CHAPTER IV

RESEARCH FINDING AND DISCUSSION

In this chapter, the researcher presented the common description of the students' score both of experiment and control class. In this research, 72 students from tenth grade of SMA Negeri 1 Tahunan Jepara in the academic year of 2020/2021 are invited as the respondents. They were consist of 36 students as the experimental group, who are taught using Problem-Based Learning and 36 students as the control group, who are taught using Project-Based Learning. There were several parts described by the researcher, they were test validation, pre test, post test and data analysis. Students' pre test and post test score in experiment and control class were used by the resarcher to sollect the data. The pre test was given to the students in the experiment and control class in the previous meeting. The resulted of students' pre test score showed the students' basic skill in writing recount text both of two classes. The post test was given by the researcher after treatment in three times to experiment class by applying problem-based learning method and control class by applying project-based learning method.

4.1. Findings

4.1.1. Test of Instrument Validity

Table 4.1 The Result of Test validation

No	Aspect	Expert 1		Expert 2	
			No	Yes	No
1	Is the instrument appropriate with the basic competencies and indicators for the tenth	√		√	

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	Grade students in the first semester?					
2	Does the material include to the grade level?	√		√		
3	Are the question directions clear for the students?	√		√		
4	Are the question directions appropriate to the aspects that will be measured?	√		√		

Validity is used by the reseacher to measure the reserach instrument. It was an important thing of the effective research because the research may be worthless if a piece of research is invalid. In this research, content and construct validity were used by the researcher. Then, the researcher asked the English teacher of SMA Negeri 1 Tahunan Jepara as the expert to test the research instrument before the test was given to the students. According to the table above, the test validation result showed that the experts allowed the researcher to test the research instrument. So, the conclusion were the research instrument was valid and it could be used to pre test and post test.

4.1.2. The Normality Result of Pre-Test and Post-Test

Normality test was used to to determine whether the data obtained is normally distributed or not. According to Sujianti as cited in As'ari (2018:11), the data was normal when the significant value was greater than 0,05 (p > 0,05). Then, the data was called not normal if the significant value was under 0,05 (p < 0,05). From the table above, it showed that the significant value of pre test in experimental and control class was 0,200

(pvalue = 0.200). It meant that the data was normal because the significant value was higher than 0,05. Normality test is intended to determine whether the research data came from a normal distributed or not. The calculation using SPSS 25.0 can be seen as following table 4.2 and 4.3.

Table 4.2 The Normality of Pre-Test

		Unstandardized Residual
N		36
Normal Parameters[a,b]	**Mean**	,0000000
	Std. Deviation	6,64526930
Most Extreme Differences	**Absolute**	,101
	Positive	,101
	Negative	-,098
Test Statistic		,101
Asymp. Sig. (2-tailed)		,200[c,d]

1. Test distribution is Normal.

2. Calculated from data.

3. Lilliefors Significance Correction.

4. This is a lower bound of the true significance.

Based on the table One-Sample Kalmogorov-Smirnov Test above, it can be seen that the data distributed normal because Asymp.Sig. (2-tailed) > 0,05. Based on the table above 0,200 > 0,05 it can be concluded that the data was normal distributed.

Table 4.3 The Normality of Post-Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		36
Normal Parameters[a],[b]	Mean	,0000000
	Std. Deviation	6,64526930
Most Extreme Differences	Absolute	,101
	Positive	,101
	Negative	-,098
Test Statistic		,101
Asymp. Sig. (2-tailed)		,200[c],[d]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Based on the table One-Sample Kalmogorov-Smirnov Test above, it can be seen that the data distributed normal because Asymp.Sig. (2-tailed) > 0,05. Based on the table above 0,200 > 0,05 it can be concluded that the data was normal distributed.

4.1.3. The Homogeneity Result of Pre-Test and Post-Test

Homogeneity analysis is used to know the assumption between two sample groups which have the same variant (homogenous). It is used to decide whether some variants of population are similar or not. The data is called homogeneous if the significant value higher than 0,05. Then, the data is not homogenous when the significant value is lower than 0,05. Homogeneity test is used to determine whether the data has homogeneous variant. By using the Homogeneity Test of Varience test on the One-way Anova through SPSS 25.0. If the significant > 0,05 then the data is homogeneous. It can be seen on the table 4.4 and 4.5.

Table 4.4 The Homogeneity of Pre-Test

Levene Statistic		df1	df2	Sig.
Based on Mean	,546	1	62	,463
Based on Median	,760	1	62	,387
Based on Median and with adjusted df	,760	1	61,897	,387
Based on trimmed Mean	,521	1	62	,473

From the results of the calculation homogeneity test on the table above by using Levene's test, it was known based on mean that the significance value is 0.463. Because the value obtained from the homogeneity test with a significance level of ≥ 0.05, the data had the same/not different (homogeneous) variant values. Furthermore, data analysis was carried out using the Independent Sample T-test.

Table 4.5 The Homogeneity of Post-Test

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Based on Mean	9,022	1	70	,004
Based on Median	8,508	1	70	,005
Based on Median and with adjusted Df	8,508	1	69,055	,005
Based on trimmed mean	9,131	1	70	,004

ANOVA					
Result					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	130,681	1	130,681	3,502	,065
Within Groups	2612,194	70	37,317		
Total	2742,875	71			

From the calculation homogeneity above, the significant value of the data was 0,065. It was higher than 0,05. So, it could be conclude that the data was homogenous.

4. 2. The Effect of Problem-Based Learning on the Students' Writing Skill

To know the result of the test (pre-test and post-test), the researcher showed the table of students' score of the students taught by using problem-based learning. It showed the students' result in pre-test and post-test scores.

4.2.1. Pre-test and Post-test Scores

In this part, the data of the pre-test and post-test score of the students taught by using problem-based learning and taught by using project-based learning is provided. Table 4.6 below showed the pre-test and post-test score of the students taught by using problem-based learning.

Table 4.6 Pre-Test and Post-Test Scores of the Students Taught by Using Problem-Based Learning

No	Students' Initial Name	Pre - Test (X MIPA 1)	Pos-Test (X MIPA 1)
1	ARI	63	80
2	ARF	57	85
3	AFA	56	81
4	ASM	51	75
5	ASA	61	80
6	|AABS	53	90
7	AENF	57	81
8	BKS	75	82
9	BSI	56	83
10	DZO	60	78
11	DRA	59	79
12	EPP	57	86
13	FAG	55	91
14	IRA	53	87
15	KMLS	60	92
16	KZ	59	79
17	LAH	56	87

18	MARA	56	75
19	MDFh	55	77
20	MDF	59	76
21	MDWS	58	78
22	MNNI	57	98
23	MLN	56	97
24	MA	57	94
25	NC	73	83
26	NKI	58	84
27	NYA	58	82
28	PA	57	91
29	SA	56	81
30	SWM	60	79
31	SP	57	92
32	SFW	55	83
33	SA	56	93
34	UALS	57	79
35	WSS	60	79
36	WDT	65	81
	SUM	2098	3018
	MEAN	58,2778	83,833

Based on the pre-test and post-test scores of the tables, it can be explained that the mean score of students before taught by using problem-based learning (pre-test) was 58,2778, while the mean score of students after taught by using problem-based learning (post-test) was 83,8333. The minimum pre-test score of the students taught by using problem-based learning was 51 and maximum score was 75, while the minimum post-test score of the students taught by using problem-based learning class was 75 and maximum score was 98. It can be concluded that the students' scores of the post-test better than pre-test score.

4. 2.2. Dependent T-Test (Paired Samples T-Test) by Using Problem-Based Learning

The Dependent Sample T-Test is is to compares two means that are from the same individual, object, or related units.. The hypothesis testing criteria was as follows:

1. If value Sig (2-tailed) < 0,05, so there is a significant.

2. If value Sig (2-tailed) > 0,05, so there is no significant.

The data of the students' test was analyzed by using dependent t-test (Paired Samples T-Test) to prove whether there was any significant difference between the writing before and after being taught by using problem-based learning and students taught by using problem-based learning. Furthermore, the significance of the test was analyzed using Statistical Product and Service Solution (SPSS) computer programmed 25. Table 4.8 below showed paired samples t-test pre-test and post-test score of the students taught by using problem-based learning.
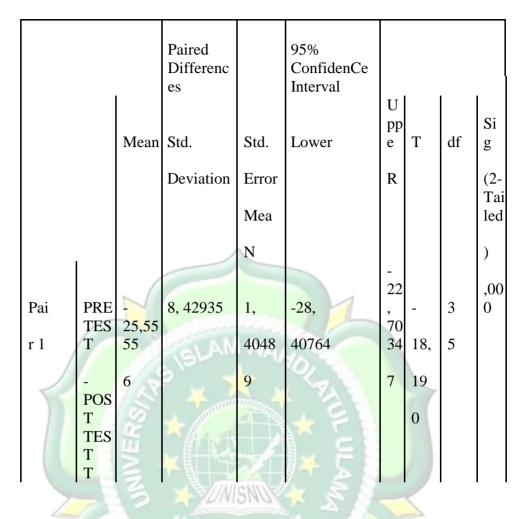
Table 4.7 Paired Samples T-Test Pre-Test and Post-Test Scores of the

Students Taught by Using Problem-Based Learning

Paired Samples Statistics Pre-Test and Post-Test Experimental

Group (Problem-Based Learning)

		Mean	N	Std Deviation	Std. Err or Mean
Pair 1	PRE TEST	58,2778	36	4,70629	,78438
	POST TEST	83,8333	36	6,28149	1,04692

| | | | Paired Differences | | 95% ConfidenCe Interval | | | | |
		Mean	Std. Deviation	Std. Error MeaN	Lower	Uppe R	T	df	Sig (2-Tailed)
Pair 1	PRETEST - POSTTEST T	-25,5556	8, 42935	1, 40489	-28, 40764	-22, 70347	-18, 190	35	,000

Based on the result, pre-test and post-test that were different. The mean score of students before taught by using problem-based learning (pre-test) was 58,2778 while the mean score of students after taught by using problem-based learning (post-test) wast 83. In addition, the two-tailed value of p was 0,000 which was lower than 0,05. In conclusion, the calculation of paired t-test showed that there was a significant difference between the students' writing skill before and after being taught by using problem-based learning .It can be concluded that the use of problem-based learning as treatment for teaching recount text can improve students' ability in writing. It concluded that there was a significant differences between the writing

skill of the students of SMA Negeri 1 Tahunan Jepara before and after being taught by using problem-based learning.

4.3. The Effect Project-Based Learning

To know the result of the test (pre-test and post-test), the researcher showed the table of students' score of the students taught by using project-based learning. It showed the students' result in pre-test and post-test scores.

4.3.1 Pre-test and Post-test Scores on The Students' Writing Skill

In this part, the data of the pre-test and post-test score of the students taught by using problem-based learning and taught by using project-based learning is provided. Table 4.7 below showed the pre-test and post-test score of the students taught taught by using project-based learning.

Table 4.7 Pre-Test and Post-Test Scores of the Students Taught by Using Project-Based Learning

No	Students' Initial Name	Pre-Test (X MIPA 2)	Post-Test (X MIPA 2)
1.	ABA	63	80
2.	ATWM	57	85
3.	AM	57	87
4.	AAMF	78	75
5.	AT	59	87
6.	AD	54	90
7.	AQN	57	81
8.	APW	78	82
9.	ADK	67	83
10.	AN	65	78
11.	ARA	65	79
8.	APW	78	82
9.	ADK	67	83

10.	AN	65	78
11.	ARA	65	79
12.	CDA	52	86
13.	DCO	57	91
14.	DAB	50	87
15.	DA	65	93
16.	EPF	74	79
17.	FCI	65	87
18.	GAP	52	75
19.	HF	60	77
20.	IHNK	53	76
21.	IN	60	78
22.	LS	54	98
23.	MAAM	72	97
24.	MCS	57	94
25.	MDA	70	83
26.	MFS	55	84
27.	MZMB	64	82
28.	NSW	62	91
29.	NFA	51	81
30.	PAR	62	79
31.	RFJ	55	92
32.	RPR	65	83
33.	SNJ	60	93
34.	SYL	55	79
35.	SDPF	65	79
36	ZS	60	81
	SUM	**2195**	**3032**
	MEAN	**60,9722**	**84,2222**

Based on the pre-test scores of the tables, it can be explained that the mean score of students before taught by using project-based learning (pre-test) was 60,9722, while the mean score of students after taught by using project-based learning (post-test) was 84,2222. The minimum pre-test score of the students taught by using project-based learning was 50 and maximum

score was 78, while the minimum post-test score of the students taught by using project-based learning was 75 and maximum score was 98. It can be concluded that the students' scores from the post-test better than pre-test scores.

4. 3.2. Dependent T-Test (Paired Samples T-Test) by Using Project Based Learning

The Dependent Sample T-Test is is to compares two means that are from the same individual, object, or related units.. The hypothesis testing criteria was as follows:

1. If value Sig (2-tailed) < 0,05, so there is a significant.

2. If value Sig (2-tailed) > 0,05, so there is no significant.

The data of the students' test was analyzed by using dependent t-test (Paired Samples T-Test) to prove whether there was any significant difference between the writing skill before and after being taught using by project-based learningin students taught without using project-based learning. Furthermore, the significance of the test was analyzed using Statistical Product and Service Solution (SPSS) computer programmed 25. Table 4.8 below showed paired samples t-test pre-test and post-test score of the students taught by using project-based learning.

Table 4.8 Paired Sample T-Test Pre-Test and Post-Test Scores of

The Students Taught by Using Project-Based Learning

	Mean	N	Std. Deviation	Std. Error Mean	
	60,9722	36	7,24465	1,20744	
	84,2222	36	6,30243	1,05041	

		Paired Differen Ces		95% Confide nce Interval				
	Mean	Std. Deviatio N	Std. Error Mean	Lower	Upper	T	df	Sig (2-tail e d)
PRE TES T-POS T TES	- 23,25 000	10,349 26	1,724 88	- 26,751 69	- 19,74 831	- 13,4 79	3 5	,00 0

Based on the result, pre-test and post-test were different. The mean score of pre-test was 60,9722 while the mean score of post-test was 84,2222. It can be concluded that the post-test was higher than the pre-test.. In addition, the two-tailed value of *p* was 0,000 which was lower than 0,05. In conclusion, the calculation of paired t-test showed that there was a significant difference between the students' writing skill before and after being taught by using project-based learning. It can be concluded that the use of can project-based learning as treatment in teaching recount text to improve students' ability in writing (recount text using project-based learning) was effective. It

can be concluded that after being taught by using project-based learning the students' writing skill was improved. It meant that there was a significant differences between the writing skill of the students of SMA Negeri 1 Tahunan Jepara before and after being taught by using project-based learning.

4.4 The Difference between The Students Writing Skill Taught by Using Problem-Based Learning and Project-Based Learning

4.4.1. Independent T-Test Pre-Test and Independent T-Test Post-Test

The Independent Sample T-Test is also known as the two-sample T-Test. The purpose of this two-sample t-test is to compare the means for two different populations that have previously been grouped according to the case being researched. Independent Sample T-test is to take a decision whether the research hypothesis is accepted or rejected. The hypothesis testing criteria was as follows:

1. If (to) > (tt) the alternative hypothesis (ha) is accepted and the null hypothesis (ho) is rejected.

2. If (to) < (tt), the alternative hypothesis (ha) is rejected and the null hypothesis (ho) is accepted.

Table 4.10 Independent Samples T-Test Pre-Test
Group Statistics

	Class	N	Mean	Std. Deviation	Std. Error Mean
Result	Mipa 1 (Experimental)	36	58,2778	4,70629	,78438
	Mipa 2 (Control)	36	60,9722	7,24465	1,20744
	Levene 's Test	t-test for		t-test For	

		For Equality of Variances		Equality of Means						
		F	Ces Sig.	s T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference Nce	95% Confidence Interval of the Difference Ce Lower	95% Confidence Interval of the Difference Ce Upper
Has il	Equal varian ces assum ed	,009	, - 1,871	- ,26 2	70	,794	-,38889	148,303		- 334,670
	Equal varian ces not assum ed			-1,871	- ,26 2	69,9 99	,794	-,38889	148,303	- 334,670

The table above showed that the mean score of pre test in experimental class was 58,2778 with the total students was 72. In the other hand, the mean score of pre test in control class was 60,9722 with the total students was 36. The standard deviation in experimental class was 4,70629 and control class was 7,24465. Then, the standard error in experimental class was ,78438 and control class was 1,20744.

According to the table data above, the line equal variances assumed could be seen that the t-test was -1,871, df got 70, mean difference was 0, 794 difference in standard error was -,38889, the lowest pre test difference was 1,43985 and the highest was -3,34670. In this research, ttable was used to determine the significance level of the difference. Because the df (degree

freedom) value was 70 and the level of significant was 0,05, the value of ttable was 2,000.

According to the results of measurement, it could be seen that the value of ttest was -1,871 < ttable 2,000. It meant that the null hypothesis was accepted and the alternative hypothesis was rejected because the value of ttest < ttable. So, it could be concluded that there is no significant difference between the writing skill of the experimental group and control group. It means that they have the same level of writing skill.

Table 4.11 Independent Samples T-Test Post-Test

Group Statistics					
	Class	N	Mean	Std. Deviation	Std. Error Mean
Result	Class Mipa 1	36	83,8333	6,28149	1,04692
	Class Mipa 2	36	84,2222	6,30243	1,05041

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower
Result	Equal variances assumed	,009	,927	-,262	70	,794	-,38889	1,48303	-3,34670

		-,262	69,999	,794	-,38889	1,48303	-3,34670
Equal variances not assumed							

The data above explained that the mean score of post-test in experimental class promblem-based learning the other hand, the mean score of post-test in control class (project-based learning) was 83,8333 with the total students was 36. In the other hand, the mean score of post-test in control class (project-based learning) 84,2222 with the total students was 36. The standard deviation in experiemental class (problem-based learning) was 6,28149 and control class (project-based learning) was 6,30243. Then, the standard error in experimental class was , 1,04692 and control class was 1,05041.

According to the data above, the line equal variances assumed could be seen that the t-test was 0,000, df got 70, mean difference was -,38889, difference in standard eror was 1,48303, the lowest post test difference was -3,34670 and the highest 2,56892. In this research, t-table was used to determine the significance level of the difference. Because the df (degree freedom) value was 70 and the level of significant 0,05, the value of t-table was 2,000.

After getting the data by using t-test formula, it proved the result of the hypothesis. According to the results of measurement, it could be seen that the value of t-test was -262 < t-table 2,000. It meant that the null hypothesis was accepted and the alternative hypothesis was rejected because the value of t-test < t-table. Therefore, there is no significant difference between the writing skill of the students taught by using problem-based learning and project-based

learning. So, it could be concluded that problem-based learning (Experimental Class) and Project-based learning (Control Class) were effective technique at the tenth grade students of SMA Negeri 1 Tahunan Jepara in the academic year 2020/2021.

4.5. Discusion

The first research question concerned on whether the Problem-Based Learning give significant effect the students' writing skill especially recount text. Based on the result to answer number one the question, the students score taught by using problem-based learning scores on post-test were better in which the mean is 83,8333 than their scores on pre-test was 58,2778. In addition, the two-tailed value of p was 0,000 which was lower than 0,05. It meant that were a significant difference between the students' writing skill before and after being taught using problem-based learning. It concluded that were a significant difference between the students' writing skill before and after being taught using problem-based learning in improving students' writing skill in recount text of tenth grade students' of SMA Negeri 1 Tahunan Jepara. In conclusion, the calculation of paired t-test showed that were a significant difference between the students' writing skill before and after being taught using problem-based learning. It can be concluded that after being taught by using the students' writing skill was improved. It meant that there was significant effect of using problem-based learning to improve students' writing skill at tenth grade of SMA Negeri 1 Tahunan Jepara in the academic year 2020/2021. Problem-Based Learning could improve the students' writing skill (Jumariati and Sulistyo, 2017) Problem-Based Learning could increase the

students. Writing skill. In addition, the Problem-Based Learning activities provided more knowledge about English in learning process. The activities of Problem-Based Learning also more effective in improving students in the writing skil and positive developments in teaching (Rozy, Suwandi, and Widodo, 2019).

The second research question concerned on whether the Project-Based Learning was significant effect the students' writing skill especially recount text. Based on the result to answer the question, the students' scores by using project-based learning on post-test that were better in which the mean was 84,2222 than their scores on pre-test the mean was 60,9722. In addition, the two-tailed value of p was 0,000 which was lower than 0,05. It meant that were a significant difference between the students' writing skill before and after being taught using project-based learning. In conclusion, the calculation of paired t-test showed that were a significant difference between pre-test and post-test. It concluded that were a significant difference between the students' writing skill before and after being taught using project-based learning in improving students' writing skill in recount text of tenth grade students' of SMA Negeri 1 Tahunan Jepara. According to (Syarifah and Emiliasari, 2019) Project-Based Learning could increase the students writing skill. In addition, the Project-Based Learning activities provided more knowledge about English in learning process. The activities of Project-Based Lea more effective in improving students in the writing skill and positive developments in teaching (Harisma, Ilmiah, and Yana, 2019).

The last research question concerned on the significant difference between the students' writing skill taught by using problem-based learning and project-based learning. Based on the result to answer the question it explained that the data explained that the mean score of post-test in experimental class was 83,8333 with the total students was 36. In the other hand, the mean score of post-test in control class (project-based learning) 84,2222 with the total students was 36. The standard deviation in experiemental class (problem-based learning) was 6,28149 and control class (project-based learning) was 6,30243. Then, the standard error in experimental class was , 1,04692 and control class was 1,05041, according to the table data above, the line equal variances assumed could be seen that the t-test was 0,000, df got 70, mean difference was -,38889, difference in standard eror was 1,48303, the lowest post test difference was -3,34670 and the highest 2,56892. In this research, ttable was used to determine the significance level of the difference. Because the df (degree freedom) value was 70 and the level of significant 0,05, the value of ttable was 2,000. After getting the data by using t-test formula, it proved the result of the hypothesis. According to the results of measurement, it could be seen that the value of t-test was -262 < t-table 2,000. It meant that the null hypothesis was accepted and the alternative hypothesis was rejected because the value of t-test < t-table. It means that there is no significant difference between the students' writing skill taught by using problem-based learning and project-based learning. So, it could be concuded that problem-based learning (Experimental Class) and Project-based learning (Control Class) were effective

technique at the tenth grade students of SMA Negeri 1 Tahunan Jepara in the academic year 2020/2021

Both Problem-Based Learning and Project-Based Learning could improve the students' writing skill. It is in live with the statement that the activities of Problem-Based Learning and Project-Based Learning also more effective in increase students in the writing skill and positive developments in teaching (Harisma, Ilmiah, and Yana, 2019).