

CHAPTER IV

RESEARCH FINDINGS

A. Description of data

In this chapter the researcher would like to present the description of data obtained. As the researcher explain in the previous chapter that the population in this research were 50 students of the seventh grade in MTs Darul Irfan Kota Serang and the sample were 25 students of class VII C as the experimental class and 25 students of VII D as the control class.

In this research, the researcher did the analyze of quantitative data. The data is obtained by giving test to the experimental class and control class. The test divided two types are pre-test and post-test. Pre-test was given before treatment and post-test was given after treatment. On the test, students should speak in front of the class according to the instructions and question from the researcher.

The researcher identified some results to find out the effect of jigsaw technique to improve students' speaking ability. There are the students' score before treatment, the students' score after treatment and the differences between pre-test and post-test. The reseacher describes the data in experimental class and control class as bellow:

1. Experimental class

The researcher describes the result of pre-test of experimental class by the table as follow:

Table 4.1*The students' score of pre-test at the experimental class*

NO	RESPONDENT	CRITERIA					SCORE
		A	G	V	F	C	
1	A	2	12	12	6	12	44
2	AF	2	12	16	8	15	53
3	AL	2	18	16	10	19	65
4	ARF	2	12	16	8	12	50
5	ANH	3	30	20	10	19	82
6	ASF	2	18	20	10	15	63
7	D	2	18	16	10	19	65
8	DV	2	12	12	6	12	44
9	DA	3	30	20	10	19	82
10	EAN	3	24	20	8	19	74
11	FKH	2	18	20	8	12	60
12	IM	2	18	20	8	12	60
13	IU	3	30	20	10	19	82
14	MF	2	12	16	8	15	53
15	MA	3	24	20	8	19	74
16	M	2	18	20	8	15	63
17	MSI	2	18	16	10	19	65
18	MS	2	18	20	8	15	63
19	MP	2	12	8	6	12	40
20	MFN	3	24	20	8	19	74
21	MU	2	12	16	8	15	53
22	NK	2	12	16	8	15	53
23	SJ	2	12	8	6	12	40
24	S	2	12	8	6	12	40
25	CRA	2	12	16	8	12	50
N= 25	TOTAL						$\sum X =$ 1.492
	AVERAGE						M= 59,68

Note:

A: Accent

G: Grammar

V: Vocabulary

F: Fluency

C: Comprehension

Mean of pre-test :

$$X = \frac{\sum X}{N} = \frac{1.492}{25} = 59,68$$

So the mean of pre-test in experiment class is 59,68

While the result of post-test in experiment class got better score, the result post-test in experiment class described by table bellow:

Table 4.2

The students' score of post-test at the experimental class

NO	RESPONDENT	CRITERIA					SCORE
		A	G	V	F	C	
1	A	2	18	20	8	12	60
2	AF	2	18	20	10	12	62
3	AL	3	30	20	8	19	80
4	ARF	2	18	20	8	12	60
5	ANH	4	30	24	12	23	93
6	ASF	2	24	20	8	19	73
7	D	2	30	20	8	19	80
8	DV	2	18	20	8	12	60
9	DA	4	30	24	12	23	93
10	EAN	3	30	24	12	19	88
11	FKH	3	30	20	8	19	80
12	IM	3	30	20	8	19	80
13	IU	4	30	24	12	23	93
14	MF	2	12	16	8	19	57
15	MA	3	30	24	12	19	88
16	M	2	24	20	8	19	73
17	MSI	2	30	20	8	19	80
18	MS	2	24	20	8	19	73
19	MP	2	12	16	8	19	57
20	MFN	3	30	24	12	19	88
21	MU	2	18	16	10	19	65
22	NK	2	18	16	10	19	65
23	SJ	2	12	8	8	15	45
24	S	2	12	8	8	15	45
25	CRA	2	18	16	10	19	65
N= 25	TOTAL						$\sum X =$ 1.803
	AVERAGE						M= 72,12

Note:

A: Accent

G: Grammar

V: Vocabulary

F: Fluency

C: Comprehension

Mean of pre-test :

$$X = \frac{\sum X}{N} = \frac{1.803}{25} = 72,12$$

So the mean of post-test in experiment class is 72,12

Table 4.3

The students' score of pre-test at the control class

NO	RESPONDENT	CRITERIA					SCORE
		A	G	V	F	C	
1	AR	2	18	20	8	12	60
2	AD	2	12	12	6	12	44
3	AM	2	12	8	6	12	40
4	AA	2	12	8	6	12	40
5	A	2	12	12	6	12	44
6	DR	2	18	16	10	19	65
7	EAN	2	18	16	10	19	65
8	H	2	12	16	8	12	50
9	IA	2	12	8	6	12	40
10	IRP	3	30	20	8	19	80
11	I	2	18	20	8	12	60
12	MI	2	12	16	8	12	50
13	M	2	12	8	6	12	40
14	MF	2	12	8	6	12	50
15	OI	3	24	20	8	19	74
16	RS	3	24	20	8	19	74
17	RM	2	12	8	6	12	40
18	R	2	12	8	6	12	40
19	SM	2	12	16	8	12	50
20	SA	3	30	20	8	19	80
21	TH	2	12	12	6	12	44
22	MS	2	12	8	6	12	40
23	AM	2	18	20	8	12	60
24	A	2	12	12	6	12	44
25	SR	3	30	20	8	19	80
N= 25	TOTAL						$\sum X =$ 1.354
	AVERAGE						M= 54,16

Note:

A: Accent

G: Grammar

V: Vocabulary

F: Fluency

C: Comprehension

Mean of pre-test :

$$\bar{X} = \frac{\sum X}{N} = \frac{1.354}{25} = 54,16$$

So the mean of pre-test in control class is 54,16

While the result of post-test in control class got better score. The result of post-test in control class described by table below:

Table 4.4

The students' score of post-test at the control class

NO	RESPONDENT	CRITERIA					SCORE
		A	G	V	F	C	
1	AR	2	18	16	8	19	65
2	AD	2	12	12	8	12	46
3	AM	2	12	12	6	12	44
4	AA	2	12	12	6	12	44
5	A	2	12	12	8	12	46
6	DR	3	18	20	10	19	70
7	EAN	3	18	20	10	19	70
8	H	2	12	16	10	15	55
9	IA	2	12	8	8	12	42
10	IRP	3	30	24	10	19	86
11	I	3	18	20	10	19	70
12	MI	2	12	16	10	15	55
13	M	2	12	8	8	12	42
14	MF	2	12	16	8	15	53
15	OI	3	30	20	8	19	80
16	RS	3	30	20	8	19	80
17	RM	2	12	8	8	15	45
18	R	2	12	8	8	15	45
19	SM	2	12	16	8	15	53
20	SA	3	30	24	10	19	86
21	TH	2	12	12	8	12	46
22	MS	2	12	8	8	12	42
23	AM	2	18	20	10	15	65
24	A	2	12	12	8	12	46
25	SR	3	30	24	10	19	86
N= 25	TOTAL						$\sum X =$ 1.417
	AVERAGE						M= 56,68

Note:

A: Accent

G: Grammar

V: Vocabulary

F: Fluency

C: Comprehension

Mean of pre-test :

$$X = \frac{\sum X}{N} = \frac{1.417}{25} = 56,68$$

So the mean of post-test in control class is 56,68

B. Data Analysis

1. Experimental class

The researcher analysis the data by comparing students' score from pre-test and post-test in the expeimental class, there is the significant improvement from the students' score and it is caused the researcher using jigsaw technique in teaching speaking, from the students' score it is means that the jigsaw technique can improve students' speaking ability. And the researcher describes the students' improvement score of pre-test and post-test at the experimental class by the data bellow:

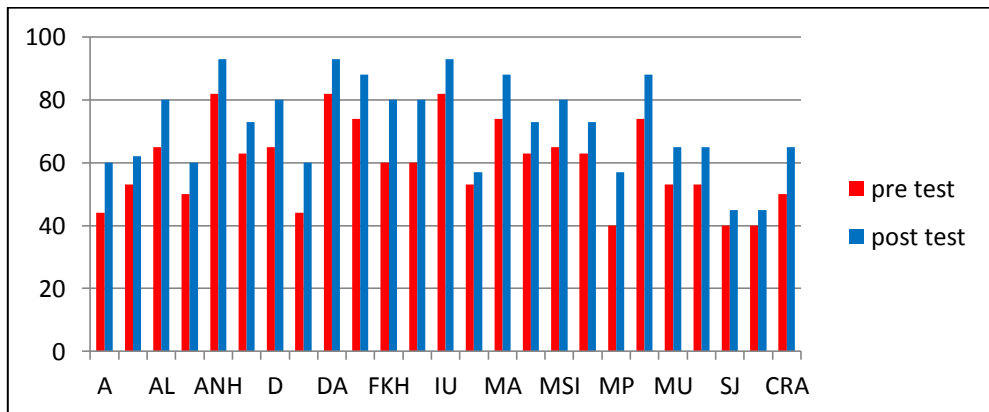
Table 4.5*The difference score between pre-test and post-test at the experiment class*

NO	RESPONDENT	Pre-test X_1	Post-test X_2	Differences $X_2 - X_1$
1	A	44	60	16
2	AF	53	62	9
3	AL	65	80	15
4	ARF	50	60	10
5	ANH	82	93	11
6	ASF	63	73	10
7	D	65	80	15
8	DV	44	60	16
9	DA	82	93	11
10	EAN	74	88	14
11	FKH	60	80	20
12	IM	60	80	20
13	IU	82	93	11
14	MF	53	57	4
15	MA	74	88	14
16	M	63	73	10
17	MSI	65	80	15
18	MS	63	73	10
19	MP	40	57	17
20	MFN	74	88	14
21	MU	53	65	12
22	NK	53	65	12
23	SJ	40	45	5
24	S	40	45	5
25	CRA	50	65	15
N=	TOTAL	$\Sigma X = 1.492$	$\Sigma X = 1.803$	$\Sigma X = 311$
25	AVERAGE	M= 59,68	M= 72,12	M= 12,44

Table 4.5 above showed that the difference score between pre-test and post-test at the experimental class. The difference score was the result from the post-test scores reduced pre-test score. There was significant difference score between pre-test and post test at the experiment class by the highest score was 93 and the lowest was 40. The graphic describes the table as follow:

Graphic 4.1

The difference score between pre-test and post-test at the Experiment Class



From graphic 4.1 above showed the result of the students' pre-test and post-test scores on the criteria in speaking at the experimental class. Data showed that the maximum score in pre-test was 82 and the minimum score was 40. While in the post-test the maximum score in pre-test was 93 and the minimum score was 45.

2. Control Class

The researcher analysis the data by comparing students' score in pre-test and post test at the control class. The result describes by the table bellow:

Table 4.6

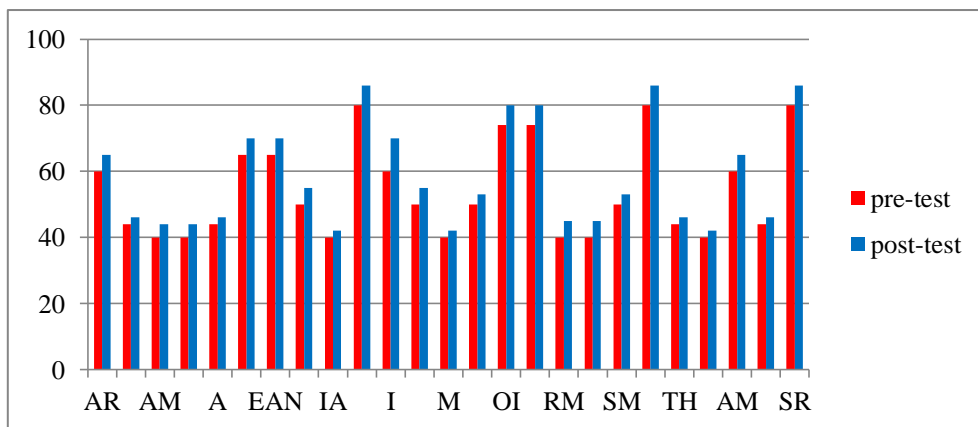
The difference score between pre-test and post-test at the control class

NO	RESPONDENT	Pre-test	Post-test	Differences
		X_1	X_2	$X_2 - X_1$
1	AR	60	65	5
2	AD	44	46	2
3	AM	40	44	4
4	AA	40	44	4
5	A	44	46	2
6	DR	65	70	5
7	EAN	65	70	5
8	H	50	55	5
9	IA	40	42	2
10	IRP	80	86	6
11	I	60	70	10
12	MI	50	55	5
13	M	40	42	2
14	MF	50	53	3
15	OI	74	80	6
16	RS	74	80	6
17	RM	40	45	5
18	R	40	45	5
19	SM	50	53	3
20	SA	80	86	6
21	TH	44	46	2
22	MS	40	42	2
23	AM	60	65	5
24	A	44	46	2
25	SR	80	86	6
N= 25	TOTAL	$\sum X =$ 1.354	$\sum X =$ 1.417	$\sum X =$ 108
	AVERAGE	M= 54,16	M= 56,68	M= 4,23

Table 4.6 above showed the difference score between pre-test and post-test at the control class. The difference score was the result from the post-test scores reduced pre-test score there was significant difference score between pre-test and post-test at the control class by the highest score was and the lowest was ,the graphic describes the table as follow:

Graphic 4.2

The difference score between pre-test and post-test at the Control Class



From graphic 4.2 above showed the result of the students' pre-test and post-test scores on the criteria in speaking at the control class. Data showed that the maximum score in pre-test was 80 and the minimum score was 40. While in the post-test the maximum score in pre-test was 86 and the minimum score was 42.

After getting data from the score of two classes, then the researcher analyzed it by using t-test. The formula as follows:

$$t_o = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{N_1 + N_2 - 2}\right) \left(\frac{N_1 + N_2}{N_1 \cdot N_2}\right)}}$$

Notes:

t_o = t observation

M_1 = Mean score of the experiment class

M_2 = Mean score of the control class

$\sum x_1^2$ = Sum of square deviation score in experiment class

$\sum x_2^2$ = Sum of square deviation score in control class

N_1 = Total of students of experimental class

N_2 = Total of students of control class

2 = Constant number

df = Degree of freedom (df = $N_1 + N_2 - 2$)

Table 4.7

The result calculation of post-test at the experiment class (x_1^2) and control class(x_2^2)

NO	X_1	X_2	x_1	x_2	x_1^2	x_2^2
1	60	65	-12,12	8,32	146,89	69,22
2	62	46	-10,12	-10,68	102,41	114,06
3	80	44	7,88	-12,68	62,09	160,78
4	60	44	-12,12	-12,68	146,89	160,78
5	93	46	20,88	-10,68	435,97	114,06
6	73	70	0,88	13,32	0,77	177,42
7	80	70	7,88	13,32	62,09	177,42
8	60	55	-12,12	-1,68	146,89	2,82
9	93	42	20,88	-14,68	435,97	215,50
10	88	86	15,88	29,32	252,17	859,66
11	80	70	7,88	13,32	62,09	177,42
12	80	55	7,88	-1,68	62,09	2,82
13	93	42	20,88	-14,68	435,97	215,50
14	57	53	-15,12	-3,68	228,61	13,54
15	88	80	15,88	23,32	252,17	543,82
16	73	80	0,88	23,32	0,77	543,82
17	80	45	0,77	-11,68	62,09	136,42
18	73	45	0,88	-11,68	62,09	136,42
19	57	53	-15,12	-3,68	228,61	13,54
20	88	86	15,88	29,32	252,17	859,66
21	65	46	-7,12	-10,68	50,69	114,06
22	65	42	-7,12	-14,68	50,69	215,50
23	45	65	-27,12	8,32	735,49	69,22
24	45	46	-27,12	-10,68	735,49	114,06
25	65	86	-7,12	29,32	50,69	859,66
	1.803	1.417			5.061,85	6.067,18

Note :

X_1 = Score post-test of experiment class

X_2 = Score post-test of control class

x_1 = $X_1 - M_1$ (Mean X_1)

x_2 = $X_2 - M_2$ (Mean X_2)

x_1^2 = The squared value of x_1

x_2^2 = The squared value of x_2

From the table above, the researcher got the data $\sum X_1 = 1.803$, $\sum X_2 = 1.417$, $\sum x_1^2 = 5.061,85$, $\sum x_2^2 = 6.067,18$ where as $N_1 = 25$ and $N_2 = 25$.

After that the researcher calculated them based on the t-test formula, the steps as follow:

- a. Determine mean of variable X_1 and X_2

$$\text{variable } X_1 \quad M_1 = \frac{\sum X_1}{N_1} = \frac{1.803}{25} = 72,12$$

$$\text{variable } X_2 \quad M_2 = \frac{\sum X_2}{N_2} = \frac{1.417}{25} = 56,68$$

- b. Determine t-test

$$\sum x_1^2 = 5.061,85$$

$$\sum x_2^2 = 6.067,18$$

$$Df = N_1 + N_2 - 2 = 25 + 25 - 2 = 48$$

$$t_o = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{N_1 + N_2 - 2}\right) \left(\frac{N_1 + N_2}{N_1 \cdot N_2}\right)}}$$

$$= \frac{72,12 - 56,68}{\sqrt{\left(\frac{5.061,85 + 6.067,18}{25 + 25 - 2}\right) \left(\frac{25 + 25}{25 \cdot 25}\right)}}$$

$$\begin{aligned}
&= \frac{15,44}{\sqrt{\left(\frac{11.192,03}{48}\right)\left(\frac{50}{625}\right)}} \\
&= \frac{15,44}{\sqrt{(231,82).(0,08)}} \\
&= \frac{15,44}{\sqrt{(18,54)}} \\
&= \frac{15,44}{4,30} \\
&= 3,59
\end{aligned}$$

So after the researcher calculates this data based on the formula t-test, the obtained t_o or $t_{observation}$ was 3,59.

C. Hypothesis testing

The data obtained from experimental class and control class were calculated with the assumption as follow:

- If $t_o > t_t$: the alternative hypothesis was accepted. It means there was significant effect of using jigsaw technique in teaching speaking than without using jigsaw technique.
- If $t_o < t_t$: null hypothesis was rejected. It means there was no significant effect of using jigsaw technique in teaching speaking.

From the result of calculation above, it is obtained that the value of t_o ($t_{observation}$) was 3,59, the degree of freedom (df) = 48. In the degree significance 5%= 1,67, in degree of significance 1%= 2,40. After that the

researcher compared the data with t_t (t tabel) both in degree significance 5% and 1%. Therefore $t_o : t_t = 3,59 > 1,67$ in degree of significance 5% and $t_o : t_t = 3,59 > 2,40$ in degree significance 1%.

The statistic hypothesis states that if t_o is higher than t_t , it shows that H_a (alternative hypothesis) of the result is accepted and H_o (null hypothesis) is rejected. It means that there was an effect of using jigsaw technique in teaching speaking than without using jigsaw technique.

D. Interpretation Data

From the result of the research that the mean of pre-test score obtained by students of MTs Darul Irfan Kota Serang in the class VII C as the experiment class was 59,68 higher than class VII D as the control class the mean score of pre-test is 54,16. The highest score of pre-test in VII C (experiment class) was 82 and in the VII D (control class) was 80, the lowest score of pre-test in VII C (experiment class) was 40, and in the VII D (control class) was 40. It means that the distribution of score in control class was smaller than experimental class.

The mean of post-test score in experiment class was 72,12 and it was greater than in control class was 56,68. The highest score in experiment class was 93 and in control class was 86. The lowest score in experiment class was 45 and in control class was 42, it means that the distribution of post-test score in experiment class was greater than control class.

Based on the data obtained from the research of experiment class and control class among the average score, t observation and comparison with t table. The researcher concludes that the students taught by jigsaw technique have improving in their speaking ability than the students taught without jigsaw technique.

The students who taught by using jigsaw technique were more active in learning English especially English speaking.