

CHAPTER IV

RESULT OF RESEARCH AND DISCUSSION

This chapter discuss about research finding and discussion, research finding present the data that gotten from spending the instruments of research that is test and documentation. There are some point which is to be explained, that are presentation of data, hypothesis testing and discussion of finding.

A. Presentation of Data

As stated in the previous chapter there is two research problems of this study. The problems are whether any effect of cooperative learning strategies on reading comprehension for the eighth grade students of SMPN 2 Larangan Pamekasan and to measure the significance of cooperative learning strategies on reading comprehension for the eighth grade students of SMPN 2 Larangan Pamekasan.

After collecting the data the researcher needs the next is the presentation of data. The researcher has to presents the data to know the comparison of both variables as including independent and dependent variables after computing all of the data during the researcher process as a form of result. The researcher use test and documentation as instruments to collecting the data. Data will be described as the data that the researcher got during the research process. That is the result of test and documentation data as a method to collect the data related to variable X (Cooperative Learning) and variable Y (Reading Comprehension).

1. Result of Test

Population of this research is the eighth-grade students of SMPN 2 Larangan Pamekasan, but the researcher only took (VIII-E Class consists of 20 students as a sample from 136 population). These results are obtained from the use of purposive sampling.

In this part, as the researcher stated in the previous chapter, the test is used to measure student's Reading Comprehension by Cooperative Learning strategies from the score of the test. The form of the test is multiple-choice items which consist of 10 questions about narrative text. The researcher gives 10 score of the correct answer and gets 0 score of the wrong answer. If respondents answer the question correctly they get 100 score.

So, the answer from the respondents will be scored by Uji paired sample t-test and the data must be valid and reliable, to know the validity of the data the researcher uses content validity.

1. The Presentation of Pre-test Scores

The researcher got the data by distributing the test to E class of SMPN 2 Larangan Pamekasan. The researcher was held on February 2021 at 08.00 up to February 2021. The student's test scores are displayed in Table 1 below:

Table 4.1
Result of Pre-test Score

No	Correspondents	Pre-test Scores
1.	Ade	70
2.	Aditya	60
3.	Afifatur	50

4.	Annisa	80
5.	Bunga	80
6.	Durrotun	90
7.	Eka	60
8.	Elmiatus	80
9.	Erik	50
10.	Ifam	60
11.	Imamatur	70
12.	Intan	80
13.	Imamatur	70
14.	Karim	60
15.	Daniel	60
16.	Rosi	50
17.	Sunardi	90
18.	Yoga	50
19.	Nabila	80
20.	Nia	50
SUM		1330

Based on the table above, it can be known that there are twenty students. The first column is the number of the students, the second column is the nickname of students and the third column is the table of pre-test scores. It is found that the total t-test score of students' reading comprehension in Cooperative Learning is 1330 scores without giving the treatment.

From the table above, there are many various scores. Students who get scores above 80 are 7 students, it is called good comprehension, and students who get scores under 70 are 13 students and it is called weak comprehension.

2. The Presentation of Post-test Score

After the researcher giving treatment of Cooperative Learning strategies for one week. The researcher conducted the post-test in testing reading comprehension to collect the score after treatment were presented in the table as follow:

Table 4.2
Result of Post-test Score

No	Correspondent	Post-Test Score
1.	Ade	80
2.	Aditya	80
3.	Afifa	100
4.	Annisa	100
5.	Bunga	100
6.	Durrotun	100
7.	Eka	80
8.	Elmiatus	100
9.	Erik	80
10.	Ifam	80
11.	Imamatur	80
12.	Intan	100
13.	Isti	90

14.	Karim	90
15.	Daniel	80
16.	Rosi	80
17.	Sunardi	100
18.	Yoga	80
19.	Nabila	90
20.	Nia	80
SUM		1770

Based on the table above, it can be known that there are twenty students. The first column is the number of students, the second column is the nickname of students, and the third column is the post-test scores. It is found that the total scores of student's reading comprehension in cooperative learning are 1770 scores after the teacher gave treatment.

From the table above, there are many various scores. Students who get scores above 90 are 10 students, it is called good comprehension. And students who get scores under 80 are 10 students, it is called weak comprehension in reading text.

a. Validity of Test

The validity use to measure how far the instruments especially test instruments is valid or not. To check the validity of test, the researcher identifies the test the researcher used. The researcher identifies whether the test is appropriate to the students or not. The researcher used content validity to measure students ' reading comprehension. The researcher asked the student's teacher how to made the test in every indicator. Before conducting the test, the researcher explains clearly to students about the instruction of the test. Based on

Donald Ary that the content validity like to look at the material covered the wording of the question and the adequacy of the sample of items to measure the achievement in question.¹ The researchers make a test appropriate for the material given by the teacher. So, the test the researcher given to the students is valid.

The result of the test is a numerical score, so the researcher use dependent t-test. Before testing validity of test, researcher will present the table coefficient value of correlation “r” product moment, that is:

Table 4.3
Table of Coefficient Value of Correlation “R” Product Moment²

	The distribution value r_{table}
Significance	5%
N	20
r_{table}	0,423

To test the validity of test, the researcher uses SPSS 20 that is:

Table 4.4
Testing of Validity Pre-test
Correlations

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	XX
Pearson											
X1 Correlation	1	.105	.509 [*]	-.192	-.272	-.218	-.333	-.302	.302	-.140	.037
Sig. (2-tailed)		.660	.022	.416	.246	.355	.151	.196	.196	.556	.877

¹ Donal Ary et all, *Introduction to Research in Education*, eighth (Wadsworth Cengage Learning, 2010), P. 226.

² Anas Sudijono, *Pengantar Statistik Pendidikan*, (Jakarta: Rajawali Press, 2014), P. 206.

	N	20	20	20	20	20	20	20	20	20	20	20
X2	Pearson Correlation	.105	1	-.023	.061	.043	.435	-.105	.179	.242	-.015	.663**
	Sig. (2-tailed)	.660		.924	.800	.858	.055	.660	.450	.303	.951	.001
	N	20	20	20	20	20	20	20	20	20	20	20
X3	Pearson Correlation	.509*	-.023	1	-.126	-.312	.048	-.436	-.154	.592**	-.275	.234
	Sig. (2-tailed)	.022	.924		.597	.181	.842	.054	.518	.006	.241	.321
	N	20	20	20	20	20	20	20	20	20	20	20
X4	Pearson Correlation	-.192	.061	-.126	1	-.236	.630**	-.115	-.058	.058	.081	.363
	Sig. (2-tailed)	.416	.800	.597		.317	.003	.628	.808	.808	.735	.116
	N	20	20	20	20	20	20	20	20	20	20	20
X5	Pearson Correlation	-.272	.043	-.312	-.236	1	-.089	.204	-.123	-.287	.229	.091
	Sig. (2-tailed)	.246	.858	.181	.317		.709	.388	.605	.220	.332	.704
	N	20	20	20	20	20	20	20	20	20	20	20
X6	Pearson Correlation	-.218	.435	.048	.630**	-.089	1	-.436	.285	.154	.031	.638**
	Sig. (2-tailed)	.355	.055	.842	.003	.709		.054	.223	.518	.898	.002
	N	20	20	20	20	20	20	20	20	20	20	20
X7	Pearson Correlation	-.333	-.105	-.436	-.115	.204	-.436	1	.101	-.302	.140	-.037
	Sig. (2-tailed)	.151	.660	.054	.628	.388	.054		.673	.196	.556	.877
	N	20	20	20	20	20	20	20	20	20	20	20
X8	Pearson Correlation	-.302	.179	-.154	-.058	-.123	.285	.101	1	-.394	.464*	.361
	Sig. (2-tailed)	.196	.450	.518	.808	.605	.223	.673		.086	.039	.118

	N	20	20	20	20	20	20	20	20	20	20	20
X9	Pearson											
	Correlation	.302	.242	.592**	.058	-.287	.154	-.302	-.394	1	-.464*	.309
	Sig. (2-tailed)	.196	.303	.006	.808	.220	.518	.196	.086		.039	.186
	N	20	20	20	20	20	20	20	20	20	20	20
X10	Pearson											
	Correlation	-.140	-.015	-.275	.081	.229	.031	.140	.464*	-.464*	1	.306
	Sig. (2-tailed)	.556	.951	.241	.735	.332	.898	.556	.039	.039		.190
	N	20	20	20	20	20	20	20	20	20	20	20
XX	Pearson											
	Correlation	.037	.663**	.234	.363	.091	.638**	-.037	.361	.309	.306	1
	Sig. (2-tailed)	.877	.001	.321	.116	.704	.002	.877	.118	.186	.190	
	N	20	20	20	20	20	20	20	20	20	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4.5
Calculation of The Post-test Scores

Correlations

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	XX	
X1	Pearson											
	Correlation	1	.105	.509*	-.192	-.272	-.218	-.333	-.302	.302	-.140	.037
	Sig. (2-tailed)		.660	.022	.416	.246	.355	.151	.196	.196	.556	.877
	N	20	20	20	20	20	20	20	20	20	20	
X2	Pearson											
	Correlation	.105	1	-.023	.061	.043	.435	-.105	.179	.242	-.015	.663**

	Sig. (2-tailed)	.196	.303	.006	.808	.220	.518	.196	.086		.039	.186
	N	20	20	20	20	20	20	20	20	20	20	20
X10	Pearson Correlation	-.140	-.015	-.275	.081	.229	.031	.140	.464 [*]	-.464 [*]	1	.306
	Sig. (2-tailed)	.556	.951	.241	.735	.332	.898	.556	.039	.039		.190
	N	20	20	20	20	20	20	20	20	20	20	20
XX	Pearson Correlation	.037	.663 ^{**}	.234	.363	.091	.638 ^{**}	-.037	.361	.309	.306	1
	Sig. (2-tailed)	.877	.001	.321	.116	.704	.002	.877	.118	.186	.190	
	N	20	20	20	20	20	20	20	20	20	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

To know which item of the test is valid or not, we must see the r table. In this research, the total of students is 20 students. The researcher uses a significance of 5%, and the r_{table} is 0,423. Based on the data above, all item of test are valid because the value pearson correlation is higher than r_{table} .

b. Reliability of Test

After, the test of validity is provable, the researcher determining the reliability. In checking the reliability of the instruments of this research, the researcher uses the SPSS application for calculating the result of the test with the Cronbach Alpha formula because it is suitable to measure the test is reliable or not. We must know the level of significance and r_{table} , that is:

Table 4.6

Table of Coefficient Value of Correlation “R” Product Moment

	The distribution value r_{table}
Significance	5%
N	20
r_{table}	0,423

To measure the reliability of test, the researcher uses SPSS 20 to make the researcher easier and decimate misinterpretation, are as follow:

Table 4.7

Reliability of Pre-Test

Case Processing Summary

	Valid	20	100.0
Cases	Excluded ^a	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Table 4.8

Reliability Statistic

Cronbach's Alpha	N of Items
.518	11

Table 4.9

Item Total Statistic

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
X1	124.00	772.632	-.074	.540
X2	126.50	613.421	.545	.418
X3	126.00	730.526	.066	.526
X4	125.50	699.737	.213	.496
X5	127.00	769.474	-.091	.560
X6	126.00	625.263	.519	.427
X7	128.00	806.316	-.217	.587
X8	127.50	693.421	.186	.501
X9	128.50	708.158	.130	.514
X10	124.50	720.789	.179	.505
XX	66.50	192.368	1.000	-.128 ^a

From the output, the researcher gets the reliability of pre-test score = 0,518. To know the test is reliable or not, the researcher compares the value. To know the researcher look for the degree of freedom by formula as below:

$$df = N - nr = 20 - 2 = 18$$

df: degrees of freedom

N: Number of cases

nr: a total variable that is correlated. nr = 2

According to level significance 5%, the critical value is 0,444. Because coefficient Alpha that 0,518 are significantly higher than r-table (0,518.> 0,444). So, the researcher states the data in the pre-test are reliable.

Table 4.10
Reliability of Post-Test

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded ^a	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure

Table 4.11

Reliability Statistic

Cronbach's Alpha	N of Items
.548	11

Table 4.12

Item Total Statistics

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Y1	168.50	308.158	.209	.529
Y2	170.00	263.158	.414	.467
Y3	168.50	308.158	.209	.529
Y4	167.00	348.421	.000	.554
Y5	167.00	348.421	.000	.554
Y6	168.50	350.263	-.111	.599
Y7	167.00	348.421	.000	.554
Y8	167.00	348.421	.000	.554
Y9	171.00	251.579	.449	.451

Y10	167.00	348.421	.000	.554
YY	88.50	87.105	1.000	-.007 ^a

From the output, the researcher gets the reliability coefficient of post-test = 0,548. The numbers use to be consulted in r table. The number of the sample = 20, it means N= 20, and degree of freedom (N- nr), df = (20-2), df= 18. According to significance 5%, the critical value in the r-table is 0,444. Because coefficient Alpha that 0, 548 are significantly higher than r-table in significance 5%. So, (0, 548 > 0, 444) the test is reliable.

2. Result of Documentation

The data were obtained from documentation are as follow:

- a. The eighth grade students of VIII-E Class consist of 20 students name list of SMPN 2 Larangan.

NO	NAME OF STUDENT
1.	ADE ZAHWA N
2.	ADITYA RAMADHAN
3.	AFIFATUR RAHMAH
4.	ANNISA DESTY IMANI
5.	BUNGA FADIYAH
6.	DURROTUN NASHIHAH
7.	EKA SULISTIA RAMADHAN
8.	ELMIYATUS SHOLEHAH

9.	ERIK SETIAWAN ABRORI
10.	IFAM ANTRAKUSUMA B.
11.	IMANATUR ROSYIDAH
12.	INTAN TRIYANA
13.	ISTI FADHOTUL KHOIRON
14.	KARIM ABDUL JABBAR
15.	MOH DANIEL HANIF A.M
16.	MOH FACHRUR ROSI
17.	MOH SUNARDI YANTO
18.	MUHAMMAD YOGA P.
19.	NABILA NURY SEPTANIA
20.	NIA RAMADHANI

b. Students' scores of pre-test and post-test

Table 4.13
Table of Pre-test and Post-test Score

No.	Correspondents	PRE - TEST	POST-TEST
1.	Ade Zahwa	70	80
2.	Aditya Ramadhan	60	80
3.	Afifatur Rahmah	50	100
4.	Annisa Desty Imani	80	100
5.	Bunga Fadiyah	80	100
6.	Durrotun Nasihah	90	100
7.	Eka Sulistia Ramadhan	60	80

8.	Elmiyatus Sholehah	80	100
9.	Erik Setiawan Abrori	50	80
10.	Ifam Antrakusuma B.	60	80
11.	Imanatur Rosyidah	70	80
12.	Intan Triyana	80	100
13.	Isti Fadhotul Khoiron	60	90
14.	Karim Abdul Jabbar	60	90
15.	Moh Daniel Hanif A.M	60	80
16.	Moh Fachrur Rosi	50	80
17.	Moh Sunardi Yanto	90	100
18.	Muhammad Yoga P.	50	80
19.	Nabila Nury Septania	80	90
20.	Nia Ramadhani	50	80

- c. The photos for collecting the test
- d. Lesson plan
- e. Teaching Learning Activities of Cooperative Learning Strategies, collecting data with students photos.

After the researcher counted the score of pre-test and post-test, researcher through to data analysis.

3. Data Analysis

After measuring the instruments, the researcher needs to analyze the scores to statistical form. The researcher used independent t-test which include score of students. Before analyze by using paired sample t-test, there are normality test as follow.

a. Normality Test

Normality test is use to ensure the data for each variable analyzed is normally distributed. Based on the assumption that parametric statistics work based on the normality data which will be analyzed from each variable.

The researcher used One Sample Kolmogrov Smirnov to measure the normality of the data through SPSS 20 by using a significance level 5%. If the significance value is more than 0,05, the residual value is normally distributed. On the contrary, if the significance value is less than 0,05, the value is not normally distributed. The calculation of normality test as follow:

Table 4.14

**Normality Test
One Sample Kolmogrov Smirnov Test**

		Pre-test	Post-test
N		20	20
Normal Parameters ^{a,b}	Mean	66,50	88,50
	Std. Deviation	13,870	9,333
Most Extreme Differences	Absolute	,230	,319
	Positive	,230	,319
	Negative	-,185	-,241
Kolmogorov-Smirnov Z		1,030	1,426

Asymp. Sig. (2-tailed)	,239	,034
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a. Test distribution is Normal

b. Calculated from data

Based on the table above, it is known that the significance value of pre-test and post-test are 0,239 and 0,034. The data have significant value $> 0,05$, so the data is normally distributed.

Researcher needs to analyze the score to get the statistical form because this study are pre-test and post-test. Then, before testing hypotheses, the researchers would like to analyze the data to get the result of this research. The research used an paired sample t-test to analyze the data which included two results of test instruments, namely pre-test and post-test. Calculation of dependent t-test is formed by considering the table as follow:

Table 4.15

The Calculation of Paired Sample t-test (Pre-test and Posttest)

No.	Name of Correspondent	Reading Comprehension		D =	$D^2 =$
		Pre-test	Post-test	(X-Y)	$(X - Y)^2$
1.	Ade	70	80	10	100
2.	Aditya	60	80	20	400
3.	Afifa	50	100	50	2500
4.	Annisa	80	100	20	400
5.	Bunga	80	100	20	400
6.	Durrotun	90	100	10	100

7.	Eka	60	80	20	400
8.	Elmiatus	80	100	20	400
9.	Erik	50	80	30	900
10.	Ifam	60	80	20	400
11.	Imamatur	70	80	10	100
12.	Intan	80	100	20	400
13.	Isti	60	90	30	900
14.	Karim	60	90	30	900
15.	Daniel	60	80	20	400
16.	Rosi	50	80	30	900
17.	Sunardi	90	100	10	100
18.	Yoga	50	80	30	900
19.	Nabila	80	90	10	100
20.	Nia	50	80	30	900
	N= 20	$\sum X_1 =$ 1330	$\sum X_2 =$ 1770	$\sum D =$ 440	$\sum D^2 =$ 11600

Based on the results above, the computation dependent t-test is administrated as follow:

$$N= 20$$

$$\sum D = 440$$

$$\sum D^2 = 11600$$

$$\sum X_1 = 1330$$

$$\sum X_2 = 1770$$

The counting steps t-test are as follow:

a. Looking for D (difference) between score of pre-test and post-test, the calculation is $D = (x_2 - x_1)$. See Table 4.15.

b. Summing D (Difference) until $\sum D = 440$ it is obtain by adding all of the score D. See Table 4.15.

c. Looking for mean of difference, by formula:

$$M_D = \frac{\sum D}{N}$$

$$M_D = \frac{440}{20}$$

$$= 22$$

d. Square all of D score: Then add up so as to be obtained $\sum D^2$

e. Determining Standard Deviation form D by formula:

$$SD_D = \sqrt{\frac{\sum D^2}{N} - \left(\frac{\sum D}{N}\right)^2}$$

$$SD_D = \sqrt{\frac{11600}{20} - \left(\frac{440}{20}\right)^2}$$

$$= \sqrt{580 + (22^2)}$$

$$= \sqrt{580 - 484}$$

$$= \sqrt{96}$$

$$= 9,7979$$

f. Determining *Mean of Difference* by formula:

$$SE m_d = \frac{SD_D}{\sqrt{N-1}}$$

$$= \frac{9,7979}{\sqrt{20-1}}$$

$$= \frac{9,7979}{\sqrt{19}}$$

$$= \frac{9,7979}{4,3588}$$

$$= 2,2478$$

g. Determining t_0 by formula:

$$t_0 = \frac{M_D}{SE M_D}$$

$$= \frac{22}{2,2478}$$

$$= 9,787$$

Based on the calculation above of the dependent t-test, the researcher finds $t_0 = 9,787$.

To know whether the null hypothesis is rejected or accepted. The researcher must be done the process of hypothesis testing.

B. Hypotheses Testing

Hypotheses are statements in quantitative research in which the investigator makes a prediction about the outcome of a relationship among attributes or characteristics. There are two kinds of hypotheses, null hypotheses, and alternative hypotheses. Hypotheses are important things in quantitative research because hypotheses make the result of the research and determine the hypotheses is null hypotheses or alternative hypotheses easily there is a correlation between dependent variable and independent variable or not.

Based on the requirements of statistical analysis that the researcher uses paired sample t-test. The result of, which is $t_0 = 9,787$. It must be consulted with t-table by using significance level 5% to know whether H_0 is rejected or accepted. To consult this research to t-table, the researcher should determine df (degrees of freedom) : $df = N - nr$. As stated about the number of participants ($N=20$). So, the degree of freedom is calculated as follow:

$$df = N - nr$$

df: *Degrees of Freedom*

N: *Number of Cases* ($N = 20$)

nr: *Sum of Variables* (Sum of variables is 2 that is variable X

(Cooperative Learning) and variable Y (Reading Comprehension for the eighth-grade students)

$$df = N - nr$$

$$df = 20 - 2$$

$$df = 18$$

Based on the df score above, consult t-value on the level of significance 5%. Obviously, in $df=18$, the t-value that can be obtained in t-table in the level significance 5% is 2,10.

After $t_0 = 9,787$, then, compare with t-value int-table of 2,10. the researcher stated that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted because $t_0 > t_t$ ($9,787 > 2,10$).

Finally, the researcher infers that alternative hypotheses (Ha) is accepted. So, this research concludes that there is a significant effect the cooperative learning strategies on reading comprehension in the eighth grade students of SMPN 2 Larangan Pamekasan.

C. Discussion and Finding

In this study, the researcher composes a problem of study which needs to be answered. It is:

1. The Effects of Cooperative Learning Strategies on Reading Comprehension For The Eighth Grade Students of SMPN 2 Larangan Pamekasan

The result of this research that was analyzed by statistical analysis showed that there is the effect of cooperative learning strategies on reading comprehension for the eighth-grade students of SMPN 2 Larangan Pamekasan. It is proved by comparing the result of with t_0 with t_{able} . The result of $t_0 = 9,787$ and the value of t-table = 0,444. So the results of t_0 is highest than t_{able} ($9,787 > 0,444$). Based on the hypotheses testing the null hypotheses is rejected and the alternative hypotheses are accepted.

2. The Significance of Cooperative Learning Strategies on Reading Comprehension For The Eighth Grade Students of SMPN 2 Larangan Pamekasan

In this research, there is an effect of cooperative learning strategies on reading comprehension for the eighth grade students of SMPN 2 Larangan Pamekasan. It is proved by the result of = 9,787 and the $t_{able} = 0,444$. So, the results of t_0 is highest than t_{able} ($9,787 > 0,444$).

To know how the significance of the effect of cooperative learning strategies on reading comprehension, the researcher determined df (degrees of freedom) $df = N - nr$ as discussed above the number of participants ($N=20$). So, the degrees of freedom is calculated $20 - 2 = 18$. To consult t-value on the level significance 5%. Obviously, in $df = 18$, the t-value that can be obtained in the t-table is 0,444. After $= 9,787$, then compare with t-value in t-table is 0,444. The researcher stated that cooperative learning strategies have strong significance in reading comprehension.