard error were calculated using SPSS 20. The distribution of students" post-test score, can be seen in the figure.

Figure 4.4 the Frequency Distribution of Post-test of Experiment Class

Based on bar chart above, the frequency distribution of post-test score of experiment class can defined there are five students getting score 70, it means that vocabulary size was enough. Twenty students' getting score 75-80, it means students' vocabulary size was already good. Eleven students' getting score 85-95, it means students' reading very good. Based on the data above, the average scores of students" writing descriptive text in post-test was 79.86.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.5 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		79.86
Std. Error of Mean		1.118
Median		80.00
Std. Deviation		6.707

Based on the data above, it was known the lowest score was 70 and the highest score was 95. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 79.86, the standard deviation 6.707 and the standard error of mean was 1.118.

2. **The Result of Pre-test and Post-test Scores of Control Class**

a. **The Result of Pre-Test of Control Class of Reading Comprehension**

The students' pre-test score of control class were distributed in the following table (see appendix) in order to measure the students' reading comprehension before post-test. To determine the distribution of frequency, the mean of students' score, standard deviation, and standard error calculated using SPSS 20.

The distribution of students' pre-test score can also be seen in the following figure.
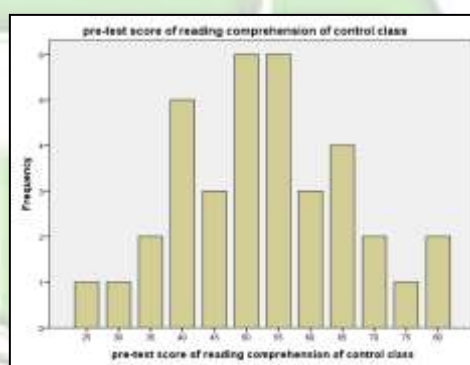
Figure 4.5 the Frequency Distribution of Pre-test of Control Class

Based on bar chart above, the frequency distribution of pre-test score of control class can defined there are twenty four students getting score 25-55, it means that reading was poor. Nine students' getting score 60-70, it means students reading was enough. Three students' getting score 75-80, it means students' reading already good. Based on the data above, the average scores of students" writing descriptive text in post-test was 54.72.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

**Table 4.6 the Calculation of the Mean of the Students' Score,
Standard Deviation, and Standard Error of Using SPSS 20**

N	Valid	36
	Missing	0
Mean		52.92
Std. Error of Mean		2.239
Median		52.50
Mode		50[a]
Std. Deviation		13.436

Based on the data above, it was known the lowest score was 25 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 52.92, the standard deviation 13.436 and the standard error of mean was 2.239.

b. **The Result of Post-Test of Control Class of Reading Comprehension**

The students' post-test score of control class were distributed in the following table (*see appendix*) in order to measure the students' reading comprehension after taught by traditional method. To determine the distribution of frequency, the mean of students' score, standard deviation, and standard error calculated using SPSS 20.

The distribution of students' post-test score can also be seen in the following figure.
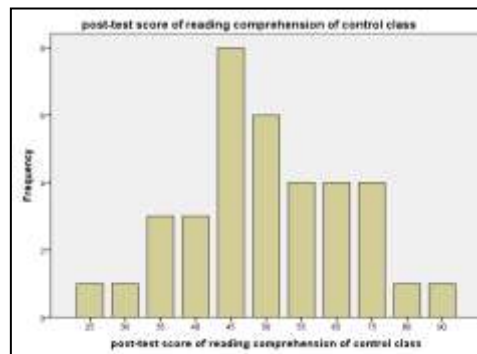
Figure 4.6 the Frequency Distribution of Post-test of Control Class

Based on bar chart above, the frequency distribution of pre-test score of control class can defined there are twenty six students getting score 25-55, it means that reading was poor. Four students' getting score 60-70, it means students reading was enough. Five students' getting score 75-80, it means students' reading already good. One student getting score 90, it means students' reading very good. Based on the data above, the average scores of students" writing descriptive text in post-test was 52.50.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.7 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		52.50
Std. Error of Mean		2.516
Median		50.00
Std. Deviation		15.095

Based on the data above, it was known the lowest score was 25 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 52.50, the standard deviation 15.095 and the standard error of mean was 2.516.

c. **The Result of Pre-Test of Control Class of Vocabulary Size**

The students' pre-test score of control class were distributed in the following table (see appendix) in order to measure the students' vocabulary size before post-test. To determine the distribution of frequency, the mean of students' score, standard deviation, and standard error were calculated using SPSS 20. The distribution of students' pre-test score can also be seen in the following figure.
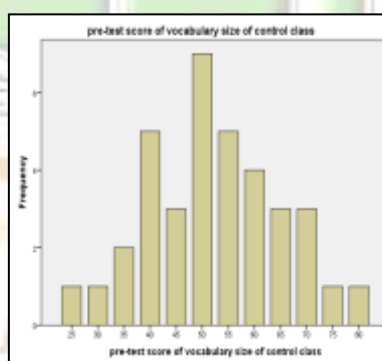
Figure 4.7 the Frequency Distribution of Pre-test of Control Class

Based on bar chart above, the frequency distribution of pre-test score of experiment class can defined there are twenty four students' getting score 25-55, it means that vocabulary size was poor. Ten students' getting score 60-70, it means students' vocabulary size was enough. Two students' getting score between 75-80, it means students' reading comprehension already good.

Based on the data above, the average scores of students' reading comprehension in pre-test was 52.36. It was concluded the students reading comprehension must be improved.

The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

**Table 4.8 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20**

N	Valid	36
	Missing	0
Mean		52.36
Std. Error of Mean		2.141
Median		50.00
Std. Deviation		12.844

Based on the data above, it was known the lowest score was 45 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 52.36, the standard deviation 12.844 and the standard error of mean was 2.141.

d. **The Result of Post-Test of Control Class of Vocabulary Size**

The students' post-test score of control class were distributed in the following table (see appendix) in order to measure the students' vocabulary size after taught by traditional method. To determine the distribution of frequency, the mean of students" score, standard deviation, and standard error were calculated using SPSS 20. The distribution of students" post-test score, can be seen in the figure.
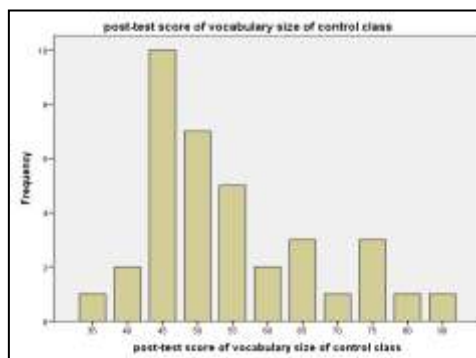
Figure 4.8 the Frequency Distribution of Post-test of Control Class

Based on bar chart above, the frequency distribution of pre-test score of control class can defined there are twenty five students getting score 35-55, it means that reading was poor. Six students' getting score 60-70, it means students reading was enough. Four students' getting score 75-80, it means students' reading already good. One student getting score 90, it means students' reading very good. Based on the data above, the average scores of students" writing descriptive text in post-test was 54.72. The next step, the result of the mean of the students" score, standard deviation, and standard error of using SPSS 20 program follow:

Table 4.9 the Calculation of the Mean of the Students' Score, Standard Deviation, and Standard Error of Using SPSS 20

N	Valid	36
	Missing	0
Mean		54.72
Std. Error of Mean		2.117
Median		50.00
Std. Deviation		12.702

Based on the data above, it was known the lowest score was 25 and the highest score was 80. For the result of calculation using SPSS 20, it was found that the mean of score pre-test was 54.72, the standard deviation 12.702 and the standard error of mean was 2.117.

B. Research Findings

1. Testing Normality and Homogeneity Using SPSS

a. Testing Data Normality

1) Testing of Data Normality of Pre-Test Score of Reading Comprehension

The normality test was used to know the data that was going to analyze whether both groups have normal distribution or not. The normality test used SPSS 20 to measure the normality of the data.

Table 4.10 Test of Normality Distribution Test on the Pre-test Score of the Experiment and Control Group of Reading Comprehension Using SPSS 20

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		72
Normal Parameters[a,b]	Mean	54.19
	Std. Deviation	12.194
Most Extreme Differences	Absolute	.107
	Positive	.107
	Negative	-.090
Kolmogorov-Smirnov Z		.906
Asymp. Sig. (2-tailed)		.384
a. Test distribution is Normal.		
b. Calculated from data.		

The criteria of normality test if the value of (probability value/critical value) is higher than or equal to the level significance alpha defined (r >α), it means that data distribution is normal. Based on the calculation using SPSS 20 program, it could be concluded that data was normality distributed. It found that the value of value of the significance was 0.384, it means that the distribution of the data was normal because the value of significance greater than 0.00

2) **Testing of Data Normality of Post-Test Score of Reading Comprehension**

The normality test was used to know the data that was going to analyze whether both groups have normal distribution or not. The normality test used SPSS 20 to measure the normality of the data.

Table 4.11 Test of Normality Distribution Test on the Post-test Score of the Experiment and Control Group of Reading Comprehension Using SPSS 20

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		72
Normal Parameters[a,b]	Mean	65.97
	Std. Deviation	17.972
Most Extreme Differences	Absolute	.172
	Positive	.118
	Negative	-.172
Kolmogorov-Smirnov Z		1.459
Asymp. Sig. (2-tailed)		.028
a. Test distribution is Normal.		
b. Calculated from data.		

The criteria of normality test if the value of (probability value/critical value) is higher than or equal to the level significance alpha defined (r >α), it means that data distribution is normal. Based on the calculation using SPSS 20 program, it could be concluded that data was normality distributed. It found that the value of value of the significance was 0.028, it means that the distribution of the data was normal because the value of significance greater than 0.00.

3) **Testing of Data Normality of Pre-Test Score of Vocabulary Size**

The normality test was used to know the data that was going to analyze whether both groups have normal distribution or not. The normality test used SPSS 20 to measure the normality of the data.

Table 4.12 Test of Normality Distribution on the Pre-test Score of the Experiment and Control Group of Vocabulary Size Using SPSS 2

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		72
Normal Parameters[a,b]	Mean	55.69
	Std. Deviation	11.758
Most Extreme Differences	Absolute	.107
	Positive	.107
	Negative	-.105
Kolmogorov-Smirnov Z		.907
Asymp. Sig. (2-tailed)		.383
a. Test distribution is Normal.		
b. Calculated from data.		

The criteria of normality test if the value of (probability value/critical value) is higher than or equal to the level significance alpha defined (r >α), it means that data distribution is normal. Based on the calculation using SPSS 20 program, it could be concluded that data was normality distributed. It found that the value of value of the significance was 0.383, it means that the distribution of the data was normal because the value of significance greater than 0.00.

4) **Testing of Data Normality of Post-Test Score of Vocabulary Size**

The normality test was used to know the data that was going to analyze whether both groups have normal distribution or not. The normality test used SPSS 20 to measure the normality of the data.

Table 4.13 Test of Normality Distribution on the Post-test Score of the Experiment and Control Group of Vocabulary Size Using SPSS

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		72
Normal Parameters[a,b]	Mean	67.29
	Std. Deviation	16.184
Most Extreme Differences	Absolute	.183
	Positive	.135
	Negative	-.183
Kolmogorov-Smirnov Z		1.553
Asymp. Sig. (2-tailed)		.016
a. Test distribution is Normal.		
b. Calculated from data.		

The criteria of normality test if the value of (probability value/critical value) is higher than or equal to the level significance alpha defined (r >α), it means that data distribution is normal. Based on the calculation using SPSS 20 program, it could be concluded that data was normality distributed. It found that the value of value of the significance was 0.016, it means that the distribution of the data was normal because the value of significance greater than 0.00.

b. Testing of Data Homogeneity

1) Homogeneity Test of Reading Comprehension

Based on the calculation of normality, the researcher got the result that all data in pre-test and post-test of both experiment class and control class have been normality distributed. The criterion for the hypothesis was: How would be accepted if sign > α, the researcher used the level of significance 0.05, meaning the distribution was homogeneity.

Table 4.14 Homogeneity Test on the Pre-test Score of the Experiment and Control Group of Reading Comprehension Using SPSS 20

Test of Homogeneity of Variances			
Score			
Levene Statistic	df1	df2	Sig.
.074	1	70	.787

Based on the table above, it can be concluded the homogeneity test of mean was 0.787. Therefore the significance

was higher than 0.05 (0.787 > 0.05). It means that the data in pre-test experiment and control class were homogenous.

Table 4.15 Homogeneity Test on the Post-test Score of the Experiment and Control Group of Reading Comprehension Using SPSS 20

Test of Homogeneity of Variances			
Score			
Levene Statistic	df1	df2	Sig.
.786	1	70	.378

Based on the table above, it can be concluded the homogeneity test of mean was 0.378. Therefore the significance was higher than 0.05 (0.378 > 0.05). It means that the data in pre-test experiment and control class were homogenous.

2) **Homogeneity test of Vocabulary Size**

Table 4.16 Homogeneity Test on the Pre-test Score of the Experiment and Control Group of Vocabulary Size Using SPSS 20

Test of Homogeneity of Variances			
Score			
Levene Statistic	df1	df2	Sig.
.938	1	70	.169

Based on the table above, it can be concluded the homogeneity test of mean was 0.169. Therefore the significance was higher than 0.05 (0.169 > 0.05). It means that the data in pre-test experiment and control class were homogenous.

Table 4.17 Homogeneity Test on the post-test Score of the Experiment and Control Group of Vocabulary Size Using SPSS 20

Test of Homogeneity of Variances			
Score			
Levene Statistic	df1	df2	Sig.
.185	1	70	.668

Based on the table above, it can be concluded the homogeneity test of mean was 0.668. Therefore the significance was higher than 0.05 (0.668 > 0.05). It means that the data in pre-test experiment and control class were homogenous.

2. **Testing Hypothesis**

a. **The Result of ANOVA of Experiment Class and Control Class**

Table 4.18 Test of Hypothesis ANOVA of Posttest Experiment and Control Class of Reading Comprehension and Vocabulary Size

ANOVA					
Score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24506.076	3	8168.692	66.935	.000
Within Groups	17085.417	140	122.039		
Total	41591.493	143			

Based on SPSS 16.0 statistic program calculation, the result showed that Degree of Freedom between Group (DFb) = 3 and Degree of Freedom Within Group (DFw) = 140 (Ftable = 1.59) and Fvalue was 66.935 It showed Fvalue was higher than Ftable (66.935

>1.59). So, Ho was refused and Ha was accepted. There was significant differences among groups after doing the treatment, with Fvalue = 66.935 and the significant level was lower than alpha (**α**) (0.00 ≤0.05).

Knowing that there was a significant difference between groups after doing the treatment, researcher needed to test the hypotheses. Because ANOVA was only to know that there were significant differences between groups, not to know where the differences between groups are, to answer problems of the study and test the hypotheses, the writer applied **Post Hoc Test.**

Table 4.19 Test of Hypothesis ANOVA of Posttest Experiment and Control Class of Reading Comprehension and Vocabulary Size

Multiple Comparisons						
Dependent Variable: Score Tukey HSD						
(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	26.944*	2.604	.000	20.17	33.71
	3	-.417	2.604	.999	-7.19	6.35
	4	24.722*	2.604	.000	17.95	31.49
2	1	-26.944*	2.604	.000	-33.71	-20.17
	3	-27.361*	2.604	.000	-34.13	-20.59
	4	-2.222	2.604	.829	-8.99	4.55
3	1	.417	2.604	.999	-6.35	7.19
	2	27.361*	2.604	.000	20.59	34.13
	4	25.139*	2.604	.000	18.37	31.91
*. The mean difference is significant at the 0.05 level.						

The criteria of Ho is accepted when the significant value is higher than alpha (**α**) (0.05), and Ho is refused when the significant value is lower than alpha (**α)** (0.05).

First, based on the calculation above used SPSS program of Post Hoc Test, Post-test of Experiment of reading comprehension class showed the significant value was lower than the alpha (0.000 < 0.05). It meant that there was significant effect of Problem Based Learning toward reading comprehension. Thus, Ha that state" There is effect of Problem Based Learning toward students' reading comprehension was accepted and Ho that state There is no effect of Problem Based Learning toward students' reading comprehension

Second, on the calculation above used SPSS program of Post Hoc Test, Experiment Class of Vocabulary Size showed the significant value (0.000) was lower than the alpha (0.05). It meant Ha that state "There is effect of Problem Based Learning toward students' vocabulary size." was accepted and H0 that state there is no effect of Problem Based Learning toward students' vocabulary size was rejected.

Third, on the calculation above used SPSS program of Post Hoc Test, Post-test of Experiment class of reading comprehension and vocabulary size showed the significant value was lower than the alpha (0.999 < 0.05). It meant that there was significant effect of Problem Based Learning toward reading comprehension and vocabulary size. Therefore, Ha that state" There is effect of Problem Based Learning toward students' vocabulary size

and students' reading comprehension. "was accepted and Ho that state There is no effect of Problem Based Learning toward students' vocabulary size and students' reading comprehension.

C. Discussion

The result of the data analysis shows that Problem Based Learning (PBL) gave significant effect on the student's vocabulary size and student's reading comprehension of the first graders of SMAN 4 Palangka Raya. The students who were taught using PBL got higher than the result of pre-test after were taught using PBL. To improve student's vocabulary size and student's reading comprehension can be used PBL. According to Arends (2007, p. 68), Problem Based Learning (PBL) is a learning approach where students are faced with authentic problems so that they are expected to develop their own knowledge, develop high-level skills and inquiry, empower students, and increase his confidence. And also Shoimin (2014, p. 1) argues that students have ability to assess their own learning progress while using Problem Based Learning. It means PBL can improve students' thinking skills in understanding the content of reading and help students improve their vocabulary. It was proved by the difference the mean score between Pre-test and Post-test. The mean score of post-test reached higher score than the mean score of pre-test. For vocabulary size the score was (59.03<79.86) and for reading comprehension it was (55.56<79.44). It indicated that the students' score increased after conducting treatment. In other words, teaching reading

and vocabulary by problem based learning gave significant effect toward the student's vocabulary size and student's reading comprehension. The result of analysis showed there was significant effect problem based learning toward student's vocabulary size and student's reading comprehension of first graders of SMAN 4 Palangka Raya.

It is suitable with the result of pre-test and post-test for Experiment and control Group. In the pre-test of experiment group of vocabulary size there were 18 students who got *poor* predicate. There were 12 students that who got *enough* predicate. And the last, there were 4 students got *good* predicate. Then, in the pre-test score of control group of vocabulary size there were 24 students who got *poor* predicate. There were 10 students who got *enough* predicate. There was 2 student who got score *good* predicate. And in the post-test experimental of vocabulary size, there was no student that got in *poor* predicate. There was 11 student who got *very good* predicate. There were 20 students who got *good* predicate. And the last there were 5 students who got *enough* predicate. In the control group, there were 1 student who got in *very good* predicate. There were 4 students who got *good* predicate. There were 6 students who got *enough* predicate. There was 25 of student that got *poor* predicate.

In the pre-test of experiment group of reading comprehension there were 18 students who got *poor* predicate. There were 16 students that who got *enough* predicate. And the last, there were 2 students got *good* predicate. Then, in the pre-test score of control group of reading comprehension there

were 24 students who got *poor* predicate. There were 9 students who got *enough* predicate. There was 3 students who got score *good* predicate. And in the post-test experimental of reading comprehension, there was no student that got in *poor* predicate. There was 8 student who got *very good* predicate. There were 13 students who got *good* predicate. And the last there were 9 students who got *enough* predicate. In the control group, there were 1 student who got in *very good* predicate. There were 4 students who got *good* predicate. There were 6 students who got *enough* predicate. There was 25 of student that got *poor* predicate.

The same result also found in a study Amalia (2016). She found that problem-based learning has an influence on students' reading skills, this is also supported by the results of data that have been calculated using the t-test formula. On the other hand a study from Zulkipli (2017). He the data obtained it is known that the results of the pre-test are 6.78 and the results of the posttest 10.34 which means there is a difference between the scores of the pre-test and post-test.and also a study from from Dharma, Marhaeni, and Buddha (2011). They was found that problem based learning also effective. Meanwhile in this study found that used PBL have to increased students vocabulary size and also students reading comprehension. It meant PBL in this study improved two main object of learning English.

CHAPTER V

CONCLUSION AND SUGGESTION

In this chapter, the writer would like to give conclusion and suggestion to the result of the study. The conclusion of the study was the answer of problem of the study that found the based on the result of data analysis. The suggestions are expected to make better improvement and motivation for students, teachers, and researchers related to the teaching learning process of reading and vocabulary skill.

A. Conclusion

Based on calculation using ANOVA, the result showed:

1. There was significant effect of problem based learning toward students' vocabulary size. It was shown that the result showed the significant value was lower than alpha (0.000 lower $\leq$ 0.05). It meant that the use of problem based learning effective toward students' vocabulary size.

2. There was significant effect of problem based learning toward students' reading comprehension. It was shown that the result showed the significant value was lower than alpha (0.000 lower $\leq$ 0.05). It meant that the use of problem based learning effective toward students' reading comprehension.

3. There was significant effect of problem based learning toward students' vocabulary size and students' reading comprehension. It was shown that the result showed the significant value was lower than alpha (0.999 lower $\leq$ 0.05). It meant that the use of problem based learning effective toward students' vocabulary size and students' reading comprehension.

B. Suggestion

Based on the finding of result, this research gave solution to find out appropriate method in teaching vocabulary size and reading comprehension. This research provides the English teachers a scientific study on the effectiveness of using Problem Based Learning toward students vocabulary size and students reading comprehension and provides the students an additional reference in searching the teaching of English to improve their vocabulary size and reading comprehension.

1. Teachers

The result of the study shown that the score all of the students in class experiment was increase after treatment with Problem Based Learning. So, the result of this study can help the teacher to present the material about reading using Problem Based Learning. Teacher can used PBL in the process of learning English in class.

2. Students

The result of this study can be used as a reference to improve student's vocabulary size and reading comprehension using Problem Based Learning. Students can apply Problem Based Learning in the process of learning English.

3. Other Researchers

The researcher suggests for next researchers to compare Problem Based Learning to other teaching materials in order to consider which

one provides more gains for the improvement of the English reading comprehension of students. Then, for next researchers can be used Problem Based Learning not only in reading skill but also in another English skill as well writing and speaking. The result of this study is only focused on the application of Problem Based Learning. And in this study, there are still many weaknesses that could be seen. Therefore, for further researcher; it is expected that the other researher can improve this study with better design and different object in order to support the result finding. In other word, the other researcher can use this study as the reference for conducting their research.
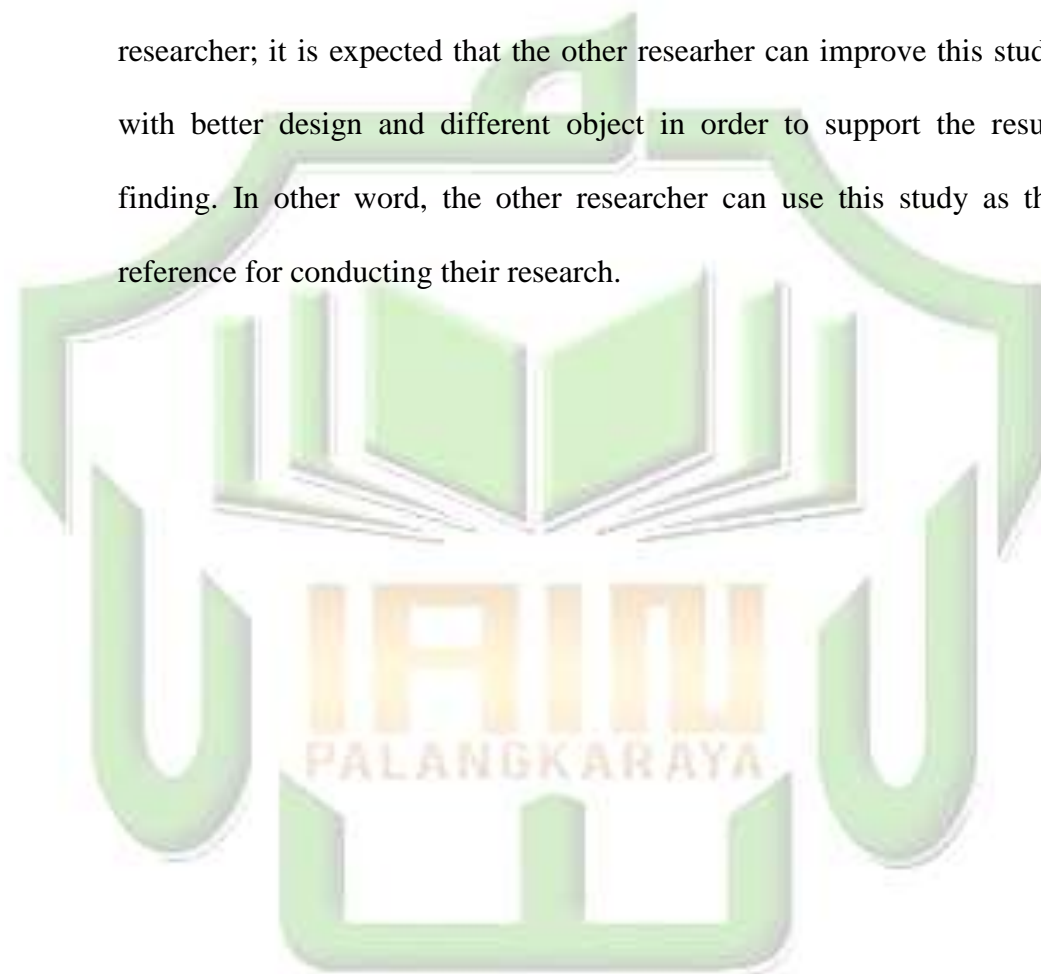
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