CHAPTER IV
RESEARCH FINDINGS AND ANALYSIS

A. Description of the Research

The Research had been conducted since May 3th, 2014 to May 17th, 2014 in SMP Islam Al-Kautsar Semarang. This research had been carried through 4 steps or 4 meetings. They involved pre-test, two times of treatment, and post-test. To find the difference of the students who was taught degrees of comparison through circle the sage technique and the students who was taught degrees of comparison without circle the sage technique, the researcher did an analysis of quantitative data in SMP Islam Al-Kautsar Semarang in the Academic Year of 2013/2014 in the second semester.

To get the representative sample, the researcher took a sample by using cluster random sampling. The researcher wrote the names of the classes on small piece of paper. And then, the papers were rolled and put into a lot of box. The last, the researcher got class VIII B which consisted of 28 students as experimental group and class VIII C which consisted of 33 students as control group. The number of students was gained from the documentation of the related to school by the help of the English teacher. Then, the researcher gave pre-test on 3th May 2014 in control group and experimental group. After giving pre-test, the writer determined the materials and lesson plans of

learning activities. Pre-test conducted to both groups to know that two groups were normal and homogeny.

After knowing the control group and experimental group had same variant, the researcher conducted treatment in control and experimental class on 8th May 2014. The control group was not taught using circle the sage technique; just explaining about material of degrees of comparison and letting the students to write the formula n the example of degrees of comparison on the whiteboard. The treatment for experimental group used circle the sage technique which appropriate to develop students' active in group. When students were joining in activity of circle the sage, they did it enthusiastically. Firstly, teacher simulated circle the sage technique with students. Teacher stimulated them by giving some questions. Then, teacher allowed students to generate ideas based on topic without worrying the false and the use of ideas. After that, teacher facilitates students to apply circle the sage technique in group.

After gave treatments in experimental group and conventional teaching in control group, the researcher gave post-test which applies multiple choice test, approximately finished on 90 minutes. Giving post test on 17th May 2014 both experimental and control group.

Then, the researcher collected the data. After the data are collected, the writer was scored the result of data from the test have been given to the students. The writer gave score for each

number 5 points. The data was analyzed to prove the truth of hypothesis that has been planned.

B. The Data Analysis and Test of Hypothesis

1. The Data Analysis of Try-out Finding

The data in this study that were gotten from the test result, as follow: validity, reliability, level of difficulty and discriminating power.

a. Validity of Instrument

As mentioned in chapter III, validity refers to the precise measurement of the test. In this study, item validity was used to know the index validity of the test. To know the validity of instrument, the writer used the Pearson product moment formula to analyze each item. It was obtained that from 30 test items; there were 20 test items which were valid and 5 test items which were invalid. They were on number 6, 16, 20, 26, and 30. They were invalid with the reason the computation result of their r_{xy} value (the correlation of score each item) was lower than their r_{table} value.

Table 1

Validity of Each Item

Criteria	$\mathbf{r_{table}}$	**Number of questions**	**Total**
Valid	0. 361	1, 2, 4, 5, 7, 8, 9, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25, 27, 28, 29, 30.	25
Invalid		6, 16, 20, 26, 30.	5

The following was the example of item validity computation for item number 1 and for the other items would use the same formula.

Table 2

The Computation of Item Validity for Item No. 1 of Multiple Choice Test

No.	**Code**	**Item**	**Score**	$\mathbf{Y^2}$	**XY**
1	T-4	1	28	784	28
2	T-30	1	28	784	28
3	T-12	1	27	729	27
4	T-3	1	27	729	27
5	T-11	1	27	729	27

No.	Code	Item	Score	Y^2	XY
6	T-22	0	27	729	0
7	T-19	1	26	676	26
8	T-7	1	26	676	26
9	T-15	0	25	625	0
10	T-26	1	25	625	25
11	T-16	1	24	576	24
12	T-29	1	23	529	23
13	T-2	1	23	529	23
14	T-14	1	23	529	23
15	T-24	1	23	529	23
16	T-5	1	22	484	22
17	T-28	1	21	441	21
18	T-17	1	21	441	21
19	T-20	1	19	361	19
20	T-23	1	18	324	18
21	T-13	1	18	324	18
22	T-1	0	16	256	0
23	T-9	1	16	256	16
24	T-18	0	15	225	0
25	T-6	0	15	225	0
26	T-8	0	15	225	0
27	T-10	1	13	169	13
28	T-27	0	12	144	0

No.	Code	Item	Score	Y^2	XY
29	T-21	0	12	144	0
30	T-25	0	11	121	0
Total		21	626	13918	478

T : Try Out Number of Student's

Based on the table:

Mp = 22.76

Mt = 20.87

P = 0.66

Q = 0.34

St = 5.34

$$r_{pbis} = \frac{22,76 - 20,87}{5,43}\sqrt{\frac{0,70}{0,30}}$$

$$= 0,533$$

From tables of r_{xy}, for $\alpha = 5\ \%$ with N = 30, it would be obtained 0.361. Because $r_{count} > r_{table}$, so the item number 1 is valid.

b. Reliability

A good test must be valid and reliable. the next analysis was to the test the reliability of instrument It was done to find out whether a test had higher critical score and gave the stability or consistency of the test scores or not.

S^2 = 29.4988

n = 30

$\sum pq$ = 6.4043

$$r_{11} = \left(\frac{30}{30 - 1}\right)\left(\frac{29{,}4989 - 6{,}4043}{29{,}4989}\right)$$

$$= 0{,}8099$$

The result shows that 0.8099 is more than 0.8, it means that the reliability of instrument were very high.

c. Degree of test difficulty

The following is the computation of the level difficulty for item number 1 and for the other items would use the same formula.

B=13+8=21

JS= 30

$$P = \frac{B}{JS}$$

$$P = \frac{21}{30}$$

$$P = 0{,}7$$

So, the difficulty level of item number 1 is medium.

Table 3

Degree of Difficulty of Each Item

Criteria	Number of questions	Total
Easy	1, 3, 4, 5, 7, 8, 9, 10, 13, 14, 16, 17, 18, 24, 26, 27, 29,	20
Medium	2, 6,11, 12, 15, 19,20, 21, 22, 23, 25, 28, 30	10

d. The Discriminating Power

The following is the computation of discriminating power of item number 1. To do this analysis, the number of try-out subjects was divided into two groups, upper and lower groups. They were upper and lower group.

Table 4

The Table of Discriminating Power of Item Number 1

Upper Group			Lower Group		
No	Code	Score	No	Code	Score
1	T-4	1	1	T-5	1
2	T-30	1	2	T-28	1
3	T-12	1	3	T-17	1
4	T-3	1	4	T-20	1
5	T-11	1	5	T-23	1
6	T-22	0	6	T-13	1

7	T-19	1	7	T-1	0
8	T-7	1	8	T-9	1
9	T-15	0	9	T-18	0
10	T-26	1	10	T-6	0
11	T-16	1	11	T-8	0
12	T-29	1	12	T-10	1
13	T-2	1	13	T-27	0
14	T-14	1	14	T-21	0
15	T-24	1	15	T-25	0
Sum		13	Sum		8

T : Try Out Student

This was the analysis of discriminating power for item number 1:

JA =15

JB = 15

BA=13

BB =8

$$D = \frac{B_A}{J_A} - \frac{B_B}{J_B}$$

$$D = \frac{13}{15} - \frac{8}{15} = \frac{5}{15}$$

D = 0, 33

According to the criteria, the item number 1 above was satisfactory category, because the calculation result of the item number 1 was between 0.21 – 0.40. After computing 30 items of try –out test and after being consulted to the discriminating power category, there were 2 items which considered being good, 23 items were satisfactory and 5 items were poor.

Table 5

Discriminating Power of Each Item

Criteria	Number of Questions	Total
Poor	6, 16, 20, 26, 30	5
satisfied	1, 2, 3, 4, 5, 7, 8, 9, 11, 12, 13, 14, 15, 17, 18, 19, 21, 23, 24, 25, 27, 28, 29	23
Good	10, 22	2

Based on the analysis of validity, reliability, difficulty level, and discriminating power, finally 30 items of test, there were 25 items were accepted to be used in pre-test and post-test. They were number 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 21, 22, 23, 24, 25, 27, 28 and 29.

2. The Data Analysis of Pre-test Score of the Experimental class and the Control Class

Table 6

The List of the Experimental and Control Class

Pre-test Score

No	Control		No	Experimental	
	Code	Pre-Test		Code	Pre-Test
1	C-1	55	1	E-1	80
2	C-2	65	2	E-2	70
3	C-3	75	3	E-3	60
4	C-4	65	4	E-4	75
5	C-5	70	5	E-5	65
6	C-6	70	6	E-6	55
7	C-7	65	7	E-7	65
8	C-8	65	8	E-8	70
9	C-9	80	9	E-9	70
10	C-10	60	10	E-10	75

No	Control		No	Experimental	
	Code	Pre-Test		Code	Pre-Test
11	C-11	75	11	E-11	70
12	C-12	60	12	E-12	65
13	C-13	80	13	E-13	60
14	C-14	65	14	E-14	75
15	C-15	75	15	E-15	65
16	C-16	55	16	E-16	60
17	C-17	75	17	E-17	65
18	C-18	70	18	E-18	65
19	C-19	70	19	E-19	70
20	C-20	60	20	E-20	70
21	C-21	80	21	E-21	65
22	C-22	55	22	E-22	75
23	C-23	60	23	E-23	65
24	C-24	60	24	E-24	80
25	C-25	65	25	E-25	55
26	C-26	60	26	E-26	70
27	C-27	55	27	E-27	70
28	C-28	70	28	E-28	70
29	C-29	65			
30	C-30	70			
31	C-31	65			
32	C-32	70			

No	Control		No	Experimental	
	Code	Pre-Test		Code	Pre-Test
33	C-33	75			
∑	=	2205	∑	=	1900
N	=	33	N	=	28
X	=	66.81818	X	=	67.85714
S^2	=	55.96591	S^2	=	41.53439
S	=	7.481037	S	=	6.444718

C: Student's Number of Control Class

E: Student's Number of Experimental Class

1) The Normality of the Experimental Class Pre-test

The normality test was used to know whether the data obtained was normally distributed or not. Based on the table above, the normality test:

Hypothesis:

Ha: The distribution list was normal.

Ho: The distribution list was not normal

Test of hypothesis:

The formula was used:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 80 N = 28

Minimum score = 55 Range = 25

K/ Number of class = 6 Length of the class =5

S = 6.444 $\bar{x}$ =67.86

Table 7

The Frequency Distribution of the Experimental Class Pre-Test

Class Interval			Class Limit	Z for Class Limit	P (Zi)	Large Class for Z(Ld)	Ei	Oi	$(Oi-Ei)^2$ / Ei
55,00	-	59,00	54,50	-2,07	0,4809	0,0783	2,1911	2	0,017
60,00	-	64,00	59,50	-1,30	0,4026	0,2039	5,7079	3	1,285
65,00	–	69,00	64,50	-0,52	0,1988	0,2994	8,3830	8	0,017
70,00	-	74,00	69,50	0,25	0,1006	0,2481	6,9458	9	0,608
75,00	-	79,00	74,50	1,03	0,3487	0,1159	3,2456	4	0,175
80,00	-	84,00	79,50	1,81	0,4646	0,0305	0,8542	2	1,537
			84,50	2,58	0,4951			28	
χ^2									3,6384

χ^2 *count*= 3.63

for a = 5%, dk = 6 - 3 = 3, χ *table*= 7.81

3.63 7.81

With α = 5% and dk = 6-3=3, from the chi-square distribution table, obtained χ_{table} = 7.81. Because $\chi^2 count$ was lower than χ^2_{table}(3.63 < 7.81). So, the distribution list was normal.

2) The Normality of the Control Class Pre-test

The normality test was used to know whether the data obtained was normally distributed or not. Based on the table above, the normality test:

Hypothesis:

Ha: The distribution list was normal.

Ho: The distribution list was not normal

Test of hypothesis:

The formula was used:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 80 N = 33

Minimum score = 55 Range = 25

K/ Number of class = 6 Length of the class = 5

S = 7.48 $\bar{x}$ = 66.82

Table 8

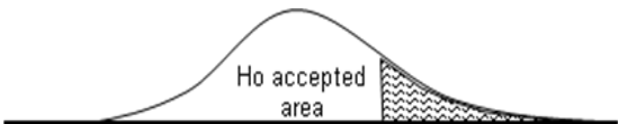
The Frequency Distribution of the the Control Class

Pre-test

Class Interval			Class Limit	Z for Class Limit	P (Zi)	Large Class for Z(Ld)	Ei	Oi	$(Oi-Ei)^2$ / Ei
55,00	-	59,00	54,50	-1,65	0,4502	0,1142	3,7672	4	0,014
60,00	-	64,00	59,50	-0,98	0,3360	0,2143	7,0735	6	0,163
65,00	–	69,00	64,50	-0,31	0,1217	0,2617	8,6355	8	0,047
70,00	-	74,00	69,50	0,36	0,1400	0,2077	6,8555	7	0,003
75,00	-	79,00	74,50	1,03	0,3478	0,1072	3,5386	5	0,604
80,00	-	84,00	79,50	1,70	0,4550	0,0360	1,1870	3	2,769
			84,50	2,36	0,4909			33	
							χ^2		3,6000

χ^2 *count*= 3.60

for a = 5%, dk = 6 - 3 = 3, χ *table*= 7.81



3.60 7.81

With α = 5% and dk = 6-3=3, from the chi-square distribution table, obtained χ *table* = 7.81. Because χ^2 *count* was lower than χ^2 *table* (3.60 < 7.81). So, the distribution list was normal.

Hypothesis

H_o: $\sigma_1^2 = \sigma_2^2$

H_a: $\sigma_1^2 \neq \sigma_2^2$

The Calculation

Formula: $\frac{Vb}{Vk}$

Ho is accepted if $F \leq F_{1/2a\ (nb-1):(nk-1)}$

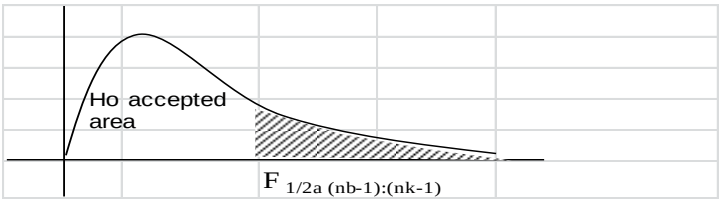


Table 9

The Homogeneity Test (Pre-test)

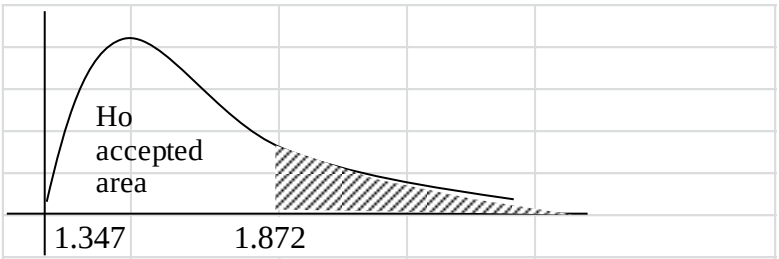
Variation source	Experimental	Control
Sum	1900	2205
N	28	33
$\bar{X}$	67.857	66.818
Variants (s^2)	41.534	55.965
Standard deviation (s)	6.444	7.481

$$F = \frac{55.9659}{41.5344} = 1.347$$

For a = 5% with:

df1 = n1 – 1 = 33 - 1 = 32

df2 = n2 -1 = 28 - 1 = 27



With α = 5% and dk = (28-1 = 27):(33-1 = 32), obtained F_{table}= 1.849. Because $F_{count}$was lower than F_{table}(1.347<1.872).So, Ho was accepted and the two groups have the same variant / there is **homogeneous.**

The Hypothesis Test

In this research, because $\sigma_1^2 = \sigma_2^2$ (has same variant), the t-test formula was as follows:

$$S = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

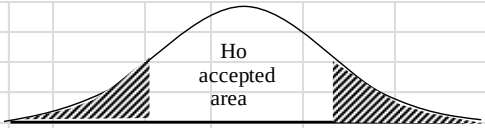
$$s = \sqrt{\left(\frac{28-1}{28+33-2}\right)41.5344 + \left(\frac{33-1}{28+33-2}\right)55.9659}$$

$$= 7.026$$

$$t = \frac{67.86 - 66.8182}{7.026\sqrt{\frac{1}{28}+\frac{1}{33}}}$$

$$= 0.576$$

For a = 5% and dk = 28 + 33 - 2 = 59, $t_{(0.05)(58)}$ = 2.001



With α = 5% and dk = 28 + 33 – 2 = 59, obtained t_{table} = 2.00. Because t_{count} was lower than t_{table} (-0.576< 2.00). So, Ho was accepted and there was no difference of the pre-test average value from both groups.

3. The Data Analysis of Post-test Score of the Experimental Class and the Control Class

Table 10

The List of the Experimental and Control Class

Post-Test score

No.	Control		No.	Experimental	
	Code	Score		Code	Score
1	C-1	65	1	E-1	90

No.	Control		No.	Experimental	
	Code	Score		Code	Score
2	C-2	80	2	E-2	80
3	C-3	80	3	E-3	70
4	C-4	75	4	E-4	95
5	C-5	75	5	E-5	70
6	C-6	80	6	E-6	75
7	C-7	70	7	E-7	70
8	C-8	75	8	E-8	80
9	C-9	85	9	E-9	80
10	C-10	65	10	E-10	85
11	C-11	80	11	E-11	80
12	C-12	70	12	E-12	75
13	C-13	85	13	E-13	90
14	C-14	80	14	E-14	80
15	C-15	90	15	E-15	75
16	C-16	65	16	E-16	75
17	C-17	85	17	E-17	85
18	C-18	75	18	E-18	90
19	C-19	75	19	E-19	80
20	C-20	75	20	E-20	80
21	C-21	90	21	E-21	85
22	C-22	70	22	E-22	75
23	C-23	75	23	E-23	85

No.	Control		No.	Experimental	
	Code	**Score**		**Code**	**Score**
24	C-24	80	24	E-24	90
25	C-25	70	25	E-25	75
26	C-26	80	26	E-26	95
27	C-27	70	27	E-27	85
28	C-28	85	28	E-28	85
29	C-29	80			
30	C-30	75			
31	C-31	80			
32	C-32	75			
33	C-33	75			
$\sum$	=	2530	$\sum$	=	2280
N	=	33	N	=	28
X	=	76.66	X	=	81.42
S^2	=	41.66	S^2	=	51.58
S	=	6.45	S	=	7.182

C: Student's Number of Control Class

E: Student's Number of Experimental Class

1) The Normality of the Experimental Class Post-test

Based on the table above, the normality test:

Hypothesis :

Ho : The distribution list was normal.

Ha : The distribution list was not normal.

Test of hypothesis:

The formula was used:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score = 95 N = 28

Minimum score = 70 Range = 25

K/ Number of class = 6 Length of the class = 5

S = 7.182 $\bar{x}$ = 81.43

Table 11

The Frequency Distribution of the Experimental Class

Post-test

Class Interval			Class Limit	Z for Class Limit	P (Zi)	Large Class for Z(Ld)	Ei	Oi	$(Oi-Ei)^2$ / Ei
70,00	-	74,00	69,50	-1,66	0,4516	0,1190	3,3315	3	0,033
75,00	-	79,00	74,50	-0,96	0,3326	0,2268	6,3502	6	0,019
80,00	–	84,00	79,50	-0,27	0,1058	0,2714	7,5989	7	0,047
85,00	-	89,00	84,50	0,43	0,1655	0,2039	5,7094	6	0,015
90,00	-	94,00	89,50	1,12	0,3694	0,0962	2,6927	4	0,635
95,00	-	99,00	94,50	1,82	0,4656	0,0285	0,7967	2	1,818
			99,50	2,52	0,4941			28	
χ^2								=	2,5666

χ^2_{count}= 2.56

for a = 5%, dk = 6 - 3 = 3, χ_{table}= 7.81

With α = 5% and dk = 6-3=3, from the chi-square distribution table, obtained χ_{table} = 7.81. Because $\chi^2 count$ was lower than $\chi^2 table$(2.56 < 7.81). So, the distribution list was normal.

2) The Normality of the Control Class Post-test

Hypothesis:

Ho : The distribution list was normal

Ha : The distribution list was not normal

Test of hypothesis:

The formula was used:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

The computation of normality test:

Maximum score	=	90	N	=	33
Minimum score	=	65	Range	=	25
K/ Number of class = 6			Length of the class=5		
S = 6.45			$\bar{x}$ = 76.66		

Table 12

The Frequency Distribution of the Control Class

Post-test

Class Interval			Class Limit	Z for Class Limit	P (Zi)	Large Class for Z(Ld)	Ei	Oi	$(Oi-Ei)^2$ / Ei
65.00	-	69.00	64.50	-1.88	0.4703	0.1037	3.4227	3	0.052
70.00	-	74.00	69.50	-1.11	0.3666	0.2351	7.7589	5	0.981
75.00	-	79.00	74.50	-0.34	0.1314	0.3011	9.9357	10	0.000
80.00	-	84.00	79.50	0.44	0.1696	0.2179	7.1904	10	1.098
85.00	-	89.00	84.50	1.21	0.3875	0.0891	2.9391	3	0.001
90.00	-	94.00	89.50	1.99	0.4766	0.0205	0.6776	2	2.581
			94.50	2.76	0.4971			33	
χ^2								=	4.7138

$\chi^2 count_{count} = 4.71$

for a = 5%, dk = 6 - 3 = 3, $\chi_{table} = 7.81$

With α = 5% and d 4.71 = 7.81 he Chi-Square distribution table, obtained $\chi^2 table$ = 7.81. Because χ^2 *count* was lower than $\chi^2 table$(4.71 < 7.81). So, the distribution list was normal.

Hypothesis

H_o: $\sigma_1^2 = \sigma_2^2$

H_a: $\sigma_1^2 \neq \sigma_2^2$

The Calculation

Formula:

Ho is accepted if F $\leq$ $\frac{Vb}{Vk}$ (nk-1)

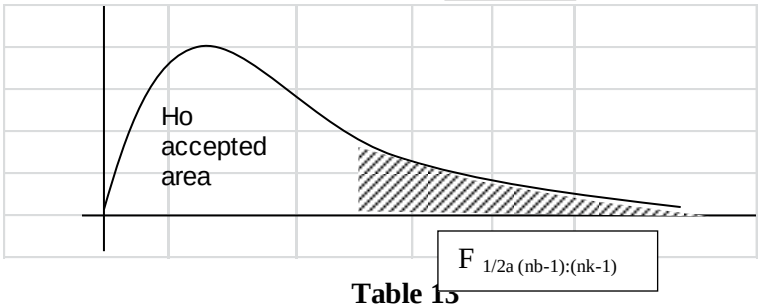


Table 13

The Homogeneity Test (Post-test)

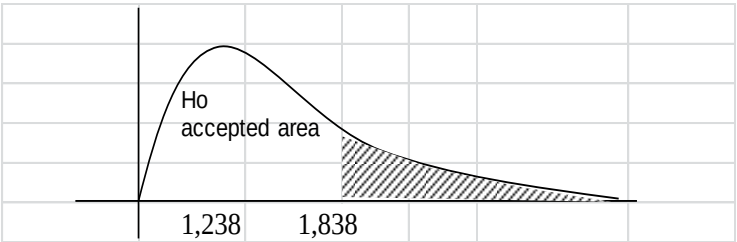
Variation Source	Experimental	Control
Sum	2280	2530
N	28	33
$\bar{x}$	81.428	76.666
Variance (s^2)	51.587	41.666
Standard deviation (s)	7.182	6.454

$$F = \frac{51.587}{41.667} = 1.238$$

df1 = n1 – 1 = 28 - 1 = 27

df2 = n2 -1 = 33 - 1 = 32

$F_{(0,05)(27:32)}$ = 1.838



Since F count < F table, the experimental and control group have the same variance. With α = 5% and dk = (28-1=27): (33-1=32), obtained F_{table} = 1.838. Because F_{count} was lower than F_{table} (1.238< 1.83). So, Ho was accepted and the two groups have same variant/ **homogeneous.**

The Hypothesis Test

In this research, because $\sigma_1^2 = \sigma_2^2$ (has same variant), the t-test formula was as follows:

$$S = \sqrt{\frac{(n_1 - 1)S_1^{\ 2} + (n_2 - 1)S_2^{\ 2}}{n_1 + n_2 - 2}}$$

$$t = \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Ho is accepted if $t \leq t_{(1-a)(n1+n2-2)}$

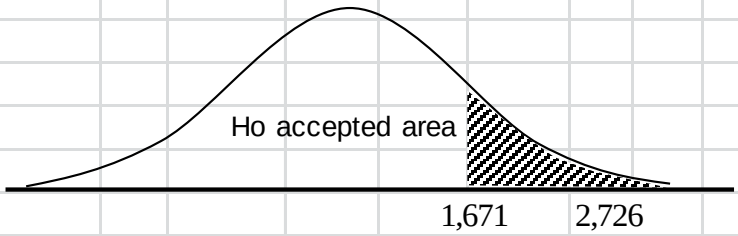
$$S = \sqrt{\frac{(28-1)\,51{,}59 + (33-1)\,41{,}67}{28+33-2}}$$

$$= 6{,}798$$

$$t = \frac{81{,}43 - 76{,}667}{6{,}798\sqrt{\frac{1}{28}+\frac{1}{33}}}$$

$$= 2{,}726$$

For a = 10% and dk = 28 + 33 - 2 = 58, $t_{(0.1)(58)}$ = 1,671



Since t count > t table means that there is a significant difference between experimental and control class on the test the experimental is higher than the control one.

From the computation above, by 5% alpha level of significance and dk = 33+28-2=59. Obtained t_{table} was 1.67 while t_{count} was 2.726. So, it can be concluded Ho was rejected because t_{count} was higher than the critical value on the t_{table} (2.726>1.67).

From the result, the hypotheses in this research can be concluded that there was a significance difference in answering multiple choice test score between experimental class that applied circle the sage technique and control class did not apply circle the sage technique.

Statistic of Variants pre-test and post-test

To calculate Descriptive statistical analysis for variable, the researcher used two ways of ANOVA.

The result was as follow:

Table 14

Statistic of Variants pre-test and post-test

Group	Pretest (A_1)	Posttest (A_2)	
Experimental Group (B_1)	N11 =28 M11 = 67.857 s11= 6.445	N21 = 28 M21= 81.429 s21= 7.182	N•1= 56 M•1= 74.643 s•1= 9.623
Control Group (B_2)	N12 =33 M12 = 66.818 s12= 7.481	N22 = 33 M22= 76.667 s22= 6.455	N•2= 66 M•2= 71.742 s•2= 8.526
Total of Factor A	N1• =61 M1• = 67.295 s1•= 6.987	N2• = 61 M2•= 78.852 s2•= 7.153	N•• = 122 M••= 73.074 s••= 9.124

The conclusion of Variant analysis result:

Varian	(JK)	(DJ)	(RK)	*F*	F-Kritis Pada Taraf 5%	Kesimpulan
Circle (A)	4073.975	1	4073.975	85.258	3.921	signifikan
Group (B)	254.858	1	254.858	5.334	3.921	Signifikan
Interaction (A*B)	104.975	1	104.975	2.197	3.921	Tdk sig.
Dalam	5638.528	118	47.784			
Total	10072.336	121				

From the result of calculation above, it can be concluded that there was significance difference of average score from pretest and posttest of experimental class. And there was significance difference of average score from pretest and posttest of control class. For interaction A & B there was no significance/ homogeneous but the calculation was not needed.

C. Discussion of Research Findings

1. The comparison of average score between Pre-test of Experimental Class and Pre-test of Control Class was not significance/ homogeneous.

   The homogeneity of pretest is very important for the researcher if he/ she wanted to continue his/her research.[51] The average score of Experimental Class was 67.85 and the average score of Control Class was 66.81 it can be concluded that there was no significance between

[51] Arikunto, Suharsimi, *Prosedur Penelitian Suatu Pendekatan Praktik,* (Jakarta : PT Rineka Cipta, 2006), p. 321.

average score of Experimental Class and Control Class. Therefore, The Experimental Research can be continued.

2. The Progress between Pre-test and Post-test of Experimental Class and Pre-test and Post-test of Control Class

The difference effects of Experimental Class and Control Class based on the treatment. The students on Experimental Class was taught Degrees of Comparison by using Circle the Sage technique and the students on Control Class was taught Degrees of Comparison by using Conventional teaching or without Circle the Sage technique.

The progress of learning process on Experimental Class was Sharp; it can be seen on students' activity in treatment process:

a. The students were more active in joining the group, shared and interacted to their pairs.
b. The students were motivated to learn together.
c. It built students' independent learning.
d. The students understood the material well.

All those statements above affected to the students' average score of posttest, there were 81.42. Meanwhile, the average score of pretest was 67.85.

Meanwhile the progress of learning process on Control Class was steady, because the teacher taught Degrees of Comparison using conventional teaching. It can

be seen on students' average score of posttest, there were 76.66. Meanwhile, the average score of pretest were 66.81.

3. The score of final ability (Post-test)

The result of this research indicated that the average score of experimental class was 81.42 which were higher that the result of control class 76.66. The average score of experimental class was 81.42 and standard deviation (s) was 7.18. it can be seen on page 70.

Applying circle the sage technique in learning English Grammar as a way to encourage students' ideas, they also can explore their knowledge and get more chance to interact and share with other and it can leads students to be more active and motivated. Circle the sage technique can create situation in learning grammar more interesting and make the students easier to understand about grammar. It can be seen on average score of experimental class which better result than control class.

The average score of control class was 76.66 and standard deviation (s) was 6.45. Teaching grammar in classroom activity needs other strategy to help the students understand easily the material. Teaching grammar especially on degrees of comparison in control class by using conventional method or without circle the sage technique makes the students feel boring and confused to understand because they only listened to the explaining material from

the teacher and wrote the material on the whiteboard. So, the material can't be transferred to the students with optimal.

Based on the result of calculation t-test is obtained t_{count}: 2.726 and t_{table}: 1.67. This shows that $t_{count} > t_{table}$ (t_{count} higher than t_{table}). It means that there is a significant difference between students' understanding on degrees of comparison who applied circle the sage technique and without Circle the Sage technique.

Circle the Sage technique was effective according to the theories below:[52]

The students tutor each other. Students also actively interact each other to find the final result of the discussion, it was appropriate with Cooperative Learning Theory that students learn best when they can encourage and tutor each other, when they are held individually accountable, when they all participate about equally, and when there is a great deal of active, interactive engagement.

Students with different intelligence were being gathered. They help each other to understand and solve the problem. One student may be good in particular part of the material and another student may be good in some other part

[52] Kagan, Spencer, *Reseach and Rationale*. 2001 Retrieved from http://www.kaganonline.com/free_articles/dr_spencer_kagan/research_rationale.php accessed on 13/11/2014.

of the material. When different intelligences was combined, there was positive interdependence which means better learning process. It was appropriate with Multiple Intelligences Theory.

During the learning process, students more motivated in mastering the material or solving the problem. By having grouping and discussing the students more confident because they were working in a solid group. They, together in their group, explored their ability and knowledge. This condition increased their expectation in learning, it was appropriate with Expectation Theory.

By applying Circle the Sage technique, Students saw that what they do made a difference, becoming more optimistic and resilient. This ongoing experience of learned optimism generalizes. As a result, students was far more likely to persist in the face of failure and become more successful academically and in their relations with others, it was appropriate with Learned Optimism Theory.

Students who had special ability or knowledge acted as the sages to teach and share the material. In this case, students did more things that they cannot do it alone. It adopted from the Vygotsky's theory especially from the major theme The More Knowledgeable Other (MKO). The MKO refers to anyone who has better understanding or a higher ability level than the learner.

The feedback and the reinforcement were given during the discussion in the group when they discussed the disagreements among members. Because they got information from different sages, when they sit in a group, they was set to conclude one conclusion. They corrected each other and supported each other, it was appropriate with the one of the principles of behavior theory.

D. Limitations of the Research

The researcher realizes that this research had not been done optimally. There were constraints and obstacles faced during the research process. Some limitations of this research were:

1. The research was limited at SMP Islam Al-Kautsar Semarang in the academic year of 2013/ 2014. When the same research is conducted in other schools, it is still possible that different result will be gained.
2. Relative lack of experience and knowledge of the researcher, makes implementation process of this research was less smooth. But the researcher has done as good as possible to do this research accordance with capability of knowledge and the guide from advisors.
3. The research was limited at the degrees of comparison material for eight grade students of Junior High School, so it

was still possible that different result will be gained at the different material.

Considering all those limitations, there is a need to do more research about improving students' understanding on grammar, especially on degrees of comparison using the same or different medium. In the hope there will be more optimal result.