CHAPTER IV
RESEARCH FINDINGS AND ANALYSIS

A. Description of the Result Research

To find out the effectiveness of Bingo game between the students who were taught by using Bingo game and students who were taught without Bingo game, especially in SD N 1 Plawangan-Rembang, the writer did an analysis of quantitative data. The data was obtained by giving test to the experimental class and control class after giving a different learning both classes.

The subjects of this research were divided into three classes. They are experimental class (IV B), control class (IV A) and try out class (IV C) of SD N1 Plawangan-Rembang. Before items were given to the students, the writer gave tryout test to analyze validity, reliability, difficulty level and also the discrimination power of each item. The writer prepared 20 items as the instrument of the test. Test was given before and after the students follow the learning process that was provided by the writer.

Before the activities are conducted, the writer determined the materials and lesson plan of learning. Learning in the experiment class used Bingo game, while the control class without used Bingo game.

After the data were collected, the writer analyzed it. The first analysis data is from the beginning of control class and experimental class that is taken from the pre test value. It is the normality test and homogeneity test. It is used to know that two groups are normal and have same variant. Another analysis data is from the ending of control class and experimental class. It is used to prove the truth of hypothesis that has been planned.

B. The Data Analysis and Test of Hypothesis

1. The Data Analysis

a. The Data Analysis of Pre-test Scores of the Experimental class and the Control Class.

1) The Normality Pre-test of the Experimental Class

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

Hypothesis:

Ha: The distribution list is normal.

Ho: The distribution list is not normal

Test of hypothesis:

The formula is used:

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

The computation of normality test:

Maximum score = 73

Minimum score = 33

K / Number of class = 6

Rang = 40

Length of the class = 7

Table 6

Distribution value of pre test of experiment

Class Interval	f_i	X_i	X_i^2	$f_i.X_i$	$f_i.X_i^2$
33-40	7	36.5	1332.25	255.5	9325.75
41-48	3	44.5	1980.25	133.5	5940.75
49-56	4	52.5	2756.25	210	11025
57-64	0	60.5	3660.25	0	0
65-72	5	68.5	4692.25	342.5	23461.25
73-80	1	76.5	5852.25	76.5	5852.25

Total 20 1018 55605

$$X^2 = \frac{\sum f_i \chi_i}{\sum f_i} = \frac{1018}{20} = 50.9$$

$$S2 = \frac{n\sum f_i \chi_i^2 - \left(\sum f_i \chi_i\right)^2}{n(n-1)} = \frac{20*82228 - (1212)}{20(20-1)}$$

$S^2 = 199.411$

S = 14.1213

Table 7

Observation frequency value of pre test of experiment class

Class interval	Bk	Z_i	$P(Z_i)$	Size classes	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	32.50	-3.57	-0.500				
33 – 40				0.2305	4.6108	7	1.2380
	40.50	-0.74	-0.269				
41 _ 48				0.7062	14.1245	3	8.7616
	48.50	-0.17	-0.067				
49 – 56				0.5494	10.9888	4	4.4449
	56.50	0.40	0.154				
57 – 64				0.1542	3.0831	0	3.0831
	64.50	0.96	0.332				
65 – 72				0.3322	6.6450	5	0.4072
	72.50	1.53	0.437				
73 – 80				0.0450	0.9004	1	0.0110
	80.50	2.10	0.482				
					X^2	=	17.9458

With α = 5% and dk =20-1=19, from the chi-square distribution table, obtained χ^2_{count} = 17.9458 and χ^2_{table} = 30.14.

Because χ^2_{count} is lower than χ^2_{table} (17.9458<30.14). So, it can be conclude that the distribution from experiment class is normal.

2) The Normality Pre-Test of the Control Class.

Hypothesis :

Ho: The distribution list is normal.

Ha: The distribution list is not normal.

Test of hypothesis:

The formula is used:

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

The computation of normality test:

Maximum score = 73

Minimum score = 20

Range = 73-20 =53

K/ Number of class = 6

Length of the class = 8.8333 = 9

Table 8

Distribution value of pre test of control class

Class interval	f_i	X_i	X_i^2	$f_i.X_i$	$f_i.X_i^2$
20–29	4	24.5	600.25	98	2401
30–39	4	34.5	1190.3	138	4761
40–49	3	44.5	1980.3	133.5	5940.8
50–59	4	54.5	2970.3	218	11881
60–69	2	64.5	4160.3	129	8320.5
70–79	3	74.5	5550.3	223.5	16651
Total	20		16452	940	49955

$$X^2 = \frac{\sum f_i \chi_i}{\sum f_i} = \frac{940}{20} = 47$$

$$S^2 = \frac{n\sum f_i \chi_i^2 - \left(\sum f_i \chi_i\right)^2}{n(n-1)} = \frac{20 * 57584 - (1024)^2}{20(20-1)}$$

$S^2 = 303.947$

$S = 17.4341$

Table 9

Observation frequency value of pre test of experiment class

Class Interval	Bk	Z_i	$P(Z_i)$	Size Classes	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	19.50	-1.58	- 0.443				
20 – 29				0.1004	2.0077	4	1.9769
	29.50	-1.00	-0.342				
30 – 39				0.7438	14.8766	4	7.9522
	39.50	-0.43	-0.166				
40 – 49				0.6353	12.7065	3	7.4148
	49.50	0.14	0.057				
50 – 59				0.0570	1.1402	4	7.1724
	59.50	0.72	0.263				
60 – 69				0.2633	5.2662	2	2.0257
	69.50	1.29	0.402				
70 – 79				0.0673	1.3455	3	2.0344
	79.50	1.86	0.469				
						X^2_{count} =	28.5763

With α = 5% and dk = 20-1=19, from the chi-square distribution table, obtained X^2_{count} = 28. 5763 and X^2_{table} = 30.14.

Because X^2_{count} is lower than X^2_{table} (28.5763< 30.14). So, the distribution list is normal.

3) The Homogeneity Pre-Test of the Experimental Class and Control Class.

Hypothesis :

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

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

Test of hypothesis:

The formula is used:

$F =$ *Biggest variant*

Smallest variant

Table 10

The Data of the research:

Variant	Experiment	Control
Total	1023	916
N	20	20
X	51.1	45.8
Variant (S^2)	154.050	258.197
Standard Deviation (S)	12.41	16.07

Based on the formula, it is obtained:

$$F = \frac{258.197}{154.050} = 1.676$$

With α = 5% and dk = (2-1 = 1):(2-1 = 1), obtained F_{table} = 1.676. Because F_{count} is lower than F_{table} (1.676 < 3.84). So, Ho is accepted and the two groups have same variant / **homogeneous**.

4) The average similarity Test of Pre-Test of Experimental and Control Classes

Hypothesis:

Ho: $\mu_1 = \mu_2$

Ha: $\mu_1 \neq \mu_2$

Test of hypothesis:

Based on the computation of the homogeneity test, the experimental class and control class have same variant. So, the t-test formula:

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

$$t = \frac{\overline{x_1} - \overline{x_2}}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Table 11

The data of the research:

Variant	Experiment	Control
Total	1023	916
N	20	20
X	51.1	45.8
Variant	154.050	258.197
Standard deviation	12.41	16.07

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

$$S = \sqrt{\frac{(20 - 1).154.050 + (20 - 1)258.197}{20 + 20 - 2}}$$

$$= \sqrt{\frac{19.154.050 + 19.258.197}{38}} = \sqrt{\frac{2926.95 + 4905.743}{38}}$$

$$= \sqrt{206.1235} \qquad = 14.35$$

So, the computation t-test:

$$t = \frac{\overline{x_1} - \overline{x_2}}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$t = \frac{51.050 - 45.750}{14.35\sqrt{\frac{1}{20} + \frac{1}{20}}} = \frac{5.3}{14.35\sqrt{0.1}} = \frac{5.3}{14.357x0.316}$$

$$t = \frac{5.3}{4.540} \qquad = 1.\ 167$$

With α = 5% and dk = 20 + 20 – 2 = 38, obtained t_{count} = 1.167 and t_{table} = 2.09. Because t_{count} is lower than t_{table} (1.167 < 2.09). So, Ho is accepted and there is no difference of the pre test average value from both groups.

b. The Data Analysis of Post-test Scores of the Experimental Class and Control Class.

1) The Normality Post-Test of the Experimental Class

Based on the table above, the normality test:

Hypothesis :

Ho : The distribution list is normal.

Ha : The distribution list is not normal.

Test of hypothesis:

The formula is used:

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

The computation of normality test:

Maximum score = 100

Minimum score = 45

Range = 55

K/ Number of class = 6

Length of the class = 9

Table 12

Distribution value of post test of experiment class

Class interval	f_i	X_i	X_i^2	$f_i.X_i$	$f_i.X_i^2$
45 - 54	2	49.5	2450.25	99	4900.5
55 - 64	3	59.5	3540.25	178.5	10620.75
65 - 74	4	69.5	4830.25	278	19321
75 - 84	4	79.5	6320.25	318	25281
85 - 94	3	89.5	8010.25	268.5	24030,75
95 - 104	4	99.5	9900.25	398	39601
Total	20			1540	1237.5

$$X^2 = \frac{\sum f_i \chi_i}{\sum f_i} = \frac{1540}{20} = 77$$

$$S^2 = \frac{n\sum f_i \chi_i^2 - \left(\sum f_i \chi_i\right)^2}{n(n-1)} = \frac{20 * 82228 - (1212)^2}{20(20-1)}$$

$S^2 = 272.368$

$S = 16.5036$

Table 13

Observation frequency value of Post test of the Experimental Class

Class Interval	Bk	Z_i	$P(Z_i)$	Size classes	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	44.50	-4.64	-0.500				

45 – 54				0.0864	1.7277	2	0.0429
	54.50	-1.36	-0.414				
55 – 64				0.7691	15.3825	3	9.9676
	64.50	-0.76	-0.276				
65 - 74				0.7278	14.5554	4	7.6547
	74.50	-0.15	-0.060				
75 - 84				0.0602	1.2040	4	6.4926
	84.50	0.45	0.175				
85 - 94				0.1752	3.5049	3	0.0727
	94.50	1.06	0.356				
95 –104				0.0967	1.9332	4	2.2096
	104.50	1.67	0.452				
					X^2	=	26.4401

With α = 5% and dk = 20-1=19, from the chi-square distribution table, obtained X^2_{count} = 26.4401 and X^2_{table} = 30.14. Because X^2_{count} is lower than X^2_{table} (26.4401 < 30.14). So, the distribution list is normal.

2) The Normality Post-Test of the Control Class

Hypothesis:

Ho : The distribution list is normal

Ha : The distribution list is not normal

Test of hypothesis:

The formula is used:

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

The computation of normality test:

Maximum score = 85

Minimum score = 35

Range = 50

K/many class interval = 6

Length of the class = 9

Table 14

Distribution value post test of control class

Class interval	f_i	X_i	X_i^2	$f_i.X_i$	$f_i.X_i^2$
35–44	3	39.5	1560.3	118.5	4680.8
45–54	3	49.5	2450.3	148.5	7350.8
55–64	6	59.5	3540.3	357	21242
65–74	4	69.5	4830.3	278	19321
75–84	3	79.5	6320.3	238.5	18961
85–94	1	89.5	8010.3	89.5	8010.3
Total	20		26712	1230	79565

$$X\text{^} = \frac{\sum f_i \chi_i}{\sum f_i} = \frac{1230}{20} = 61.5$$

$$S^2 = \frac{n\sum f_i \chi_i^2 - \left(\sum f_i \chi_i\right)^2}{n(n-1)}$$

$$S^2 = \frac{20 * 57584 - (1024)^2}{20(20-1)}$$

$S^2 = 206.316$

$S = 14.3637$

Table 15

Observation frequency value of post test of control class

Class Interval	Bk	Z_i	$P(Z_i)$	Size Classes	Ei	Oi	$\frac{(O_i - E_i)^2}{E_i}$
	34.50	-1.88	-0.470				
35 – 44				0.0882	1.7645	3	0.8651
	44.50	-1.18	-0.382				
45 – 54				0.8270	16.5408	3	11.0850

	54.50	-0.49	-0.187				
55 – 64				0.6762	13.5239	6	4.1859
	64.50	0.21	0.083				
65 – 74				0.0827	1.6544	4	3.3255
	74.50	0.91	0.317				
75 – 84				0.3173	6.3457	3	1.7640
	84.50	1.60	0.445				
85 – 94				0.0439	0.8773	1	0.0172
	94.50	2.30	0.489				
						X^2	21.2425

With α = 5% and dk = 20-1 = 19, from the chi-square distribution table, obtained X^2_{count} = 21.2425 and X_{table} = 30.14. Because X^2_{count} is lower than X^2_{table} (21, 24.25 < 30.14). So, the distribution list is normal.

3) The Homogeneity Post-Test of the Experimental Class and Control Class.

Hypotesis :

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

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

Test of hypothesis:

The formula is used:

$F = \frac{\text{Biggest variant}}{\text{Smaller variant}}$

Table 16

The data of the research:

Variant	Experiment	Control
Total	1500	1205
N	20	20
X	75.00	60.25

Varians (s^2)	255.263	203.882
Standart deviation (s)	15.98	14.28

Biggest variant (Bv) = 255.263

Smallest variant (Sv) = 203.882

$n_1 = 20$

$n_2 = 20$

Based on the formula, it is obtained:

$$F = \frac{255.263}{203.882} = 1.2520$$

With α = 5% and dk = (2-1=1), obtained F_{count} = 1.2520 and F_{table} = 3.84. Because F_{count} is lower than F_{table} (1.2520 < 3.84). So, Ho is accepted and the two groups have same variant/ **homogeneous.**

c. The Data Analysis of Questionnaire

After the students have finished post-test would get a questionnaire sheet. A questionnaire obtained some information about their perceptions in using Bingo game in teaching English concrete noun and to find out the students' responses while teaching learning process during research. The writer gave them ten questions of multiple choices to be answered.

Here was the discussion of multiple-choice questionnaire:

1. Question number 1 was, whether they like to studied English subject, to improve their English concrete noun. The result was 30% of students strongly like while study English, 70% of students like in study English, and 0% of students dislike it. It can be concluded that most of them like to study English.
2. Question number 2 was, how their feeling, when the learning process was followed by Bingo game. Most of the students were strongly like while learning process followed by Bingo game, it

reached up to 90%, 10% of students like by classical music, and 0% of students dislike about it. It can be concluded that learning process was followed by Bingo game most of students were strongly like.

3. Question number 3 was, whether they agreed, when the learning process was followed by Bingo game while get more idea. The result was 80% numbers of the students answered strongly agree, 20% of the students answered agree, and 0% of the students answered disagree. It can be concluded that most of them strongly agreed with Bingo game to get more idea.
4. Question number 4 was, whether they agreed, when learning process by Bingo game need to be used and developed as learning method. Most of the students were strongly agree that Bingo game need to be used and developed as learning method, it reached up 70%. 30% of students agreed, and 0% of students did not agree it. It can be concluded that learning method by Bingo game can be used and developed while learning process.
5. Question number 5 was, whether they knew, what play was. The result was 45% students strongly understood a play, 55% of students understood, and 0% of students did not understand. It can be concluded that most of students understood a play.
6. Question number 6 was, whether they ever seen a play performance. The result was 0% of students answered often, 0% of students answered ever seen a play performance, and 100% of students answered never. It can be concluded that most of them never seen a play performance.
7. Question number 7 was, whether they ever performance play with their friend. There was no a student answer often or 0% performance a play, 0% of students ever, and most of students never performance a play, it reached up to 100%. It can be

concluded that most of them never performance a play with their friend.

8. Question number 8 was, whether they like to study English concrete noun practiced through a play. The result was 40% students strongly like, 60% students like, and 0% students dislike while English concrete noun practiced through a play. It can be concluded that the students like, while learning English concrete noun practiced through a play.
9. Question number 9 was, by performing play, whether they more understood vocabulary to imagine easily. The result was 35% students strongly agreed, 55% students agreed, and 10% students disagreed about performing a play to make them more understand concrete noun. It can be concluded that most of students agreed by performing a play can make them more understand concrete noun and easily to imagine.
10. Question number 10 was, whether they strongly agreed, if performing a play need to be used and developed as a learning method. The result was 35% students strongly agreed, 60% students agreed, and 5% students disagreed by performing a play as a learning method. It can be concluded that the students agreed by performing a play as a learning method.

Based on the result of the all questionnaires, it can be concluded that the students were very enjoy in the teaching learning process was accompanied by Bingo game so that made a student relax, easily to imagine and they agreed if Bingo game was developed as learning method.

Beside Bingo game as learning method, the students also agreed, if a play needs to be used and developed as learning method. By performance a play, they would more comprehend and clear about English concrete noun.

2. The Hypothesis Test

The hypothesis in this research is a significance difference in vocabulary achievement score between students taught using Bingo game and those taught without Bingo game.

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

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

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

The data of the research:

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

$$S = \sqrt{\frac{(20 - 1)255.263 + (20 - 1)203.882}{20 + 20 - 2}}$$

$$S = \sqrt{\frac{4849.997 + 3873.882}{38}}$$

$$S = \sqrt{229.5725}$$

S = 15.152

$$t = \frac{\overline{x_1} - \overline{x_2}}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} = \frac{75.00 - 60.25}{15.152\sqrt{\frac{1}{20} + \frac{1}{20}}} = \frac{14.750}{4.791}$$

= 3.078

With α = 5% and dk = (20+20-2=38), obtained t_{count} = 3.078 and t_{table} = 2.09. Because t_{count} is higher than t_{table} (3.078 > 2.09). So, Ho is accepted and there is no difference of the pre test average value from both groups.

From the result, it can be concluded that there is a difference in vocabulary achievement score between students taught using Bingo game and those taught without Bingo game.

C. Discussion of Research Finding

The result of the research shows that the experimental class (the students who are taught using Bingo game) has the mean value pre test was 51.1 and post test was 75.00. While, the control class (the students who are taught without Bingo game) has the mean value pre test was 45.8 and post test was 60.25. It can be said that the English concrete noun score of experiment class is higher than the control class.

On the other hand, the test of hypothesis using t-test formula shows the value of the t-test is higher than the critical value. The value of t-test is 3,078 while the critical value on $t_{s0,05}$ is 2.09. It means that using Bingo game is more effective than without using Bingo game in teaching English concrete noun.

Bingo game has some positive influences for the students in improving vocabulary. There are some reasons why the students can improve their vocabulary by using Bingo game. They are as follows:

1. By using Bingo game, the students will have encouragement and curiosity to find out the meaning of unfamiliar words.
2. The teaching of vocabulary using Bingo game can give opportunities for students to study grammar indirectly.
3. By using Bingo game, the students can learn vocabulary relaxes and enjoy.

In contrast, not all students have good English vocabulary. Those are caused by some factors that influence the students in learning English. They are as follows:

1. The perception that English is the difficult lesson in school.
2. A poor motivation from the students to learn English seriously.
3. The difficulties in memorizing the new words influenced by the culture, pronunciation and grammar.

4. There is no big willingness to learn English

In this research, the writer used the Bingo game to improve the students' vocabulary in SDN I Plawangan-Rembang. So, the research findings are only representative in that school. The writer hopes that more researches will be done by the others to prove this method in improving students' vocabulary and to find out other methods in learning and teaching English.

D. Limitation of the Research

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

1. Relative short time of research makes this research could not be done maximum.
2. The research is limited at SD N 1 Plawangan-Rembang. So that when the same research will be gone in other schools, it is still possible to get different result.
3. The implementation of the research process was less perfect. Because short time of this research, so the assessment conducted not only based on the material given in the class but also the assignment or exercises given to the students' homework.

Considering all those limitations, there is a need to do more research about teaching English concrete noun using Bingo game. So that, the more optimal result will be gained.