

CHAPTER IV

RESULT AND DISCUSSION OF RESEARCH

This chapter contained finding and discussion. The data obtained from the effectiveness of brainstorming technique on young learners' vocabulary mastery in TK Al-Ma'arif Sampang. The researcher also present about the discussions based on the result of this research.

A. Result of Research

In this section of the research the researcher will describe about the correlation between brainstorming technique and young learners' vocabulary mastery at level B in TK Al-Ma'arif Sampang.

The findings of this research are taking by brainstorming technique and vocabulary mastery. To find out the result of this research, the researcher had given questionnaire to the student of level B at TK Al-Ma'arif Sampang that consist of 25 students. The pre test consists of 10 numbers and for post test consists of 10 numbers. The researcher conducted this research start at 08.00 on 13 August 2020.

1. The Result of Pre Test

The researcher had been known the brainstorming technique by looking the scores of pre test. The researcher had given the test to the 25 students of level B in TK Al-Ma'arif Sampang.

4.1 The scores of Pre test.

No	Name	Class	Score (X)	X ²
1.	Aisyah Al Faira	B	40	1600
2.	Aisyah Chayra Nurmedisa	B	50	2500
3.	Adli Fairus Siswanto	B	70	4900
4.	Adzkieya Nabeela Whofur	B	50	2500
5.	Alvis Surya Rofiqi	B	20	400
6.	Aqila Dzurrotun Nafisah	B	60	3600
7.	Avil Qodli Dzaka Bulan	B	70	4900
8.	Purnama Sofia Sari	B	60	3600
9.	Delisa Fatahila Azzahra Jupri	B	70	4900
10.	Dhafitha Akmaliyah Dzakira	B	70	4900
11.	Indi Sakha Aulia	B	60	3600
12.	Muhammad Rahmatullah	B	40	1600
13.	Muhammad Syarifulloh	B	80	6400
14.	Muhammad Asraf Aska AR	B	70	4900
15.	Moh. Asyraf Abidzar Azmi	B	60	3600
16.	Moh. Gibran Rabbani	B	30	900

No	Name	Class	Score (X)	X ²
17	Moh. Amru Adib	B	80	6400
18.	Moh. Birrul Alim	B	70	4900
19.	Moh. Arya Syahril Akbar	B	50	2500
20.	Muzdakiroh Fatin Riskiya	B	60	3600
21.	Nuriy Nazihah Azzahra	B	80	6400
22.	Nasya Shauqina	B	50	2500
23	Nabila Rana Zahira	B	40	1600
24.	Qorry Aina Dzaka	B	60	3600
25	Winna Alya Nabila	B	50	2500
	Total		$\Sigma x = 1440$	$\Sigma x^2 = 88800$

From the table above, the researcher found the result of students' pre test. The high score is 80 that the students get and the low score is 20. There are 1 student get 20 scores, 1 student get 30 scores, 7 students get 40 scores, and 5 students get 50 scores, 6 students get 60 scores, 6 students gets 70 scores and 3 students get 80 scores. It can be conclude that the most of students get 60 scores and 70 scores. So, it means several students are good in pre test before brainstorming technique applies.

Validity of the Pre test.

In this research, the researcher used content validity. Content validity means that the material that has a relationship with the material

presented by the teacher at the school. Therefore, the instrument of this research is valid, because :

1. This test has been feasibility
2. The item test has support a group variables
3. The result of the tests have compared with t_{table} .
4. $t_o > t_{table}$ it means that the test is valid

Reliability of the pretest.

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{M(k-M)}{k \cdot V_t} \right)$$

Where :

$$k = 10$$

$$M = M = \frac{\sum x}{N}$$

$$= \frac{143}{25}$$

$$= 5,72$$

$$V_t = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N}$$

$$= \frac{888 - \frac{(144)^2}{25}}{25}$$

$$= \frac{888 - \frac{20736}{25}}{25}$$

$$= \frac{888 - 829,44}{25} = \frac{58,56}{25}$$

$$= 2,342$$

$$r_{11} = \left(\frac{10}{10-1} \right) \left(1 - \frac{5,72(10-5,72)}{10 \times 2,342} \right)$$

$$r_{11} = \left(\frac{10}{9}\right) \left(1 - \frac{5,72 (4,28)}{23,42}\right)$$

$$r_{11} = (1,1) \left(1 - \frac{23,04}{23,42}\right)$$

$$r_{11} = (1,1)(1 - 0,647)$$

$$r_{11} = (1,1)(0,353)$$

$$r_{11} = 0,388$$

The reliability of the pre test is 0,388. The result of reliability is higher than r_{table} ($0,388 > 0,381$) it means that the test of pre test is reliable.

2. The Result of Post Test

The researcher had been known the students' post test by looking the score multiple-choice of the test. The researcher had given vocabulary test for multiple choice that consist of 10 number. The result of students' vocabulary test, as follows:

4.2 The scores of post test

No	Name	Class	Score (X)	X ²
1.	Aisyah Al Faira	B	90	8100
2.	Aisyah Chayra Nurmedisa	B	80	6400
3.	AdliFairusSiswanto	B	100	10000
4.	Adzkieya NabeelaWhofur	B	70	4900
5.	Alvis Surya Rofiqi	B	80	6400
6.	Aqila Dzurrotun Nafisah	B	80	6400
7.	Avil Qodli Dzaka Bulan	B	90	8100

No	Name	Class	Score (Y)	Y ²
8.	Purnama Sofia Sari	B	100	10000
9.	Delisa Fatahila Azzahra Jupri	B	90	8100
10.	Dhafitha Akmaliyah Dzakira	B	90	8100
11.	Indi Sakha Aulia	B	80	6400
12.	Muhammad Rahmatullah	B	70	4900
13	Muhammad Syarifulloh	B	100	10000
14.	Muhammad Asraf Aska AR	B	70	4900
15.	Moh. Asyraf Abidzar Azmi	B	90	8100
16.	Moh. Gibran Rabbani	B	50	2500
17	Moh. Amru Adib	B	80	6400
18.	Moh. Birrul Alim	B	60	3600
19.	Moh. Arya Syahril Akbar	B	70	4900
20.	Muzdakkiroh Fatin Riskiya	B	60	3600
21.	Nuriy Nazihah Azzahra	B	100	10000
22.	Nasya Shauqina	B	70	4900
23	Nabila Rana Zahira	B	80	6400
24.	Qorry Aina Dzaka	B	60	3600
25	Winna Alya Nabila	B	80	6400
Total			$\Sigma x = 1930$	$\Sigma x^2 = 163100$

From the table above, the researcher found the result of students' post test. There is 1 out of 25 students get 50 scores, 3 out of 25 students get 60

scores, 5 out of 25 students get 70 scores, 7 out of 25 students get 80 scores, 5 out of 25 students get 90 scores, and 4 out of 25 students get 100 scores. It can be conclude that the most of students get 80 scores. So, it means several students are mastery of vocabulary after brainstorming technique treat.

Validity of the Post Test.

In this research, the researcher used content validity. Content validity means that the material that has a relationship with the material presented by the teacher at the school. Therefore, the instrument of this research is valid, because:

5. This test has been feasibility
6. The item test has support a group variables
7. The result of the tests have compared with t_{table} .
8. $t_o > t_{table}$ it means that the test is valid

Reliability of the post test

$$r_{11} = \left(\frac{k}{k-1} \right) \left(1 - \frac{M(k-M)}{k \cdot V_t} \right)$$

Where :

$$k = 10$$

$$\begin{aligned} M &= M = \frac{\sum x}{N} \\ &= \frac{193}{25} \\ &= 7,72 \end{aligned}$$

$$\begin{aligned}
V_t &= = \frac{\sum x^2 - \frac{(\sum x)^2}{N}}{N} \\
&= \frac{1631 - \frac{(193)^2}{25}}{25} \\
&= \frac{1631 - \frac{37249}{25}}{25} \\
&= \frac{1631 - 1489,96}{25} = \frac{141,04}{25} \\
&= 5,642
\end{aligned}$$

$$r_{11} = \left(\frac{10}{10 - 1} \right) \left(1 - \frac{7,72(10 - 7,72)}{10 \times 5,642} \right)$$

$$r_{11} = \left(\frac{10}{9} \right) \left(1 - \frac{7,72(2,28)}{56,42} \right)$$

$$r_{11} = (1,1) \left(1 - \frac{17,601}{56,42} \right)$$

$$r_{11} = (1,1)(1 - 0,312)$$

$$r_{11} = (1,1)(0,688)$$

$$r_{11} = 0,757$$

The reliability of the vocabulary test is 0,757. The result of reliability is higher than t_{table} ($0,757 > 0,381$) so, the researcher concludes that the post test of vocabulary is reliable.

B. Hypotheses Test

1. The effectiveness brainstorming technique and young learner's vocabulary mastery.

After giving the pre test and post test of vocabulary test to the students, the researcher calculates and finds the effect of variable X

(Brainstorming Technique) on and variable Y (Vocabulary Mastery) by the formula “t” t-test.

1.3 The calculations of the effect index number between variable X and Variable Y.

No	Name	Vocabulary Test Score		D	D ²
		Pre Test (X)	Post Test (Y)	(X-Y)	(X-Y) ²
1.	Aisyah	40	80	-40	1600
2.	Chayra	50	80	-30	900
3.	Fairus	70	100	-30	900
4.	Kieya	50	90	-40	1600
5.	Alvis	20	70	-50	2500
6.	Aqila	60	90	-30	900
7.	Avil	70	60	10	100
8.	Sofia	60	80	-20	400
9.	Adel	70	100	-30	900
10.	Fitha	70	70	0	0
11.	Indi	60	90	-30	900
12.	Rama	40	70	-30	900
13.	Arif	80	60	20	400
14.	Asraf	70	80	-10	100
15.	Raffa	60	90	-30	900
16.	Gibran	30	50	-20	900
17.	Adib	80	100	-20	400

No	Name	Vocabulary Test		D	D ²
		Pre Test (X)	Post Test (Y)	(X-Y)	(X-Y) ²
18.	Billy	70	100	-30	900
19.	Arya	50	90	-40	1600
20.	Kiki	60	90	-30	900
21.	Nuriy	80	80	0	0
22.	Nasya	50	70	-20	400
23.	Nabila	40	80	-40	1600
24.	Aina	60	50	10	400
25	Bibi	50	80	-30	900
Total		Σx = 1440	Σy = 1930	ΣD = -570	ΣD² = 21000

Explanation:

$$N = 25$$

$$\sum D = -570$$

$$\sum D^2 = 21000$$

The steps to counting t-test are as follow :

- a. Looking for mean of difference :

$$M_D = \frac{\sum D}{N}$$

$$M_D = \frac{-570}{25}$$

$$= -22,8$$

- b. Square all of D score. And then, add all of square D score.

- c. Determining standard deviation from D :

$$\begin{aligned}
 SD_D &= \sqrt{\frac{\sum D^2}{N} - \left(\frac{\sum D}{N}\right)^2} \\
 &= \sqrt{\frac{21000}{25} - \left(\frac{-570}{25}\right)^2} \\
 &= \sqrt{840 - (-22,8)^2} \\
 &= \sqrt{840 - 519,84} \\
 &= \sqrt{320,16} \\
 &= 17,893
 \end{aligned}$$

d. Determining standard error of mean of D :

$$\begin{aligned}
 SE_{MD} &= \frac{SD_D}{\sqrt{N-1}} \\
 &= \frac{17,893}{\sqrt{25-1}} \\
 &= \frac{17,893}{\sqrt{24}} \\
 &= \frac{17,893}{4,900} \\
 &= 3,6522
 \end{aligned}$$

e. After that the researcher can determining t_o :

$$\begin{aligned}
 t_o &= \frac{M_D}{SEM_D} \\
 &= \frac{-22,8}{3,652} \\
 &= -6,243
 \end{aligned}$$

Note : Sign (-) does not mean a minus or algebraic sign, but (-) reads “there is a difference of 3,590 degrees between pretest and posttest.

The result of “ t_o ” t_{test} from the data above is 6,243, it means from the calculations above that there is effectiveness of variable X (Pre Test) on variable Y (Post Test). So, the researcher conclude the

brainstorming technique has effect on young learner's vocabulary mastery.

2. The Significant of Brainstorming Technique and Young Learners' Vocabulary Mastery.

The significant of "t_o" t-test uses degrees of freedom (df) where $df = N - 2$. So, $df = 25 - 2 = 23$. By looking at the value table of "r" Product Moment that df of 23, at the 5% significance level is obtained $t_{table} = 2,07$, meanwhile at the 1% significance level is $t_{table} = 2,81$.

Df (degrees of freedom)	"t" significance level	
	5%	1%
23	2,07	2,81

So, t-test or t_o at the 5% significance is greater than t_{table} or t_t ($6,243 > 2,07$), so the 5% significance null hypotheses (H_o) is rejected and alternative hypotheses (H_a) is accepted. Means that there is significant effectiveness of independent variable on dependent variable.

The 1% significance level of t1-test or t_o at the 5% significance is greater than t_{table} or t_t ($6,243 > 2,81$), so that the 1% significance is null hypotheses (H_o) is rejected while alternative hypotheses is accepted. It means that there is significant effect of variable X and variable Y. The researcher concludes there is effectiveness on brainstorming technique and young learners' vocabulary mastery.

C. Discussions of Research

In the previous chapter, the researcher has analyzed the data from the test of brainstorming technique and vocabulary mastery at level B of TK Al-Ma'arif Sampang. The analysis is used to know the objective of the study and the result of research problem in the previous chapter entitle the correlation between brainstorming technique and young learners' vocabulary mastery at level B of TK Al-Ma'arif Sampang.

In this discussions section, the researcher would like to explain about the effectiveness of dependents variable is brainstorming technique on independent variable is vocabulary mastery and the significant of brainstorming technique and vocabulary mastery at Level B of TK Al-Ma'arif Sampang.

1. The Effectiveness of Brainstorming Technique on Young Learners' Vocabulary Mastery at Level B of TK Al-Ma'arif Sampang.

In this point, the researcher would like to discuss about the effectiveness of brainstorming technique on young learners' vocabulary mastery.

To get the result of the students' pre test, the researcher gives 10 items test. The questionnaire consists of premise and alternative answer is multiple-choice a, b, and c. To find out the score of the pre test, the researcher give 10 score to correct answer and 0 score if the students answer wrong. the researcher found the result of students' pre test. The high score is 80 that the students get and the low score is 20.

There are 1 student get 20 scores, 1 student get 30 scores, 7 students get 40 scores, and 5 students get 50 scores, 6 students get 60 scores, 6 students gets 70 scores and 3 students get 80 scores. It can be conclude that the most of students get 60 scores and 70 scores.

To get the result of the students' post test, the researcher give 10 items test of multiple choice about the name of fruit. To find out the scores of the test, the researcher checked the answers of the students and correct answers divided the maximal scores 100.

From the table above, the researcher found the result of students' post test. There is 1 out of 25 students get 50 scores, 3 out of 25 students get 60 scores, 5 out of 25 students get 70 scores, 7 out of 25 students get 80 scores, 5 out of 25 students get 90 scores, and 4 out of 25 students get 100 scores. It can be conclude that the most of students get 80 scores. So, it means several students are mastery of vocabulary after brainstorming technique treat.

The researcher find that the students who get low score in pre test of vocabulary before brainstorming technique applies, they also get high scores in post test of vocabulary after brainstorming technique treat. In the same score that the students get in pre test and post test before and after the technique apply.

From the result above, it was found that t-test is 6,243. So, the researcher concludes that there is positive effectiveness of brainstorming technique on young learners' vocabulary mastery at level B of TK Al-Ma'arif Sampang. It is very clear that there is effect

both of variables. This fact indicated that the brainstorming technique gives contribution to the students' vocabulary mastery.

According to Roestiyah, Brainstorming is a way of teaching that is carried out by the teacher and the teacher asks a problem then students answer or express opinions or comments, so students can get a lot of ideas.¹ River stated that vocabulary is essential for successful second language uses because without vocabulary, we will unable to use the structures and function we may have learned for comprehensible communication.²

Related with the positive effect of the hypothesis based on the some expert above, the researcher can conclude that the brainstorming technique has become factors that the influence the students' vocabulary mastery. Both of them have many contributions toward students master in vocabulary.

It means that the brainstorming technique that uses to make the students build their own thinking about the material of vocabulary is good and also it make the students can response the teacher question about vocabulary. This technique also make the students active in the class so that the students more easily to remember the vocabulary. The researcher also find the new study about the brainstorming technique has effect and also can increase the students' vocabulary mastery and it is also different with previous study about brainstorming technique that has effect in reading comprehension and also the students writing skill.

¹Roestiyah N.K, *Strategi Belajar Mengajar*, (Jakarta: Rineka Cipta, 2008), page.73.

²David Nunan, *Language Teaching Methodology Atext Book for teacher*, (New York: Prentice Hail), page. 117

2. The Significant of Brainstorming Technique and Young Learners' Vocabulary Mastery at Level B of TK Al-Ma'arif Sampang.

Based on the result of the study in the previous explanations, the researcher measure the 5% significant between t-test and t_{table} . The result of t-test is 6,243 while t_{table} with $N = 23$ and 5% significance is 2,07. So, the t-test (6,243) is higher than significance value 2,07. It means that the alternative hypothesis (H_a) in this research is accepted and null hypothesis (H_o) is rejected. There is significance between brainstorming technique on young learners' vocabulary mastery at level B of TK Al-Ma'arif Sampang.

Related with the receive of the dependent variable and independent variable, It means that there is significant effectiveness of brainstorming technique and young learners' vocabulary mastery at level B of TK Al-Ma'arif Sampang. In the computation, the coefficient of the determination that is shown between brainstorming technique and students' vocabulary mastery is 6,243. It means that 62,4% variation of the vocabulary mastery is influenced by brainstorming technique and the other 37,6% is influenced by the other factors.

According to Douglas in Siti Azizah's book, Vocabulary is the knowledge meanings.³ Brown states brainstorming is a technique which use to help the student initiates some sort of the thinking process. Brainstorming is put excellent use in preparing students to read a text,

³Siti Azizah, Writing III The Process of Writing An Essay (Surabaya: Pena Salsabila, 2013), page. 9.

to discuss a issue, or to write on a topic.⁴The improving of students' brainstorming technique will increase their vocabulary mastery. As explanation before, the need of brainstorming technique is very complosary for vocabulary mastery. If students' brainstorming technique are higher, the students' vocabulary mastery are higher too.

So, the brainstorming technique that used to stimulate the students' thinking and to make the students active in answering the teacher question about vocabulary, it is very good that do in teaching learning process in the class specially in vocabulary material. Where the technique that use is best idea brainstorming and questioning brainstorming. As found by the researcher that the students who always active and stimulate their thinking to answer the teacher question about vocabulary, the more vocabulary that the students remember and the more the students will get and master the vocabulary.

⁴H. Douglas Brown, *Teachingby Prinsiples An Interactive Approach to Language Pedagogy*, (New York: Longman), page. 184.