

CHAPTER IV

RESEARCH FINDING AND DISCUSSION

This chapter presents the analysis of data collection from the research finding and discussion. In this chapter, the researcher discusses data description, analysis of the data, discussion.

A. Research Finding

In this section, the researcher reports the pre-test and post-test scores of students for the experimental and control classes. The pre-test results were collected before the treatment was given, while the post-test results were collected after the treatment was given. They were taught using different treatments to determine the effectiveness of PBL towards students reading comprehension at the 8th grade junior high school students. The population of this research was the second grade students junior high school level. The researcher took 38 students as samples, class VIII-A as the class control consisting of 19 students and VIII-B as the experimental class consisting of 19 students. The researcher analysed the data using ANCOVA from SPSS to know the results of the tests.

1. Validity of Instrument

The validity used in this study was item validity by comparing the significance values. Items are said to be valid if the significance value is $<0,05$. The r-table was 0.323, when the table of r result (coefficient of correlation) was below the r-table it could be concluded that the items were not valid instruments. Thus, the item was said to be a valid instrument if the coefficient of correlation was more than 0.323. The result calculation item

validity instrument could be shown in the table 4.1.

Tabel 4.1
The Result of Validity Calculation

Pre test				Post test			
Item	"r" calculated	"r" table	Criteria	Item	"r" calculated	"r" table	Criteria
1	0.333	0.323	Valid	1	0.421	0.323	Valid
2	0.431	0.323	Valid	2	0.345	0.323	Valid
3	0.398	0.323	Valid	3	0.427	0.323	Valid
4	0.401	0.323	Valid	4	0.544	0.323	Valid
5	0.531	0.323	Valid	5	0.452	0.323	Valid
6	0.330	0.323	Valid	6	0.242	0.323	Invalid
7	0.421	0.323	Valid	7	0.444	0.323	Valid
8	0.588	0.323	Valid	8	0.587	0.323	Valid
9	0.542	0.323	Valid	9	0.490	0.323	Valid
10	0.655	0.323	Valid	10	0.672	0.323	Valid
11	0.303	0.323	Invalid	11	0.340	0.323	Valid
12	0.451	0.323	Valid	12	0.460	0.323	Valid
13	0.657	0.323	Valid	13	0.766	0.323	Valid
14	0.381	0.323	Valid	14	0.304	0.323	Invalid
15	0.592	0.323	Valid	15	0.611	0.323	Valid
16	0.398	0.323	Valid	16	0.299	0.323	Invalid
17	0.601	0.323	Valid	17	0.604	0.323	Valid
18	0.511	0.323	Valid	18	0.502	0.323	Valid
19	0.209	0.323	Invalid	19	0.692	0.323	Valid
20	0.412	0.323	Valid	20	0.403	0.323	Valid
21	0.326	0.323	Valid	21	0.333	0.323	Valid
22	0.343	0.323	Valid	22	0.403	0.323	Valid
23	0.442	0.323	Valid	23	0.410	0.323	Valid
24	0.454	0.323	Valid	24	0.442	0.323	Valid
25	0.391	0.323	Valid	25	0.402	0.323	Valid
26	0.654	0.323	Valid	26	0.329	0.323	Valid
27	0.211	0.323	Invalid	27	0.111	0.323	Invalid
28	0.300	0.323	Invalid	28	0.459	0.323	Valid
29	0.512	0.323	Valid	29	0.290	0.323	Invalid
30	0.291	0.323	Invalid	30	0.351	0.323	Valid

Based on the table above there are total 30 items of questions both pre-test and post-test. There are 5 items that are invalid in pre-test and post-test, and 25 valid items in pre-test and post-test. The researcher used 25 valid items and eliminated 5 invalid items.

2. Reliability of Instrument

Reliability analysis in this research used the SPSS 25 program with Cronbach's Alpha statistical test. The basis for decision making in the reliability

test if the Cronbach's Alpha value $>$ r-table, to measure the reliability of the students' ability using multiple-choice test. The result of the reliability test can show in this table.

Tabel 4.2
Reliability statistic

Reliability Statistics	
Cronbach's Alpha	N of Items
.532	50

3. The Result of Pre-Test

The researcher gave a pre-test before the treatment to the experimental class and the control class to determine students' reading skill. The researcher conducted this study on second grade students junior high school level. The summary results of the pre-test scores from the experimental class VIII-A and the control class VIII-B are presented in table 4.3

Tabel 4.3
Result of Pre-test Experimental Class and Control Class

Experiment class		Control Class	
Name	Pre-test	Name	Pre-test
AWL	80	AS	28
AAR	76	APF	28
AAF	76	AP	100
BRPP	76	ABO	16
DW	88	AEP	88
FAA	92	AWN	100
MIW	96	FPA	96
MWA	80	IM	100
MR	68	KOS	100
MFA	72	LCA	100
MIC	80	MOP	56
PW	92	MF	28
RAPA	96	MFE	28
SZP	100	NNN	56
SHR	64	NMN	80
SVR	100	RTS	100
TSM	80	RNA	80
VES	72	TOY	96
WMM	56	SR	40

Tabel 4.4
The Result of Pre-test Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	19	25	35	100	61.47	6.808
Control	19	20	30	100	46,23	6.061
Valid N (listwise)	19					

Table 4.4 shows the number of students in the experimental group as many as 19 students and the control group as many as 19 students. Based on the table, the highest pre-test score for the experimental class is 100 and the control group is 100. The lowest score for the experimental class is 35 and the control class is 30. The mean value for the experimental class is 61.47 and the control class is 46,23. The standard deviation value for the experimental class is 6.808 and the control class is 6.061.

4. The Result of Post-test

The researcher conducted a post-test after giving treatment to the experimental class and the control class. In this study, the researcher used PBL for the experimental class, namely VIII-A, and the lecture method for the control class, namely VIII-B. The summary results of the post-test scores from the experimental class VIII-A and the control class VIII-B are presented in table 4.5.

Tabel 4.5
Result of Pre-test Experimental Class and Control Class

Experiment Class		Control Class	
Name	Post-test	Name	Post-test
AWL	88	AS	48
AAR	80	APF	56
AAF	88	AP	100
BRPP	84	ABO	36
DW	80	AEP	68
FAA	96	AWN	88
MIW	96	FPA	72
MWA	88	IM	88
MR	84	KOS	88

MFA	48	LCA	92
MIC	92	MOP	52
PW	100	MF	32
RAPA	100	MFE	24
SZP	100	NNN	56
SHR	68	NMN	88
SVR	100	RTS	84
TSM	84	RNA	88
VES	84	TOY	84
WMM	84	SR	16

Tabel 4.6
The Result of Post-test Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Experiment	19	25	45	100	72.57	6.918
Control	19	20	35	100	64,13	6.221
Valid (listwise)	N 19					

Table 4.6 shows the number of students in the experimental group as many as 19 students and the control group as many as 19 students. Based on the table, the highest post-test score for the experimental class is 100 and the control group is 100. The lowest score for the experimental class is 45 and the control class is 35. The mean value for the experimental class is 72.57 and the control class is 64,13. The standard deviation value for the experimental class is 6.918 and the control class is 6.221.

5. Testing Assumptions

Analysis of Covariance (ANCOVA) was used to analyze the data. There are several assumptions that must be met before analyzing data using ANCOVA. Data distribution should be normal, sample variance should be homogeneous, there should be no interaction between pre-test and group, and the relationship between pre-test and post-test should be linear. These assumptions were met as follows:

a. Normality Test Assumptions

The normality test aims to determine whether the data distribution

is distribution is normally distributed or not. Test the normality of data in experimental classes and control classes using the Kolmogorov- Smirnov Z test control class using the Kolmogorov-Smirnov Z test with: H_0 = The significance value of $p < 0.05$ then the data is not normally distributed.

H_1 = The significance value of $p > 0.05$ then the data is normally distributed.

Based on the results of the normality test, the speaking skills of the experimental class and control class can be seen in table 4.7 Table

Tabel 4.7
The result of Normality Test Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest Control	.185	19	.173	.955	19	.380
Pretest Experiment	.152	19	.200*	.983	19	.962
Posttest Control	.174	19	.066	.815	19	.222
Posttest Experiment	.135	19	.051	.900	19	.158

Based on the table above, it can be see that the data in experimental class and control class is distributed normally. The data is normally distributed if significance (sig) value is $0,972 > 0.05$ for pre-test experimental class, $0,480 > 0.05$ for pre-test control class, $0,102 > 0.05$ for post-test experimental class, $0,148 > 0.05$ for post-test control class. Based on the table above, the research data is normally distributed. This can be proven by the results of the Kolmogorov-Smirnov (Shapiro- Wilk) test which shows a significance value greater than 0.05.

b. Homogeneity Variances Assumption

The homogeneity test aims to determine whether the sample

variance is homogeneous or not. The homogeneity test of data in the experimental class and control class was carried out using SPSS 25.

Tabel 4.8
The Result of Homogeneity Test

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
scores	Based on Mean	15.120	1	76	.116
	Based on Median	11.269	1	76	.712
	Based on Median and with adjusted df	11.269	1	70.711	.712
	Based on trimmed mean	14.261	1	76	.101

The basis or guidelines for determining whether a sample is homogeneous or not are:

1. If the significance value or sig. < 0.05 , then it is said that the variance of two or more groups of data populations is not homogeneous.
2. If the significance value or sig. > 0.05 , then it is said that the variance of two or more groups of data populations is homogeneous.
3. Based on the result of homogeneity test above, it is known the all the significance value (sig) of mean is more than 0.05. It can be concluded that value data is same or homogeneous.

6. The Result of ANCOVA Analysis

This part explains the testing of hypothesis using tests of between subject effect to know the different on students reading ability who are taught by using problem based learning. The hypothesis as follows:

- Null Hypothesis (H₀) : There is no significant effect of Problem Based Learning (PBL) on reading comprehension at 8th grade students.
- Alternative Hypothesis (H_a) : There is significant effect of Problem Based

Learning (PBL) on reading comprehension at 8th grade students.

Tabel 4.9
The result of ANCOVA Test

Tests of Between-Subjects Effects						
Dependent Variable: PostTest						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14606.795 ^a	2	7303.397	61.767	.000	.779
Intercept	1801.126	1	1801.126	15.233	.000	.303
PreTest	10726.374	1	10726.374	90.715	.000	.722
class	1255.849	1	1255.849	10.621	.002	.233
Error	4138.468	35	118.242			
Total	240672.000	38				
Corrected Total	18745.263	37				

Based on the Table 4.9 The result of ANCOVA Test. Based on the SPSS output table of the ANCOVA test, the Sig. value is = 0.002, which means it is smaller than α 0.05. Thus, H_0 is rejected and H_a is accepted. So, there is any effect reading comprehension the students after problem based learning implementation.

B. Discussion

The purpose of this research is to find out whether Problem Based Learning (PBL) effective toward students' reading comprehension at the 8th junior high school students. This study found that there is any effect reading comprehension the students after problem based learning implementation. Based on the SPSS output table of the ANCOVA test, the Sig. value is = 0.002, which means it is smaller than α 0.05.

This study was conducted to examine the effectiveness of PBL in improving students' reading comprehension at the 8th grade of junior high school. The findings of this research suggest that PBL is a highly effective instructional model that significantly enhances students' ability to comprehend

English texts. The results are supported by the statistical analysis using ANCOVA, which revealed a significance value of 0.002, indicating that the observed improvement in reading comprehension in the experimental group was not due to chance, and therefore, the null hypothesis is rejected.

In the context of the experiment, students in the experimental group received instruction through the PBL model, while the control group was taught using the conventional lecture method. The pre-test and post-test scores from both groups clearly demonstrate that the PBL approach led to a greater improvement in reading comprehension. The average pre-test score of the experimental group was 61.47, which increased to 72.57 in the post-test. On the other hand, the control group had a pre-test average of 46.23 and a post-test average of 64.13. Although both groups showed improvement, the increase was significantly greater in the group that received PBL instruction, confirming the effectiveness of the model.

The success of PBL in this study can be attributed to several key factors. First, PBL encourages active learning, where students are not passive recipients of information but are instead actively involved in solving problems related to real-life contexts. This kind of learning environment promotes engagement, motivation, and deeper understanding of the material. Students are challenged to collaborate, analyze texts critically, infer meanings, and apply their prior knowledge skills that are essential for reading comprehension. This aligns with the opinion of Glazer (2018), who stated that PBL supports critical thinking and problem-solving within a meaningful context.

Second, the design of the PBL model closely mirrors the competencies

outlined in the Merdeka Curriculum, which emphasizes student-centered learning, creativity, critical thinking, collaboration, and communication (4Cs). In this study, students in the experimental class demonstrated increased autonomy and responsibility for their own learning, characteristics that are essential to meet the goals of 21st-century education in Indonesia

The findings of this study are consistent with previous study by Iskandar Rosyidin et.al, (2022) both studies agree that that students treated using the PBL model were far higher in English reading text comprehension compared to those who were treated using the TBL model. The difference between both studies are the population and the result. In this study there are 38 students, and the result of ANCOVA where in this study the Sig. value is = 0.002, while in previous study there are 44 students and the Sig value for line A was 0.039.

The findings of this study in line with the previous study conducted by Kaganang (2019) Both studies agree that the implementation of PBL has positive impact on the students' reading comprehension. PBL has increased the students' reading scores from collective perspective and individual perspective. This indicates that Problem Based Learning can be considered as an alternative learning model to be implemented in the English Classroom. The differences between both studies are the research method and the number of population. In this study used quantitative method and there are 38 students, while in the previous study used classroom action research or CAR and there are 41 students as sample.

Then, the research conducted by Syahfutra et.al, (2019) both studies agree that that there was significant effect of using PBL strategy on students'

reading comprehension. The differences between both studies are the method and the number of population. In this study uses quantitative method and there are 38 students, while in the previous study used quasi-experimental design which is focused on the non-equivalent control group, and there are 48 students as a sample. In another previous study Muriyah et.al, (2023) both studies agree that using PBL proven to improve the students' reading comprehension. The differences between both studies are the method and the number of population. In this study uses quantitative method and there are 38 students, while in the previous study used quasi-experimental with a 2×4 factorial design to investigate the relationships among variables. The previous study also have bigger sample with totalling 288.

It also in line with the previous study conducted by Intan et.al, (2020) both studies agree that there were significant effect of problem based learning toward students' reading comprehension. 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. The difference between both studies is the population. In this study there are 38 students, while in the previous study have bigger population with totalling 72.