CHAPTER IV
RESULT AND DISCUSSION

A. Description of Data

In this chapter the writer would like to present the description of data obtained. As the writer explained in the previous chapter that the population in this research were 232 students of second grade in SMAN 2 Ks Cilegon and the sample were 30 students of XI 4 social as experimental class and 30 students of XI 3 social as control class.

In this research, the writer did an analyze of quantitative data. The data was obtained by giving test to the experimental class and control class. The test is divided into 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 listen to the audio and obeyed the instructions or questions by the writer.

The writer identified some result to find out the virtual assistant application in teaching pronunciation. They are the score of students before treatment, the score students after treatment and the differences between pre-test and post-test score of students. The writer describes the data in experimental and control class as follows:

1. Experimental Class

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

Table 4.1

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

NO	RESPONDENT	CRITERIA			SCORE
		S	P	P	
1	AA	2	2	3	46,6
2	AAR	2	3	4	60
3	AAPN	4	3	2	60
4	AMR	2	4	2	53,3
5	BGE	3	3	3	60
6	BRM	3	3	4	66,6
7	BRO	3	4	2	60
8	DIP	2	3	4	60
9	EAA	2	3	3	53,3
10	IDO	4	3	3	66,6
11	JPS	4	3	2	60
12	FN	3	4	2	60
13	LFN	3	3	2	53,3
14	MFAS	3	3	4	66,6
15	MDT	4	3	2	60
16	NZ	2	2	3	46,6
17	NSP	3	4	3	66,6
18	PAA	2	3	3	53,3
19	RAZ	3	3	4	66,6
20	RBA	3	2	3	53,3
21	RKDM	3	4	3	66,6

22	**SY**	4	3	3	66,6
23	**SM**	3	4	2	60
24	**SNFN**	4	3	3	66,6
25	**SFP**	4	4	3	73,3
26	**UKA**	4	3	3	66,6
27	**VTL**	3	4	3	66,6
28	**WL**	2	4	3	60
29	**WM**	2	3	4	60
30	**WPDNC**	3	3	4	66,6
N= 30	**TOTAL**				**∑X =** 1825,6
	AVERAGE				**M =** 60,85333

Note:

S = Structure

P = Pronunciation

P = Preparedness

Mean of Pre-test:

$X = \frac{\sum X}{N} = \frac{1825,6}{30} = 60,85333$

(the mean of pre-test experimental class is 60,85333)

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

Table 4.2

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

NO	RESPONDENTS	CRITERIA			SCORE
		S	P	R	
1	AA	3	3	3	60
2	AAR	3	4	4	73,3
3	AAPN	4	4	3	73,3
4	AMR	3	4	3	66,6
5	BGE	4	4	3	73,3
6	BRM	4	4	4	80
7	BRO	4	4	3	73,3
8	DIP	3	4	4	73,3
9	EAA	3	4	3	66,6
10	IDO	4	4	4	80
11	JPS	4	4	3	73,3
12	FN	4	4	3	73,3
13	LFN	3	4	3	66,6
14	MFAS	4	4	4	80
15	MDT	4	3	4	73,3
16	NZ	3	3	3	60
17	NSP	3	5	4	80
18	PAA	3	4	3	66,6
19	RAZ	3	4	5	80
20	RBA	3	4	3	66,6
21	RKDM	4	5	3	80

22	**SY**	4	4	4	80
23	**SM**	4	4	3	73,3
24	**SNFN**	4	4	4	80
25	**SFP**	4	5	4	86,6
26	**UKA**	4	4	4	80
27	**VTL**	4	4	4	80
28	**WL**	4	4	3	73,3
29	**WM**	3	3	5	73,3
30	**WP DNC**	4	4	4	80
N= 30	**Total**				**∑X** = 2225,9
	Average				**M** = 74,19667

Note:

S = Structure

P = Pronunciation

P = Preparedness

Mean of Post-test:X = $\frac{\sum X}{N} = \frac{2225,9}{30} = 74,19667$

(the mean of post-test experimental class is 74,19667)

Table 4.3

The difference score between pre-test and post-test at experimental class

NO	RESPONDENTS	PRE TEST	POST TEST
1	AA	46,6	60
2	AAR	60	73,3
3	AAPN	60	73,3
4	AMR	53,3	66,6
5	BGE	60	73,3
6	BRM	66,6	80
7	BRO	60	73,3
8	DIP	60	73,3
9	EAA	53,3	66,6
10	IDO	66,6	80
11	JPS	60	73,3
12	FN	60	73,3
13	LFN	53,3	66,6
14	MFAS	66,6	80
15	MDT	60	73,3
16	NZ	46,6	60
17	NSP	66,6	80
18	PAA	53,3	66,6
19	RAZ	66,6	80
20	RBA	53,3	66,6
21	RKDM	66,6	80

22	**SY**	66,6	80
23	**SM**	60	73,3
24	**SNFN**	66,6	80
25	**SFP**	73,3	86,6
26	**UKA**	66,6	80
27	**VTL**	66,6	80
28	**WL**	60	73,3
29	**WM**	60	73,3
30	**WPDNC**	66,6	80
N = 30	**Total**	$\sum$**X** =1825,6	$\sum$**X** = 2225,9
	Average	**M** = 60,85333	**M** = 74,19667

From the table 4.1 above showed that the result of students' pre-test score at the experimental class. The data showed the maximum score was 73,3 and the minimum score was 46,6. There was one student who got maximum score and there were two students who got minimum score. The average score of pre-test in experimental class was 60,85.

From the table 4.2 above showed that the result of students' post-test score at the experimental class. The data showed the maximum score was 86,6 and the minimum score was 60. There was one student who got maximum score and one student who got minimum score. The average score of post-test in experimental class was 74,19.

From the table 4.3 showed the difference result of pre-test and post-test at the experimental class. It got the significant

improvement after giving treatment using quantum teaching method, it was seen from the average of the post-test better than pre-test 60,85 < 74,19.

2. Control Class

The writer describes the result of pre-test in the control class by the table as follow:

Table 4.4

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

NO	RESPONDENTS	CRITERIA			SCORE
		S	P	P	
1	AAM	3	2	1	40
2	ASF	2	3	3	53,3
3	ADDA	1	3	2	40
4	AC	2	1	2	33,3
5	CA	2	3	3	53,3
6	DRA	3	3	2	53,3
7	DK	2	1	3	40
8	FF	3	3	2	53,3
9	IF	2	3	2	46,6
10	KTA	2	2	1	33,3
11	LL	2	1	3	40
12	MAR	1	2	2	33,3
13	MAA	3	2	1	40
14	MCYF	1	2	1	26,6
15	MNA	3	2	1	40

16	**MRAN**	2	2	3	46,6
17	**MRF**	3	2	1	40
18	**NK**	2	2	1	33,3
19	**NVMT**	3	2	1	40
20	**OJW**	2	2	3	46,6
21	**PCMH**	2	3	2	46,6
22	**PAA**	3	2	1	40
23	**PW**	3	3	2	53,3
24	**PA**	1	2	3	40
25	**SN**	2	3	2	46,6
26	**SSP**	1	2	2	33,3
27	**SRM**	2	1	3	40
28	**VK**	2	2	3	46,6
29	**VRAP**	3	2	1	40
30	**WVA**	2	2	3	46,6
N = 30	**TOTAL**				**∑X =** 1265,8
	AVERAGE				**M =** 42,19333

Note:

S = Structure

P = Pronunciation

P = Preparedness

Mean of Pre-test:

$$X = \frac{\sum X}{N} = \frac{1265,8}{30} = 42,19333$$

(the mean of pre-test control class is 42,19333)

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 4.5

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

NO	RESPONDENTS	CRITERIA			SCORE
		S	P	P	
1	AAM	2	3	3	53,3
2	ASF	3	3	4	66,6
3	ADDA	4	3	3	66,6
4	AC	2	4	3	60
5	CA	3	4	3	66,6
6	DRA	4	3	4	73,3
7	DK	3	4	3	66,6
8	FF	2	4	4	66,6
9	IF	3	3	3	60
10	KTA	4	4	3	73,3
11	LL	4	3	3	66,6
12	MAR	3	4	3	66,6
13	MAA	3	3	3	60
14	MCYF	3	4	4	73,3
15	MNA	4	3	3	66,6
16	MRAN	2	3	3	53,3
17	MRF	3	4	4	73,3

18	**NK**	3	3	3	60
19	**NVMT**	3	4	4	73,3
20	**OJW**	3	3	3	60
21	**PCMH**	4	4	3	73,3
22	**PAA**	4	4	3	73,3
23	**PW**	3	4	3	66,6
24	**PA**	4	3	4	73,3
25	**SN**	4	4	4	80
26	**SSP**	4	4	3	73,3
27	**SRM**	4	4	3	73,3
28	**VK**	3	4	3	66,6
29	**VRAP**	3	3	4	66,6
30	**WVA**	4	3	4	73,3
N=30	**TOTAL**				**∑X =** 2025,5
	AVERAGE				**M =** 67,51667

Note:

S = Structure

P = Pronunciation

P = Preparedness

Mean of Post-test:X = $\frac{\sum X}{N} = \frac{2025,5}{30} = 67,51667$

(the mean of post-test control class is 67,51667)

Table 4.6

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

NO	RESPONDENTS	PRE TEST	POS TES
1	**AAM**	40	53,3
2	**ASF**	53,3	66,6
3	**ADDA**	40	66,6
4	**AC**	33,3	60
5	**CA**	53,3	66,6
6	**DRA**	53,3	73,3
7	**DK**	40	66,6
8	**FF**	53,3	66,6
9	**IF**	46,6	60
10	**KTA**	33,3	73,3
11	**LL**	40	66,6
12	**MAR**	33,3	66,6
13	**MAA**	40	60
14	**MCYF**	26,6	73,3
15	**MNA**	40	66,6
16	**MRAN**	46,6	53,3
17	**MRF**	40	73,3
18	**NK**	33,3	60
19	**NVMT**	40	73,3
20	**OJW**	46,6	60
21	**PCMH**	46,6	73,3
22	**PAA**	40	73,3
23	**PW**	53,3	66,6

24	**PA**	40	73,3
25	**SN**	46,6	80
26	**SSP**	33,3	73,3
27	**SRM**	40	73,3
28	**VK**	46,6	66,6
29	**VRAP**	40	66,6
30	**WVA**	46,6	73,3
N = 30	**TOTAL**	**∑X =** 1265,8	∑**X** = 2025,5
	AVERAGE	**M** = 42,19333	**M** = 67,51667

From the table 4.4 above showed that the result of students' pre-test score at the control class. The data showed the maximum score was 53,3 and the minimum score was 26,6. There was one student who got maximum score and there were two students who got minimum score. The average score of pre-test in control class was 42,19.

From the table 4.5 above showed that the result of students' post-test score at the control class. The data showed the maximum score was 80 and the minimum score was 53,3. There were two students who got maximum score and there was two students who got minimum score. The average score of pre-test in control class was 67,51.

From the table 4.6 above showed the difference result of pre-test and post-test at the control class got the significant improvement after giving treatment without using flashcard

media, it was seen from the average of the post-test better than pre-test 53,3 < 67,51.

B. Data Analysis

1. Experimental Class

The writer analysis the data by comparing students' score in pre-test and post-test in the experimental class. The students' improvement score caused the writer used virtual assistant application in teaching pronunciation. If seen from the students' improvement` score, it means that used virtual assistant application was success in improving students' pronunciation. The writer describes the students' improvement score of pre-test and post-test at the experimental class by the table below:

Table 4.7

The difference score between pre-test and post-test result of experimental class

NO	RESPONDENTS	PRE TEST	POST TEST	DIFFERENCE ($X_2 - X_1$)
1	AA	46,6	60	13,4
2	AAR	60	73,3	13,3
3	AAPN	60	73,3	13,3
4	AMR	53,3	66,6	13,3
5	BGE	60	73,3	13,3
6	BRM	66,6	80	13,4
7	BRO	60	73,3	13,3
8	DIP	60	73,3	13,3

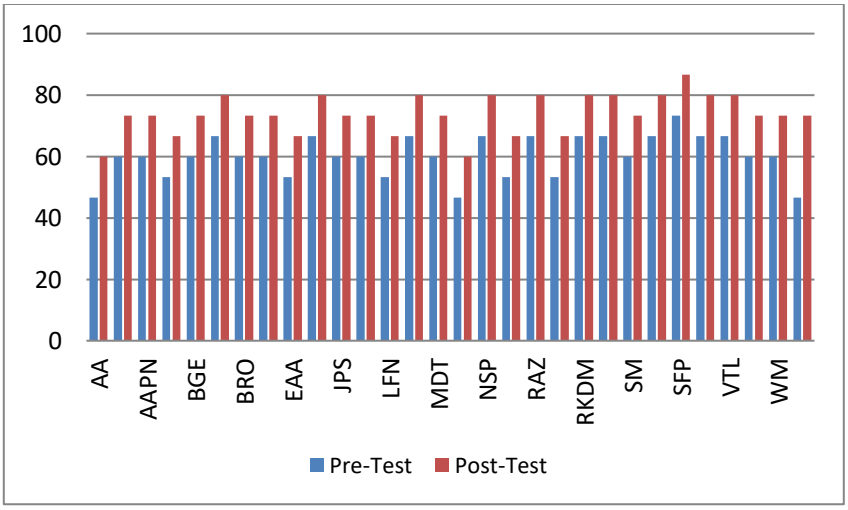
9	**EAA**	53,3	66,6	13,3
10	**IDO**	66,6	80	13,4
11	**JPS**	60	73,3	13,3
12	**FN**	60	73,3	13,3
13	**LFN**	53,3	66,6	13,3
14	**MFAS**	66,6	80	13,4
15	**MDT**	60	73,3	13,3
16	**NZ**	46,6	60	13,4
17	**NSP**	66,6	80	13,4
18	**PAA**	53,3	66,6	13,3
19	**RAZ**	66,6	80	13,4
20	**RBA**	53,3	66,6	13,3
21	**RKDM**	66,6	80	13,4
22	**SY**	66,6	80	13,4
23	**SM**	60	73,3	13,3
24	**SNFN**	66,6	80	13,4
25	**SFP**	73,3	86,6	13,3
26	**UKA**	66,6	80	13,4
27	**VTL**	66,6	80	13,4
28	**WL**	60	73,3	13,3
29	**WM**	60	73,3	13,3
30	**WPDNC**	66,6	80	13,4
N = 30	**Total**	$\sum$**X** =1825,6	$\sum$**X** = 2225,9	$\sum$**X** = 400,3

	Average	**M** = 60,85333	**M** = 74,19667	**M** = 13,34333

Table 4.7 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 were significant difference score between pre-test and post-test at the experimental class, the highest score was one student and the lowest was three students . The graphic describes the table as follow:

Graphic 4.1

The different score between pre-test and post-test of experimental class



From graphic 4.1 above showed the results 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 73,3 and the minimum score was 46,6. While in post-test the maximum score was 86,6 and the minimum score was 60.

2. Control Class

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

Table 4.8

The difference score between Pre-test and Post-test result of control class

NO	RESPONDENTS	PRE TEST	POST TEST	DIFFerence $(X_2 - X_1)$
1	AAM	40	53,3	13,3
2	ASF	53,3	66,6	13,3
3	ADDA	40	66,6	26,6
4	AC	33,3	60	26,7
5	CA	53,3	66,6	13,3
6	DRA	53,3	73,3	20
7	DK	40	66,6	26,6
8	FF	53,3	66,6	13,3
9	IF	46,6	60	13,4
10	KTA	33,3	73,3	40
11	LL	40	66,6	26,6
12	MAR	33,3	66,6	33,3
13	MAA	40	60	20
14	MCYF	26,6	73,3	46,7
15	MNA	40	66,6	26,6

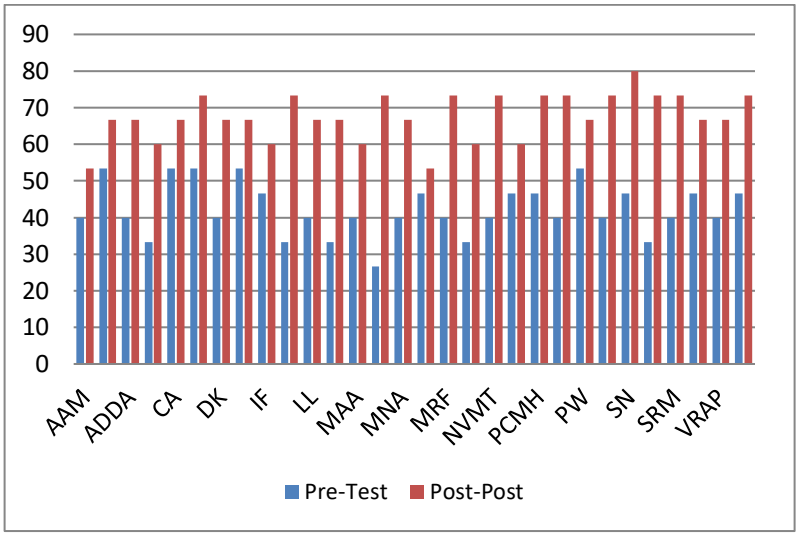
16	**MRAN**	46,6	53,3	6,7
17	**MRF**	40	73,3	33,3
18	**NK**	33,3	60	26,7
19	**NVMT**	40	73,3	33,3
20	**OJW**	46,6	60	13,4
21	**PCMH**	46,6	73,3	26,7
22	**PAA**	40	73,3	33,3
23	**PW**	53,3	66,6	13,3
24	**PA**	40	73,3	33,3
25	**SN**	46,6	80	33,4
26	**SSP**	33,3	73,3	40
27	**SRM**	40	73,3	33,3
28	**VK**	46,6	66,6	20
29	**VRAP**	40	66,6	26,6
30	**WVA**	46,6	73,3	26,7
N = 30	**TOTAL**	**∑X =** 1265,8	**∑X =** 2025,5	**∑X =** 759,7
	AVERAGE	**M =** 42,19333	**M =** 67,51667	**M =** 25,32333

Table 4.8 above showed that 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, the highest score was one student and the

lowest were three students. The graphic describes the table as follows:

Graphic 4.2

The different score between pre-test and post-test of control class



From graphic 4.2 above showed the results 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 53,3 and the minimum score was 26,6. While in post-test the maximum score was 80 and the minimum score was 53,3. After getting the data from score of two classes, then the writer analyzes it by using t-test. The formula as follow:

$$t_0 = \frac{M_1 - M_2}{\left(\frac{\sum x_1^2 + \sum x_2^2}{N_1 + N_2 - 2}\right)\left(\frac{N_1 + N_2}{N_1 \,.\, N_2}\right)}$$

Notes:

t_0 = 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 = Number of students of experiment class

N_2 = Number of students of control class

2 = Constant number

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

Table 4.9

The result calculation of post-test at the experimental class (X_1^2) and the control class (X_2^2)

No	X_1	X_2	x_1	x_2	x_1^2	x_2^2
1	60	53,3	14,19	14,21	201,3561	201,9241
2	73,3	66,6	0.89	0,91	0,7921	0,8281
3	73,3	66,6	0,89	0,91	0,7921	0,8281
4	66,6	60	7,59	7,51	57,6081	56,4001
5	73,3	66,6	0,89	0,91	0,7921	0,8281
6	80	73,3	-5,8	-5,7	33,64	32,49
7	73,3	66,6	0,89	0,91	0,7921	0,8281
8	73,3	66,6	0,89	0,91	0,7921	0,8281
9	66,6	60	7,59	7,51	57,6081	56,4001
10	80	73,3	-5,8	-5,7	33,64	32,49
11	73,3	66,6	0,89	0,91	0,7921	0,8281
12	73,3	66,6	0,89	0,91	0,7921	0,8281
13	66,6	60	7,59	7,51	57,6081	56,4001
14	80	73,3	-5,8	-5,7	33,64	32,49

15	73,3	66,6	0,89	0,91	0,7921	0,8281
16	60	53,3	14,19	14,21	201,3561	201,9241
17	80	73,3	-5,8	-5,7	33,64	32,49
18	66,6	60	7,59	7,51	57,6081	56,4001
19	80	73,3	-5,8	-5,7	33,64	32,49
20	66,6	60	7,59	7,51	57,6081	56,4001
21	80	73,3	-5,8	-5,7	33,64	32,49
22	80	73,3	-5,8	-5,7	33,64	32,49
23	73,3	66,6	0,89	0,91	0,7921	0,8281
24	80	73,3	-5,8	-5,7	33,64	32,49
25	86,6	80	-12,43	-12,48	154,5049	155,7504
26	80	73,3	-5,8	-5,7	33,64	32,49
27	80	73,3	-5,8	-5,7	33,64	32,49
28	73,3	66,6	0,89	0,91	0,7921	0,8281
29	73,3	66,6	O,89	0,91	0,7921	0,8281
30	80	73,3	-5,8	-5,7	33,64	32,49
$\sum$	2225,9	2025,5			1224,011	1208,098

Note :

X_1 = Score Post-test (Experimental Class)

X_2 = Score Post-test (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 $\sum X_1$ = 2195, $\sum X_2$ = 1971, $\sum x_1^2$ = 2789.63, $\sum x_2^2$ = 623.42 where as N_1 = 30 and N_2 = 30. After that the writer calculated them based on the t-test formula, the steps as follow:

Determine mean of variable X_1 and X_2

Variable X_1 $M_1 = \frac{\sum x_1}{N_1} = \frac{2225,9}{30}$ = 74,19667

Variable X_2 $M_2 = \frac{\sum x_2}{N_2} = \frac{2025,5}{30}$ = 67,51667

1. Determine t-test

   $\sum x_1^2$ = 1224

   $\sum x_2^2$ = 1208

   df = $N_1 + N_2 - 2$=30+30–2= 58

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

$$= \frac{74,19667-67,51667}{\sqrt{\left(\frac{1224+1208}{30+30-2}\right)\left(\frac{30+30}{30.\ 30}\right)}} =$$

$$\frac{6,67}{\sqrt{\left(\frac{2432}{58}\right)\left(\frac{60}{900}\right)}} = \frac{6,67}{\sqrt{41,9310\times0,066667}} = \frac{6,67}{\sqrt{2,79554}} =$$

$$\frac{6,67}{1,671986} = 3,9$$

So after the writer calculates this data based on the formula t-test, the obtained t_o or $t_{observation}$ was 3,9

C. Hypothesis Testing

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

If $t_0 > t_t$: the alternative hypothesis was accepted. It means there was significant effect of using quantum teaching in teaching speaking than without using quantum teaching. If $t_0 < t_t$: null hypothesis was rejected. It means there was no significant effect of using quantum teaching in teaching speaking than without using quantum teaching than without it.

From the result of calculation above, it is obtained that the value of t_o $(t_{observation})$ was 3,9 the degree of freedom (df) = 58. In the degree significance 5% = 1,67 in degree of significance 1% = 2,39. After that the writer compared the data with t_t (t table) both in degree of significance 5% and 1%. Therefore $t_o : t_t$ = 3,9 > 1,67 in degree of significance 5% and $t_o : t_t$ = 3,9 > 2,39 in degree of 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 using virtual assistant application in teaching pronunciation than without using virtual assistant application.

D. Interpretation Data

From the result of the data above researcher found that the mean of pre-test score obtained from students of SMAN 2 Krakatau steel in the class XI 4 (experimental class) 74,19 is higher than class XI 3 (control class) 42,19. The highest score of pre-test in XI 4 (experimental class) was 73,3 and in the class XI 3 (control class) was 53,3. The lowest score of pre-test in class XI 4 (experimental class) was 46,6 and in the class XI 3 (control class) was 26,6. It

means that the distribution of score in experimental score was smaller than control class.

The mean of post-test score in experimental class was 74,19 was greater than in control class was 67,51. The highest score in experimental class was 86,6 and in control class was 80. The lowest score in experimental class was 60 and in control class was 53,3. It means that the distribution of score post-test in experimental class was greater than class control.

Based on the data obtained from the research of experimental class and control class among the average score, t observation and comparison with t table. The writer summarize that the students are taught by using Virtual Assistant application has some differences in listening ability than the students taught without virtual assistant application.

The students who taught by using virtual assistant application were easily to listen to the words, and many activities by using virtual assistant application that can make them more active in learning English especially in English listening.