CHAPTER IV

RESEARCH FINDING

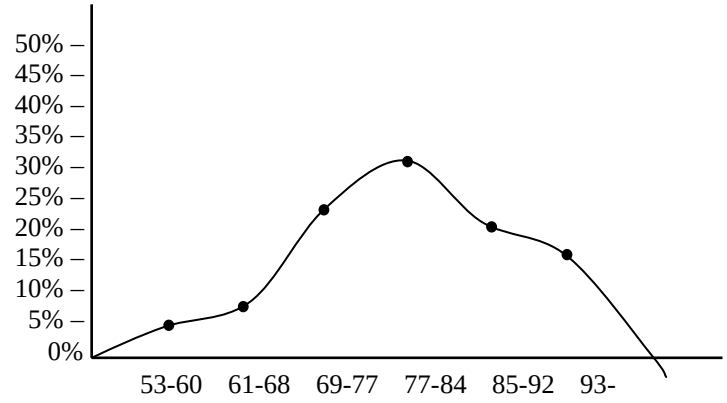
A. Data Description

The objective of this research is to know there is the effect of scientific based learning on students' reading skill achievement at tenth grade of MA Nurul Abror Pamarayan Kab, Serang ? How is the application of using scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan Kab, Serang ? How is the influence of using scientific based learning on students' e reading skill at tenth grade of MA Nurul Abror Pamarayan Kab, Serang ? To answer these questions, the writer used the statistic of education to calculate data gained.

In this research, the writer gave the students the test twice, the first one is pre-test, and the other one is post-test. And the form of test is multiple choise.

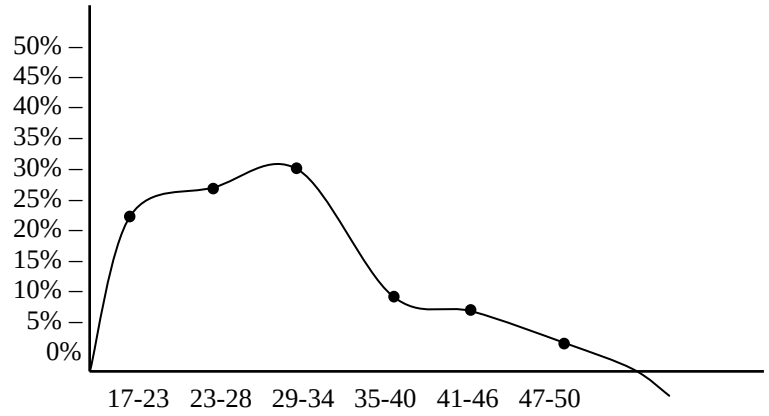
The writer, then, compared the result of the computing of students' scores on pre-test Furthermore, the writer compared their scores between experiment class and control class after doing the research and computed the data.

The data of experiment class are as in graphic below:



Based on the graphic above is known that most of the students of experiment class got good to excellent scores and few of them are goat fair to poor scores.

Whereas the data of control class are as in graphic below:



Based on the graphic above is known that only few of the students of control class got fair to poor score and most of them are got very poor score.

B. Research Analysis

Data of the research are taken from the tenth grade student of MA Nurul Abror Pamarayan Kab. Serang , with a total of population 30 students. In this research paper, the writer takes 30 students as the sample. In this discussion, the writer will explain the result of investigation using statistical analyses.

1. Test of Normality

a. Test Normality of Experiment Class

To investigate student's worksheet gives and describes score in table with formula:

$$\text{Student's Final Score} = \frac{Student's\ Raw\ Score}{Ideal\ Maximum\ Score\ (30)} \times 100$$

Table 4.1

Result of Pre-test and Post-test in Experiment Class

No	Name	Score	
		Pre-test	Post-test
1	AS	20	64
2	AA	36	72
3	Asl	32	84
4	BRN	36	76
5	EY	24	80
6	Ftn	20	72
7	FO	36	88
8	HB	32	72
9	Lks	28	56
10	Jhr	28	72
11	Mhb	36	92
12	Mr	44	88
13	MH	24	72
14	NS	40	100
15	Rs	28	100
16	RR	48	68
17	Rky	32	84
18	SA	44	84
19	Stb	52	72
20	SA	40	76
21	SIO	48	100
22	SK	32	92
23	SR	36	80
24	UK	36	100
25	VF	28	80
26	WIS	36	76
27	MR	20	72
28	Khrn	24	92
29	MK	48	84
30	FJA	32	88

Based on the table above, the writer will arrange one by one from the lowest until high score from that table, as follows:

20	20	20	24	24	24	28	28	28	28
32	32	32	32	32	36	36	36	36	36
36	36	40	40	44	44	48	48	48	52

1. Find out range, with formula

   R = (H – L)

   = (52 – 20)

   = 32

2. Looking for the class interval, with formula:

   K = 1 + 3, 2 (log n)

   = 1 + 3, 2 (log. 30)

   = 1 + 3, 2 (1, 48)

   = 1 + 4,88

   = 5,88 = 6 (become)

3. Looking for the long class, with formula:

   $$p = \frac{R}{K}$$

   $$= \frac{32}{6}$$

   = 5,3 = 6 (become)

4. Making distribution frequency table

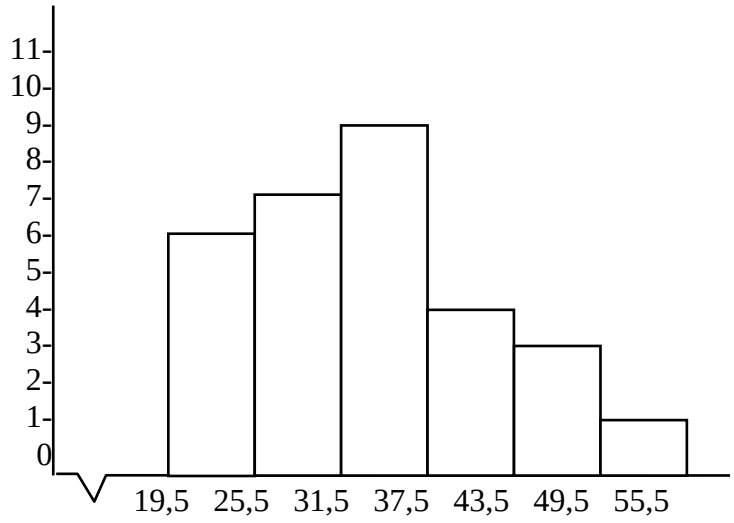
Table 4.2

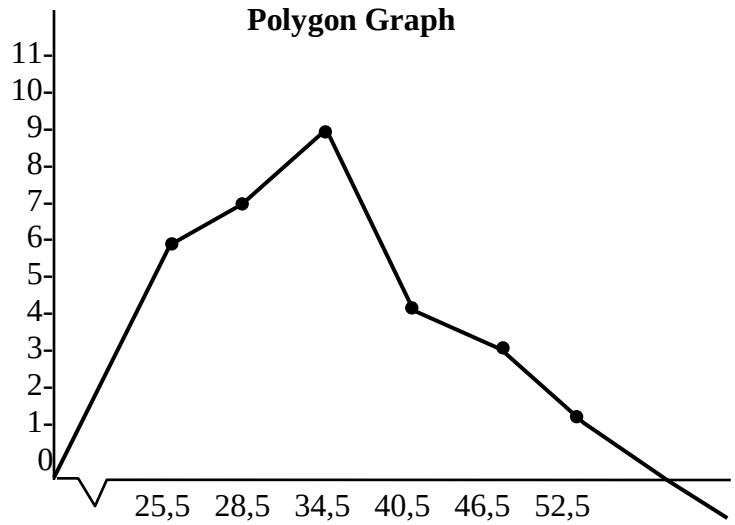
Distribution Frequency

Interval	F	Fk_a	X	FX	Real Limit
20-25	6	6	22,5	135	19.5 - 25.5
26-31	4	10	28,5	199,5	25.5 - 31.5
32-37	12	22	34,5	310,5	31.5 - 37,5
38-43	2	24	40,5	162	37,5 - 43,5
44-49	5	29	46,5	139,5	43,5 - 49,5
50-55	1	30	52,5	52,5	49,5 - 55,5
∑	**30**			**999**	

5. Histogram and Polygon Graph

Histogram Graph





6. Looking for mean

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{999}{30}$$

=33,3

7. Looking for median

$$Me = b + p\left\{\frac{\frac{1}{2}N - Fka}{F}\right\}$$

$$= 37,5 + 6\left\{\frac{\frac{1}{2}15 - 13}{9}\right\}$$

$$= 37,5 + 6\left\{\frac{2}{9}\right\}$$

$$= 37,5 + 6\ (0,22)$$

$$= 37,5 + 1,32$$

$$= 38,82$$

8. Looking for mode

$$Mo = b + p \left[\frac{bi}{b1 + b2} \right]$$

$$= 37.5 + 6 \left[\frac{9 - 7}{(9 - 7) + (9 - 4)} \right]$$

$$= 37.5 + 6 \left[\frac{2}{2 + 5} \right]$$

$$= 37.5 + 6\ (0{,}28)$$

$$= 37{,}5 + 1{,}68$$

$$= 39{,}18$$

9. Making assist table deviation standard

Table 4.3

Assist Table Deviation Standard Pre-test in Experiment Class

Interval	**F**	**X**	**FX**	**(X- $\overline{X}$)**	**(X- $\overline{X}$)^2**	**F(X- $\overline{X}$)^2**
20 – 25	6	22,5	135	-10,8	116,64	699,84
26 – 31	7	28,5	199,5	-4,8	23,04	161,28
32 – 37	9	34,5	310,5	1,2	1,44	12,96
38 – 43	4	40,5	162	7,2	51,84	207,36
44 – 49	3	46,5	139,5	13,2	174,24	522,72
50 - 55	1	52,5	52,5	19,2	364,64	368,644
∑	**30**		**999**			**1972,8**

a. Accounting deviation standard

$$SD = \sqrt{\frac{\sum f(x - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{1972,8}{30}}$$

$$= \sqrt{65,76}$$

$$= 8,10$$

b. Test normality of Pre-test in Experiment Class

Table 4.4

Test of Normality with Chi Square (X^2)

Interval	**Class Limit**	**$Z_{account}$**	**Z_{table}**	**Lz_{table}**	**E_i**	**O_i**
	19,5	-1.70	0.0446			
20 – 25				0,1239	3,71	6
	25,5	-0.96	0.1685			
26 – 31				0.2444	7,33	7
	31,5	-0,22	0,4129			
32 – 37				0,2821	8,46	9
	37,5	0,51	0,695			
38 – 43				0,1994	5,98	4
	43.5	1,25	0,8944			
44 – 49				0,0828	2,48	3
	49,5	2,00	0,9772			
50 – 55				0,0197	0,59	1
	55,5	2,74	0,9969			

c. Accounting X^2 (chi square), with formula:

$$X^2_{account} = \sum \frac{(Oi - Ei)^2}{Ei}$$

$$= \frac{(6-3{,}71)^2}{3{,}71} + \frac{(7-7{,}33)^2}{7{,}33} + \frac{(9-8{,}46)^2}{8{,}46} + \frac{(4-5{,}98)^2}{5{,}98} + \frac{(3-2{,}48)^2}{2{,}48} + \frac{(1-0{,}59)^2}{0{,}59}$$

$$= 1{,}41+0{,}01+0{,}03+0{,}65+0{,}10+0{,}28 = 2{,}48$$

d. Looking for degree of freedom (df), with formula:

$$Df = k - 3$$

$$= 6 - 3$$

$$= 3$$

e. Determining X^2_{table} with signification 5% and df (3)

$$X^2_{table} = (1 - \alpha)\ (df)$$

$$= (1 - 0{,}05)\ (3)$$

$$= (0{,}95)\ (3)$$

$$= 7.81$$

Based on the calculation above is known that $X^2_{account}$ = 2,48 and X^2_{table} = 7,81 so $X^2_{account}$ = 2,48 < X^2_{table} = 7,81. The concluded that the test (sample) of the population is normal distribution.

The Result of Post-test in Experiment Class

53	63	67	70	70	70	73	73	73	73
77	77	77	80	80	80	83	83	83	83
87	87	87	90	90	90	100	100	100	100

1. Find out range, with formula

   R = H – L

   = 100 – 53 = 47

2. Looking for the class interval, with formula:

   K = 1 + 3, 3 (log n)

   = 1 + 3, 3 (log. 30)

   = 1 + 3, 3 (1, 48)

   = 1 + 4,88

   = 5,88 = 6 (become)

3. Looking for the long class, with formula:

   $p = \frac{R}{K} = \frac{47}{6}$ = 7,83 = 8 (become)

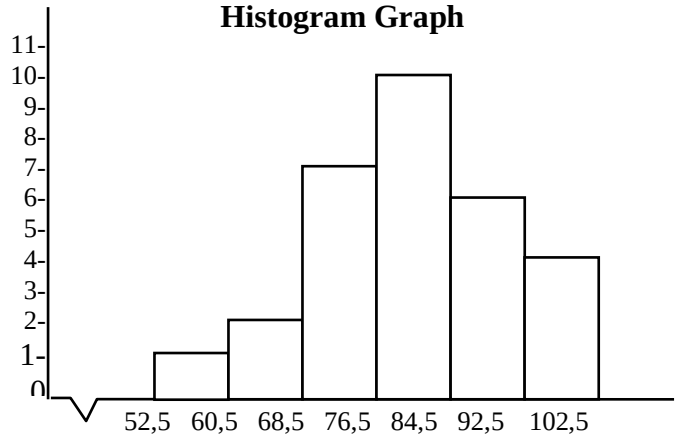
4. Making distribution frequency table

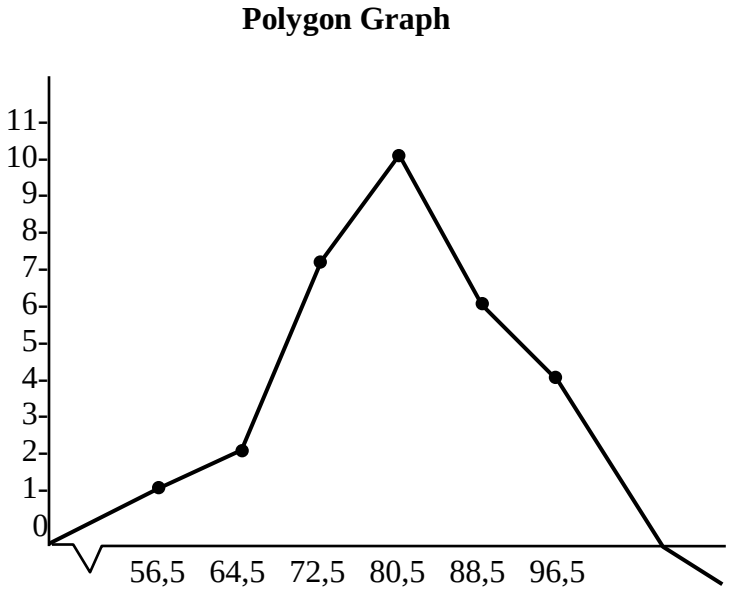
Table 4.5

Distribution Frequency

Interval	F	Fk_a	X	FX	Real Limit
53 – 60	1	1	56,5	56,5	52,5 – 60,5
61 – 68	2	3	64,5	129	60,5 – 68,5
69 – 76	7	10	72,5	507,5	68,5 – 76,5
77 – 84	10	20	80,5	805	76,5 – 84,5
85 – 92	6	26	88,5	531	74,5 – 92,5
93 – 100	4	30	96,5	386	92,5 – 100,5
∑	**30**			**2415**	

5. Histogram and Polygon Graph





6. Looking for mean

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{2415}{30} = 80{,}5$$

7. Looking for median

$$Me = b + p\left\{\frac{\frac{1}{2}N - Fka}{F}\right\}$$

$$= 84{,}5 + 6\left\{\frac{15-10}{10}\right\}$$

$$= 84{,}5 + 6\left\{\frac{5}{10}\right\}$$

$$= 84{,}5 + 6\,(0{,}5)$$

$$= 84{,}5 + 3$$

$$= 87{,}5$$

8. Looking for mode

$$\text{Mo} = \text{b} + \text{p}\left[\frac{bi}{b1+b2}\right]$$

$$= 84{,}5 + 6\left[\frac{10-7}{(10-7)+(10-6)}\right]$$

$$= 84.5 + 6\left[\frac{3}{3+4}\right]$$

$$= 84.5 + 6\,(0{,}42)$$

$$= 84{,}5 + 2{,}52$$

$$= 87{,}02$$

9. Making assist table deviation standard

Table 4.6

Assist Table Deviation Standard Pre-test in Experiment Class

Interval	**F**	**X**	**FX**	**(X- $\overline{X}$)**	**(X- $\overline{X}$)^2**	**F(X- $\overline{X}$)^2**
53 – 60	1	56,5	56,5	-24	576	576
61 – 68	2	64,5	129	-16	256	512
69 – 76	7	72,5	507,5	-8	64	448
77 – 84	10	80,5	805	0	0	0
85 – 92	6	88,5	531	8	64	384
93 – 100	4	96,5	386	16	256	1024
$\sum$	**30**		**2415**			**2944**

a. Accounting deviation standard

$$SD = \sqrt{\frac{\sum f(x - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{2944}{30}}$$

$$= \sqrt{98{,}13}$$

$$= 9{,}90$$

b. Test normality of Pre-test in Experiment Class

Table. 4.7

Test of Normality with Chi Square (X^2)

Interval	Class Limit	$Z_{account}$	Z_{table}	Lz_{table}	E_i	O_i
	52,5	-282	0,0024			
53 – 60				0,0193	0,57	1
	60,5	-2,02	0,0217			
61 – 68				0,0914	2,74	2
	68,5	-1,21	0,1131			
69 – 76				0,2315	6,94	7
	76,5	-0,40	0,3446			
77 – 84				0,3108	9,32	10
	84,5	0,40	0,6554			
85 – 92				0,2315	6,94	6
	92,5	1,21	0,8869			
93 – 100				0,0914	2,74	4
	100,5	2,02	0,9783			

c. Accounting X^2 (chi square), with formula:

$$X^2_{account} = \sum \frac{(Oi - Ei)^2}{Ei}$$

$$= \frac{(1-0,57)^2}{0,57} + \frac{(2-2,74)^2}{2,74} + \frac{(7-6,94)^2}{6,94} + \frac{(10-9,32)^2}{9,32} + \frac{(6-6,94)^2}{6,94} + \frac{(4-2,74)^2}{2,74}$$

$$= 0,32 + 0,19 + 0,01 + 0,04 + 0,12 + 0,57 = 1,25$$

d. Looking for degree of freedom (df), with formula:

$Df = k - 3$

$= 6 - 3$

$= 3$

e. Determining X^2_{table} with signification 5% and df (3)

$X^2_{table} = (1 - \alpha)\ (df)$

$= (1 - 0{,}05)\ (3)$

$= (0{,}95)\ (3)$

$= 7.81$

Based on the calculation above is known that $X^2_{account}$ = 1,25 and X^2_{table} = 7,81 so $X^2_{account}$ = 1,25 < X^2_{table} = 7,81. The concluded that the test (sample) of the population is normal distribution.

b. Test Normality of Control Class

To investigate student's worksheet gives and describes score in table with formula: Student's Final Score

$$= \frac{Student's\ Raw\ Score}{Ideal\ Maximum\ Score\ (30)} \times 100$$

Table 4.8

Result of Pre-test and Post-test in Control Class

No	Name	Score	
		Pre-test	Post-test
1	AS	20	64
2	AA	36	72
3	Asl	32	84
4	BRN	36	76
5	EY	24	80
6	Ftn	20	72
7	FO	36	88
8	HB	32	72
9	Lks	28	56
10	Jhr	28	72
11	Mhb	36	92
12	Mr	44	88
13	MH	24	72
14	NS	40	100
15	Rs	28	100
16	RR	48	68
17	Rky	32	84
18	SA	44	84
19	Stb	52	72
20	SA	40	76
21	SIO	48	100
22	SK	32	92
23	SR	36	80
24	UK	36	100
25	VF	28	80
26	WIS	36	76
27	MR	20	72
28	Khrn	24	92
29	MK	48	84
30	FJA	32	88

Based on the table above, the writer will arrange one by one from the lowest until high score from that table, as follows:

The Result of Pre-test in Control Class

20	20	20	24	24	24	28	28	28	28
32	32	32	32	32	36	36	36	36	36
36	36	40	40	44	44	48	48	48	52

1. Find out range, with formula

   R = H – L

   = 52 – 20

   = 32

2. Looking for the class interval, with formula:

   K = 1 + 3, 2 (log n)

   = 1 + 3, 2 (log. 30)

   = 1 + 3, 2 (1, 48)

   = 1 + 4,88

   = 5,88 = 6 (become)

3. Looking for the long class, with formula:

   $$p = \frac{R}{K}$$

   $$= \frac{33}{6}$$

   = 5,5 = 6 (become)

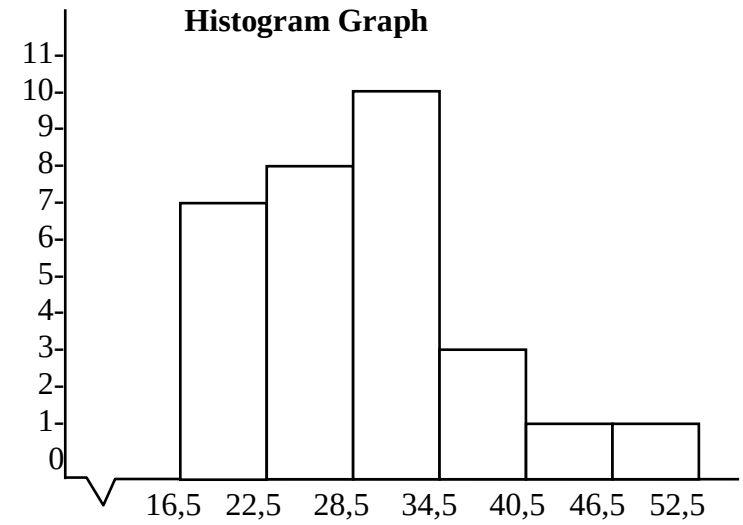
4. Making distribution frequency table

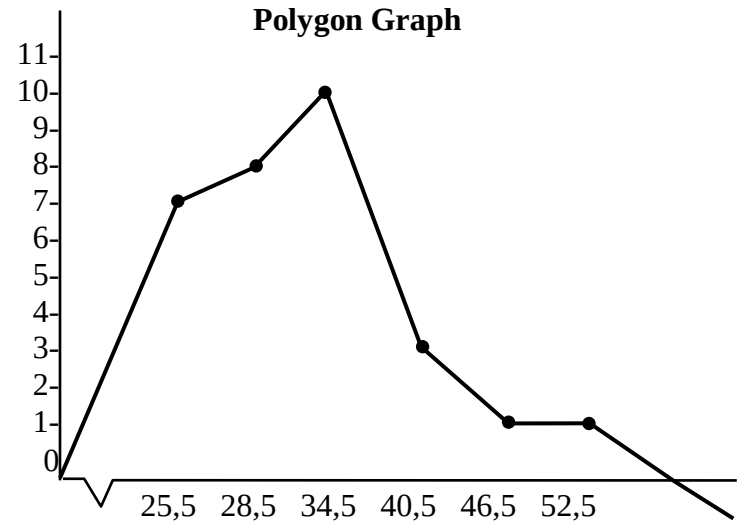
Table 4.9

Distribution Frequency

Interval	**F**	**Fk_a**	**X**	**FX**	**Real Limit**
17 – 22	7	7	19,5	136,5	16,5 – 22,5
23 – 28	8	15	25,5	204	22,5 – 28,5
29 – 34	10	25	31,5	315	28,5 – 34,5
35 – 40	3	28	37,5	112,5	34,5 – 40,5
41 – 46	1	29	43,5	43,5	40,5 – 46,5
47 – 52	1	30	49,5	49,5	46,5 – 52,5
∑	**30**			**861**	

5. Histogram and Polygon Graph





6. Looking for mean

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{861}{30}$$

=28,7

7. Looking for median

$$Me = b + p\left\{\frac{\frac{1}{2}N - Fka}{F}\right\}$$

$$= 34,5 + 6\left\{\frac{15-15}{10}\right\}$$

$$= 34,5 + 6\left\{\frac{0}{10}\right\}$$

$$= 34,5 + 6\,(0)$$

$$= 34,5 + 0$$

$$= 34,5$$

8. Looking for mode

$$Mo = b + p\left[\frac{bi}{b1+b2}\right]$$

$$= 34,5 + 6\left[\frac{10-8}{(10-8)+(10-3)}\right]$$

$$= 34,5 + 6\left[\frac{2}{2+7}\right]$$

$$= 34,5 + 6\,(0,22)$$

$$= 34,5 + 1,32$$

$$= 35,82$$

9. Making assist table deviation standard

Table 4.10

Assist Table Deviation Standard Pre-test in Experiment Class

Interval	**F**	**X**	**FX**	**(X- $\overline{X}$)**	**(X- $\overline{X}$)²**	**F(X- $\overline{X}$)²**
17 – 22	7	19,5	136,5	-9,2	84,64	592,48
23 – 28	8	25,5	204	-3,2	10,24	81,92
29 – 34	10	31,5	315	2,8	7,84	78,4
35 – 40	3	37,5	112,5	8,8	77,44	232,32
41 – 46	1	43,5	43,5	14,8	219,04	219,04
47 – 52	1	49,5	49,5	20,8	432,64	432,64
∑	**30**		**861**			**1636,8**

a. Accounting deviation standard

$$SD = \sqrt{\frac{\sum f(x - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{1636,8}{30}}$$

$$= \sqrt{54,56}$$

$$= 7,38$$

b. Test normality of Pre-test in Control Class

Table 4.11

Test of Normality with Chi Square (X^2)

Interval	Class Limit	$Z_{account}$	Z_{table}	Lz_{table}	E_i	O_i
	16,5	-1,65	0,0495			
17 – 22				0,1509	4,52	7
	22,5	-0,84	0,2004			
23 – 28				0,2916	8,74	8
	28,5	-0,02	0,492			
29 – 34				0,2903	8,70	10
	34,5	0,78	0,7823			
35 – 40				0,1618	4,85	3
	40,5	1,59	0,9441			
41 – 46				0,0479	1,43	1
	46,5	2,41	0,992			
47 - 52				0,0074	0,22	1
	52,5	3,22	0,9994			

c. Accounting X^2 (chi square), with formula:

$$X^2_{account} = \sum \frac{(Oi - Ei)^2}{Ei}$$

$$= \frac{(7-4{,}52)^2}{4{,}52} + \frac{(8-8{,}74)^2}{8{,}74} + \frac{(10-8{,}70)^2}{8{,}70} + \frac{(3-4{,}85)^2}{4{,}85} + \frac{(1-1{,}43)^2}{1{,}43} + \frac{(1-0{,}22)^2}{0{,}22}$$

= 1,36 + 0,06 + 0,19 + 0,70 + 0,12 + 2,76 = 5,19

d. Looking for degree of freedom (df), with formula:

Df = k – 3

= 6 – 3

= 3

e. Determining X^2_{table} with signification 5% and df (3)

X^2_{table} = (1 – α) (df)

= (1 – 0,05) (3)

= (0,95) (3)

= 7.81

Based on the calculation above is known that $X^2_{account}$ = 2,48 and X^2_{table} = 7,81 so $X^2_{account}$ = 5,19 < X^2_{table} = 7,81. The concluded that the test (sample) of the population is normal distribution.

The Result of Post-test in Experiment Class

173	17	17	20	20	20	20	23	23	23
23	27	27	27	27	30	30	30	30	33
33	33	33	33	37	40	40	43	43	50

1. Find out range, with formula

   R = H – L

   = 50 – 17 = 33

2. Looking for the class interval, with formula:

   K = 1 + 3, 3 (log n)

= 1 + 3, 3 (log. 30)

= 1 + 3, 3 (1, 48)

= 1 + 4,88

= 5,88 = 6 (become)

3. Looking for the long class, with formula:

$$p = \frac{R}{K} = \frac{33}{6} = 5,5 = 6 \text{ (become)}$$

4. Making distribution freuquency table

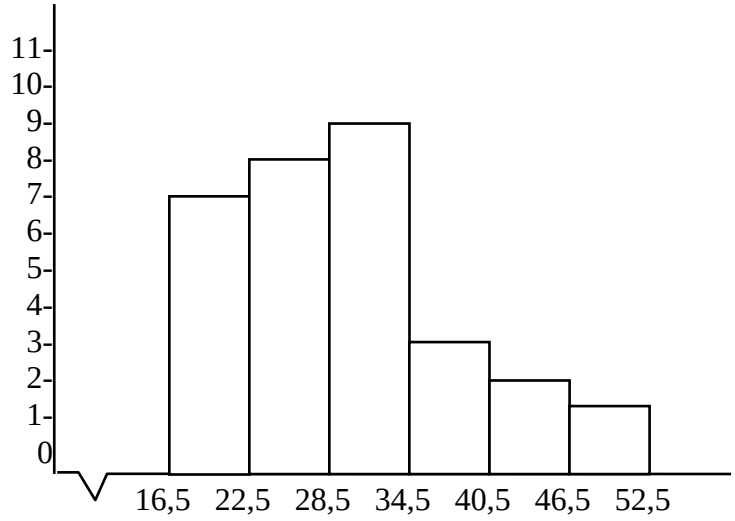
Table 4.12

Distribution Frequency

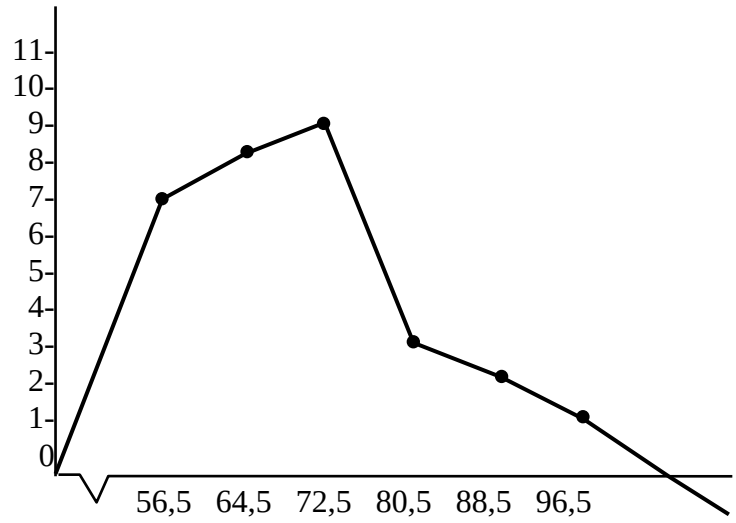
Interval	**F**	**Fk_a**	**X**	**FX**	**Real Limit**
17 – 22	7	7	19,5	136,5	16,5 – 22,5
23 – 28	8	15	25,5	204	22,5 – 28,5
29 – 34	9	24	31,5	283,5	28,5 – 34,5
35 – 40	3	27	37,5	112,5	34,5 – 40,5
41 – 46	2	29	43,5	87	40,5 – 46,5
47 – 52	1	30	49,5	49,5	46,5 – 52,5
∑	**30**			**873**	

5. Histogram and Polygon Graph

Histogram Graph



Polygon Graph



6. Looking for mean

$$\bar{X} = \frac{\sum FX}{\sum F} = \frac{861}{30} = 28{,}7$$

7. Looking for median

$$Me = b + p\left\{\frac{\frac{1}{2}N - Fka}{F}\right\}$$

$$= 34{,}5 + 6\left\{\frac{15-5}{9}\right\}$$

$$= 34{,}5 + 6\left\{\frac{0}{10}\right\}$$

$$= 34{,}5 + 6\,(0)$$

$$= 34 + 0$$

$$= 34{,}5$$

8. Looking for mode

$$\text{Mo} = \text{b} + \text{p}\left[\frac{bi}{b1 + b2}\right]$$

$$= 34{,}5 + 6\left[\frac{9-8}{(9-8)+(9-3)}\right]$$

$$= 34{,}5 + 6\left[\frac{1}{1+6}\right]$$

$$= 34{,}5 + 6\left[\frac{1}{7}\right]$$

$$= 34{,}5 + 6\,(0{,}14)$$

$$= 34{,}5 + 0{,}84 = 35{,}34$$

9. Making assist table deviation standard

Table 4.13

Assist Table Deviation Standard Post-test in Control Class

Interval	**F**	**X**	**FX**	**(X- $\overline{X}$)**	**(X- $\overline{X}$)²**	**F(X- $\overline{X}$)²**
17 – 22	7	19,5	136,5	-9,2	84,64	592,48
23 – 28	8	25,5	204	-3,2	10,24	81,92
29 – 34	9	31,5	283,5	2,8	7,84	70,56
35 – 40	3	37,5	112,5	8,8	77,44	232,32
41 – 46	2	43,5	87	14,8	219,04	438,08
47 – 52	1	49,5	49,5	20,8	432,64	432,64
∑	**30**		**861**			**1848**

a. Accounting deviation standard

$$SD = \sqrt{\frac{\sum f(x - \bar{x})^2}{N}}$$

$$= \sqrt{\frac{1848}{30}}$$

$$= \sqrt{61{,}6}$$

$$= 7{,}84$$

b. Test normality of Post-test in Control Class

Table. 4.14

Test of Normality with Chi Square (X^2)

Interval	Class Limit	$Z_{account}$	Z_{table}	Lz_{table}	E_i	O_i
	16,5	-1,55	0,0606			
17 – 22				0,1542	4,62	7
	22,5	-0,79	0,2148			
23 – 28				0,2772	8,31	8
	28,5	-0,02	0,492			
29 – 34				0,2753	8,25	9
	34,5	0,73	0,7673			
35 – 40				0,1659	4,97	3
	40,5	1,50	0,9332			
41 – 46				0,0552	1,65	2
	46,5	2,27	0,9884			
47 – 52				0,0104	0,31	1
	52,5	3,03	0,9988			

c. Accounting X^2 (chi square), with formula:

$$X^2_{account} = \sum \frac{(Oi - Ei)^2}{Ei}$$

$$= \frac{(7-4{,}62)^2}{4{,}62} + \frac{(8-8{,}31)^2}{8{,}31} + \frac{(9-8{,}25)^2}{8{,}25} + \frac{(3-4{,}97)^2}{4{,}97} + \frac{(2-1{,}65)^2}{1{,}654} + \frac{(1-0{,}31)^2}{0{,}31}$$

= 1,22 + 0,01 + 0, 06 + 1,78 + 0,07 + 1,53 = 3,67

d. Looking for degree of freedom (df), with formula:

Df = k – 3

= 6 – 3

= 3

e. Determining X^2_{table} with signification 5% and df (3)

X^2_{table} = (1 – α) (df)

= (1 – 0,05) (3)

= (0,95) (3)

= 7.81

Based on the calculation above is known that $X^2_{account}$ = 3,67 and X^2_{table} = 7,81 so $X^2_{account}$ = 3,67 < X^2_{table} = 7,81. The concluded that the test (sample) of the population is normal distribution.

2. T-Test

After having getting the data from the post-test score of two classes, then the writer analyzed it by using T-test formula:

Table 4.15

The Calculation Scores of Each Students In Experiment and Control Class

No	x_1	x_2	X_1	X_2	X_1^2	X_2^2
1	53	17	-27,63	-11,96	763,4	143,0
2	63	17	-17,63	-11,96	310,8	143,0
3	67	17	-13,63	-11,96	185,7	143,0
4	70	20	-10,63	-8,96	112,9	80,2
5	70	20	-10,63	-8,96	112,9	80,2
6	70	20	-10,63	-8,96	112,9	80,2
7	73	20	-7,63	-8,96	58,2	80,2
8	73	23	-7,63	-5,96	58,2	35,5
9	73	23	-7,63	-5,96	58,2	35,5
10	73	23	-7,63	-5,96	58,2	35,5
11	77	23	-3,63	-5,96	13,1	35,5
12	77	27	-3,63	-1,96	13,1	3,8
13	77	27	-3,63	-1,96	13,1	3,8
14	80	27	-0,63	-1,96	0,3	3,8
15	80	27	-0,63	-1,96	0,3	3,8
16	80	30	-0,63	1,04	0,3	1,0
17	83	30	2,37	1,04	5,6	1,0
18	83	30	2,37	1,04	5,6	1,0
19	83	30	2,37	1,04	5,6	1,0
20	83	33	2,37	4,04	5,6	16,3
21	87	33	6,37	4,04	40,5	16,3
22	87	33	6,37	4,04	40,5	16,3
23	87	33	6,37	4,04	40,5	16,3
24	90	33	9,37	4,04	87,7	16,3
25	90	37	9,37	8,04	87,7	64,6
26	90	40	9,37	11,04	87,7	121,8
27	100	40	19,37	11,04	375,1	121,8
28	100	43	19,37	14,04	375,1	197,1
29	100	43	19,37	14,04	375,1	197,1
30	100	50	19,37	21,04	375,1	442,6
∑					4117,7	2137,5

Based on the data above is known that:

$\sum X_1 = 2419$ $\sum X_1^2 = 4117,7$

$\sum X_2 = 869$ $\sum X_2^2 = 2137,5$

To find the different of using scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan Kab. Serang. Post-test in experiment class (X_1) and Post-test in Control class (X_2) is used the technique t-test as follows:

1. Determine mean of variable X_1, with formula:

$$M_1 = \frac{\sum X_1}{N}$$

$$M_1 = \frac{2419}{30} = 80,63$$

2. Determine mean of variable X_2, with formula:

$$M_2 = \frac{\sum X_2}{N}$$

$$M_2 = \frac{869}{30} = 28,96$$

3. Determine t-test, with formula:

$$t_0 = \frac{M_1 - M_2}{\sqrt{\frac{\left(\sum X_1^2 + \sum X_2^2\right)\left(N_1 + N_2\right)}{\left(N_1 + N_2 - 2\right)\left(N_1.N_2\right)}}}$$

$$t_0 = \frac{80,63 - 28,96}{\sqrt{\frac{(4117,7 + 2137,5)(30 + 30)}{(30 + 30 - 2)(30 \times 30)}}}$$

$$t_0 = \frac{51,67}{\sqrt{\frac{(6255,2)(600)}{(58)(900)}}}$$

$$t_0 = \frac{51,67}{\sqrt{(107,84)(0,06)}}$$

$$t_0 = \frac{51,67}{\sqrt{6,47}}$$

$$t_0 = \frac{51,67}{2,54} = 20,34$$

4. Determining t with signification 5%

   df = $N_1 + N_2 - 2$

   = 30 + 30 -2

   = 58

   = 2,00

5. Determinug with signification 1%

   df = $N_1 + N_2 - 2$

   = 30 + 30 -2

   = 58

   = 2,65

From the result of calculation above is known that t_{table} with level significance 5% = 2,00 and with level significance 1% = 2,65, so $t_{observation}$ = 20,34 > t_{table} = 2,00 or $t_{observation}$ = 20,34 > t_{table} = 2,65. The concluded that the writer rejects $H_0 : t_0 < t_t$: it means there is no the effect of scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan and receives H_a: > t_t : it means there is the effect of scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan.

C. Hypothesis Testing

To verify the authentication, the data obtained from the experiment and control class is calculated with assumption as follow:

1. If $H_0 : t_0 < t_t$: Null hypothesis is rejected. It means there is no the effect of scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan.
2. If $H_a : t_0 > t_t$: Alternative hypothesis is receive. It means there is the effect of scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan.

D. Interpretation of Data

This analysis purposed to know how far is the effect of scientific based learning on students' reading skill at tenth grade of MA Nurul Abror Pamarayan. From the result of research that the mean of pre-test score gained by students in experiment class 33,3 was higher than in control class 28,7. The highest score of pre-test in experiment class 53, the lowest score of pre-test in experiment class 20 and the highest score of pre-test in control class 50, the lowest score of pre-test in control class 17. So, the distribution of scores in experiment class was higher than in control class.

The mean of post-test score gained by students in experiment class 80,5 was higher than in control class 28,7. The highest score of post-test in experiment class 100, the lowest score of post-test in experiment class 53 and the highest score of post-test in control score of post-test in control class 17. So, the distribution experiment class was higher than in control class.

From the interpretation of data above can be concluded that using scientific based learning on reading skill at tenth grade of MA Nurul Abror Pamarayan gives the effect students' reading skill at tenth grade of MA Nurul Abror Pamarayan will be better.