The Effect of Brainstorming Technique on the Students' Reading Comprehension at SMA Swasta Gajah Mada Medan

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ABSTRACT

This research deals with The impact of Brainstorming Technique towards the Reading Comprehension of SMA Swasta Gajah Mada Medan students. Brainscorming Technique was first developed by Alex. F. Osborn. Brainstorming Technique is a method of thinking up solution, finding ideas, and getting new concepts. In carrying out the research, Quantitative method was applied by the writer. Based on the findings from this research, applying Brainstorming Technique is more significant than aplying conventional teaching technique in teaching reading comprehension towards the students at grade X and Grade at SMA Swasta Gajah Mada Medan. According to the data, the mean scores of the students after taught by applying Brainstorming technique is 83.52. Standard deviation is 6,997after using Brainstorming Technique with 27 students. After using conventional teaching technique to 18 students in the control class, it was known that the mean scores are 71.11. Standard deviation is 5.102. Then it was known that the mean scores in the experimental class increased 19.63 points and the mean scores in the control class increased 12.22 points. From the calculation ot the t-test it can be seen that t-observed value was 5.38; t-test (5.38) is higher than t-table value (1,675) with p = 0.05 df = 43. This difference can indicate that Brainstorming Technique can significantly give effect on the students' reading comprehension at SMA Swasta Gajah Mada Medan.

Keywords: The Effect, Brainstorming Technique, Reading Comprehension

CHAPTER 1

INTRODUCTION

English teachers can apply Brainstorming technique to investigate thre relationship between critical thinking and the process of the brainstorming works. The researchers have reported some studies related to the correlation of Brainstorming in teaching of reading comprehension. Brainstorming tecnique is expected to be used as an effective way to learn pre-reading activity. From the data, the writer can conclude that the use of Brainsforming technique has given sifnificant effect towards the students' reading comprehension activities and the EFL students' level on reading comprehension
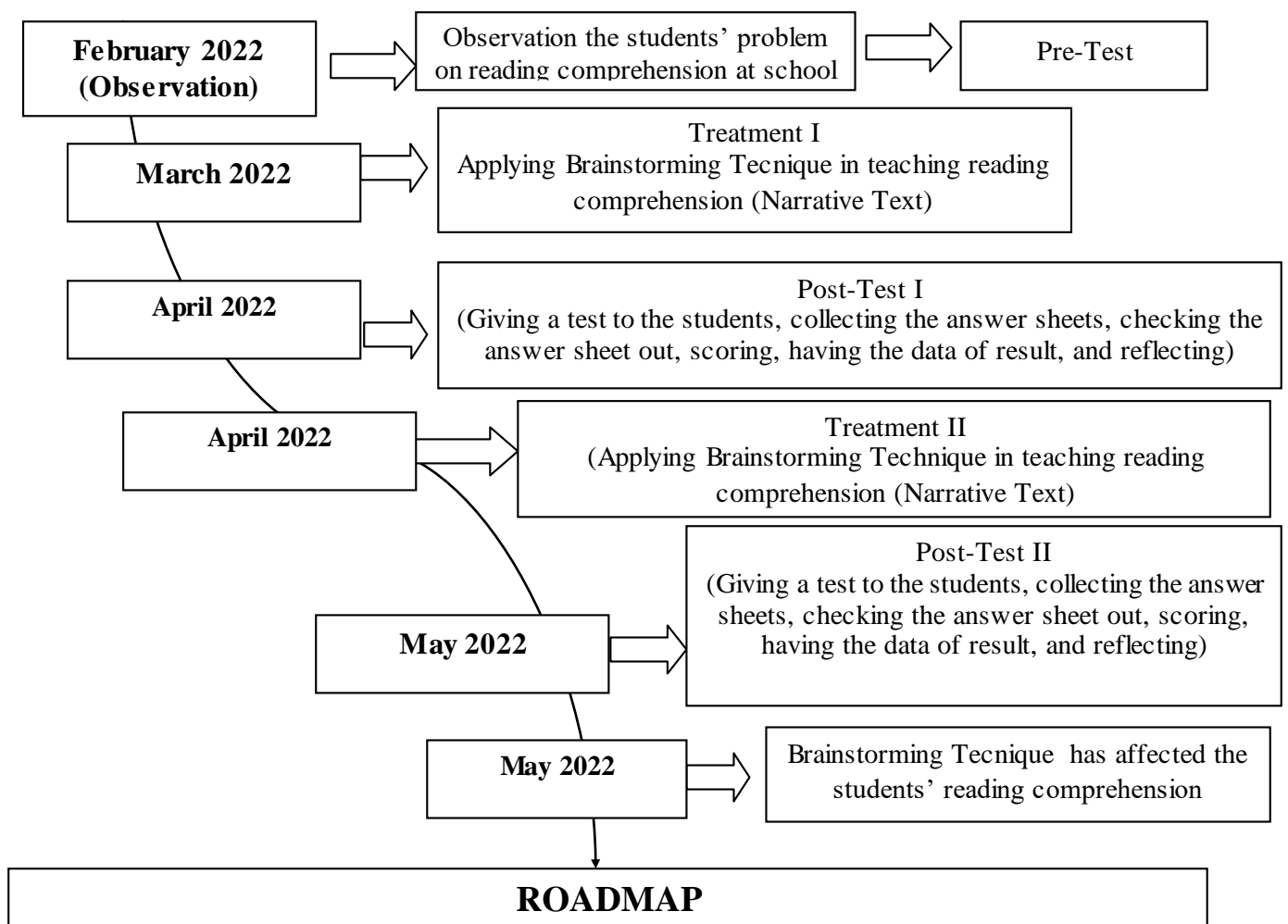
The students' reading comprehension has been correlated with the ability of the students in reminding the knowledge background. It was done by using brainstorming tecnique. From this research, the readers also can get information that brainstorming tecnique is an effective way to enhance the reading comprehension. The English teachers must be understanding the background of the students, especially related to the reading comprehension aspects. Brainstorming tecnique can influence the reading comprehension. Reading comprehension can be increased by the students. The students can increase it by maximizing the bakcground of students' knowledge.

The writer had conducted researcher to determine whether Brainstorming technique has given positive impact to the students' reading comprehension or not. The research was carried out by the writer to give new information based on the research to the English teachers at SMK Swasta Gajah Mada Medan. In developing students' capability in comprehending the text, the writer used Brainstorming technique. The writer did this research to give an overview related to the reading comprehension. Brainstorming tecnique could be used to activate the background of students' knowledge. This study could provide some reviews based on literature used in the implementation of Brainstorming technique when the teachers were teaching and the students were learning about reading comprehension.

The writer formulated the problem of study as "Does Brainstorming Technique affect the Reading Comprehension at SMA Swasta Gajah Mada Medan students?". The research

objective was to find out the effectiveness of the implementation of Brainstorming Technique on SMA Swasta Gajah Mada Medan students' reading comprehension.

The main focus of this research made by the writer was to know the effectiveness of the implementation of Brainstorming technique on the students' reading comprehension. The topic of reading comprehension was limited by the writer. Narrative text was the topic chosen by the writer. Narrative text was taught by the writer to the students of SMA Swasta Gajah Mada Medan for grade X (Natural Science Program) and grade XI-MIA (Natural Science Program) in the 2021/2022 academic year.

| February 2022 (Observation) | → | Observation the students' problem on reading comprehension at school | → | Pre-Test |

| March 2022 | → | Treatment I Applying Brainstorming Tecnique in teaching reading comprehension (Narrative Text) |

| April 2022 | → | Post-Test I (Giving a test to the students, collecting the answer sheets, checking the answer sheet out, scoring, having the data of result, and reflecting) |

| April 2022 | → | Treatment II (Applying Brainstorming Technique in teaching reading comprehension (Narrative Text) |

| May 2022 | → | Post-Test II (Giving a test to the students, collecting the answer sheets, checking the answer sheet out, scoring, having the data of result, and reflecting) |

| May 2022 | → | Brainstorming Tecnique has affected the students' reading comprehension |

ROADMAP

CHAPTER II

METHOD

2.1 Research Design

The data were analyzed by using mathematically system based on the methods based on statistical system. Based on quantitative approach that will be used in the research, the writer can collect numerical data form. Quantitative approach will apply mathematically system according to the method used by the writer. All the data were presented in numerical forms.

Firstly, pre-test was conducted by the writer to the experimental class students and control class students. These treatments were categorised as post-test sessions. After that, Brainstorming technique was used by the writer when teaching about reading comprehension to the experimental class students. Then for control class students, the writer applied conventional teaching method.

The writer carried out this research at SMA Swasta Gajah Mada Medan. This school is located at Jalam H.M. Said, Medan, North Sumatera, 20233. There are three grades at SMA Swasta Gajah Mada Medan. Those grades are tenth grade, eleventh grade, and twelfth gade. Every grade has two majors, namely: natural science and social science. Every grade consists of 20-30 students. The writer did this research to the students from grade ten and grade eleven (X-Natural Science and XI-Natural Science) in school year 2022/2023 in the second semester. This was carried out in April 2022.

Population is the largest group that used as group to be involved in a research (Fraenkel and Wallen, 2009). The population in this research was grade X-MIA and grade XI-MIA students from SMA Swasta Gajah Mada Medan of 2022/2023 academic year. Two classes used by the writer as the population when carrying out this research. Generally, there were 20-30 students in one class. There were about 100 students chosen as the population in this research. In running out this research, cluster random sampling tecnique was used by the writer. After running out that technique, students from grade XI-MIA (Natural Science) were chosen as experimental class. Students from grade X-MIA (Natural Science) were chosen as control class.

2.2 The Technique of Analyzing Data

Mean, mode, median, and standard deviation were used as the data description. The writer used this formula to know the mean scores from the control class students and experimental class students. The writer used the formula to know the mean scores.

$X = \dfrac{\Sigma X}{N}$

Where :

X   = Mean scores

ΣX   = Students's score sum

N   = Students sum

The writer used this formula to know the Data in frequency of distribution.

$$Mo = L + i\left[\dfrac{f_1}{f_1 + f_2}\right]$$

Where:

Symbol of mode is **Mo**

Interval that consists of lower limit is symbolised with **L**

Interval (class width) symbolised with **I**

Frequency of the interval contains mode reduced by that of the previous interval is symbolised with *f1*

Frequency of the interval contains mode reduced by that of the following interval is symbolised with *f2*

This formula was used by the writer to know the median.

$$Md = L + i\left(\dfrac{\frac{N}{2} - cfb}{f}\right)$$

$$S^2 = \dfrac{n\sum x_1^2 - (\sum x_1)^2}{n(n-1)}$$

This formula was used by the writer to know the standard deviation.

$$Sx = \sqrt{\dfrac{\sum (X - \overline{X})^2}{N}}$$

2.3 Pre-Requisite Test

The writer had examined data from the normality test and homogenety before determining the tecnique of statistical analysis. In this research, chi-square test was applied by the writer. The writer used some steps in carrying out the chi-square test. The writer did this test to determine the spand (R). Highest scores is substracted to lower scores. Chi-square test also was applied to determine many clases interval (P). To make table distribution frequency, chi-square was applied by the writer. Chi-square test also was applied by the writer to determine class boundary (Bk) from interval in each class. Chi-square test was applied by the writer to know the mean scores and variants.

A formula was used by the writer to determine Z score. A formula was used to determine chi-square (x2). Then it was used to determine x2 table. The writer could determine distribution normality with criteria: if x2 value > x2 table, it was known that the data is not in normal distribution. If x2 value < x2 table, it is known that the data is normal distribution.

The writer used homogenity test in determining the datam whether it was homogenous or not. There were some steps done by the writer. The writer determined mean scores of the students, determined variants, determined F, and the writer compared the data by using this formula Fvalue to Ftable 12α (nb-1) (nk-1) and dk = (k-1). After that the data were analysed by the writer. If Fvalue < Ftable, it was concluded that the data is in homogen distribution

T-Test

A formula below was used by the writer to know the T-Test.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{s\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where

$\bar{x}_1$ = the mean score of the experimental group

$\bar{x}_2$ = the mean score of control group

n_1 = the number of the experimental group

n_2 = the number of the control group

s = standard deviation

CHAPTER III

DATA ANALYSIS AND RESEARCH FINDING

3.1 Data Analysis

The writer got the data after conducting pre-tests and post-tests to the students from control class and experimental class. 20 questions in multiple choice questions were given to the students who were control class and experimental class. After doing the tests, the writer gathered the answer sheets analysed them. The writer presented the data by using table.

Table 4.1.. Achievement Level According to Brown

Students' Scores	Scores Level	Grade Level
80-100	Excellent	A
70-79	Good	B
60-69	Adequate	C
50-59	Unsatisfactory or Inadequate	D
0-49	Unaccepatable or Failed	E

The writer gave the tests, collected the answer sheets, checked the answer sheets, and analyses the answer sheets. According to the analysis done by the writer, the total scores from the experimental class after carrying out the pre-test are 1.725. After doing the post-test, the tocal scores are 2,255. Mean scores of the students were analysed by the writer. After caryying out the pre-test, it was known that the mean scores are 63.89. Then after carrying out the post-test, it was known that the mean scores are 83.52. The data were gathered and presented by the writer after carrying out pre-test and post-test. After carrying out the pre-test, it was known that the lowest score is 50 . Then it was known that the highest score is 80. Based on the data gathered by the writer, it was known that after doing the post-test, the highest score is 95 and 75 is the lowest score. By seeing the data after doing the analysis before, mean scores from the post-test were 83.52. So it can be categorised into A grade level (80-100).

The writer gave the tests, collected the answer sheets, checked the answer sheets, and analysed the answer sheets. The total scores are 1,145 after doing the pre-test in the control class. After the writer did the post-test, it was known that the total scores are 1,365. The mean scores were analysed by the writer. After doing the pre-test., the writer saw that the mean scores are 58.89. The mean scores of the students after carrying out the post-test are 71.11. according to the data, the writer made the data after doing pre-test and post-test and analysed them. Based on the result after doing the pre-test, it was known that 50 is the lowest score and 75 is the highest score. After doing the post-test, it was known that 80 is the highes score and

60 is the lowest score. By seeing the data after doing the analysis before, mean scores from the post-test were 75.56. So it can be categorised into B grade level (70-79).

Table 4.2. Students' Scores from Pre-Tests (Experimental Class and Control Class)

	Category									
	Very High		High		Fair		Low		Very Low	
Scores	80-100		70-79		60-69		50-59		0-49	
	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont
Frequencies	3	0	7	2	10	9	6	6	1	1
Percentage	11.11 %	-	25.93%	11.11%	37.04%	50 %	22.22%	33.33%	3.70%	5.56 %

Table 4.3. Students' Scores from Post-Tests (Experimental Class and Control Class)

	Category									
	Very High		High		Fair		Low		Very Low	
Scores	80-100		70-79		60-69		50-59		0-49	
	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont
Frequencies	24	2	3	10	-	6 %	-	-	-	-
Percentage	88.89%	11.11%	11.11%	55.56%	-	33.33%	-	-	-	-

Table 4.4. Descriptive Analysis of Scores from Pre-Tests (Experimental Class and Control Class)

CATEGORY									
Mean Scores		Standard Deviation		Median		Max		Min	
Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont
63.89	58.89	4,176	3,527	67	65	80	75	50	40

Table 4.5. Descriptive Analysis of Scores from Post-Tests (Experimental Class and Control Class)

CATEGORY									
Mean Scores		Standard Deviation		Median		Max		Min	
Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont	Ex	Cont
83.52	71.11	6,997	5,102	83	76	95	90	75	60

Table 4.6. The Percentage of Improvement (Experimental Class and Control Class)

Variable	Experimental Class		Control Class	
Test	The Pre-Test Session	The Post-Test Session	The Pre-Test Session	The Post-Test Session
Mean	63.89	83.52	58.89	71.11
Mean Difference	19.63		12.22	
Improvement (%)	30.72 %		20.75 %	

Table 4.7. Normality Test Result (Pre-Test and Post-Test)

Group	EXPERIMENTAL CLASS		CONTROL CLASS	
N	27		18	
Test	The Pre-Test Session	The Post-Test Session	The Pre-Test Session	The Post-Test Session
Significance Level	5 %	5 %	5 %	5 %
p	0.428	0.537	0.238	0,326
Interpretation	Normal	Normal	Normal	Normal

Table 4.8. Homogenity Test Result from Pre-Test and Post-Test

Variables	PRE-TEST SESSION		POST-TEST SESSION	
	Grade X-MIA	Grade XI-MIA	Grade X-MIA	Grade XI-MIA
W	1,158		1,356	
Df1	1		1	
Df2	0.634		0.522	
P	73		73	
Interpretation	Homogenous		Homogenous	

Reliability and Hypothesis Test

The reability computation result is r = 0.75. According to the research result, it can be explained that the reability of test is high. By applying the t-test in this research, the result was 5.38. The degree of freedom (df) was 43 (Nx + Ny – 2 = 18 + 27 = 43) at the significance level 0.05. From the data as presented by the writer, it can be known that:

T – obs > t-table (p= 0.05) with df 43

5.38 > 1.675 with df 43

From this result, alternative hypothesis (Ha) is accepted

3.2 Research Findings

After analysing the data in this research done by the writer, mean scores of students from control class and experimental class were different. Mean scores of the students after doing post-test in the control class is 71.11. Mean scores of the students after doing post-test in the exeperimental class is 83.52. A conclusion made by the writer is that mean scores in the experiemental class is higher than in the control class (83.52>71.11). The difference is 12.41. In doing this research, the writer also applied the t-test. From the calculation ot the t-test it can be seen that t-observed value was 5.38. t-test (5.38) is higher than t-table value (1,675) with p = 0.05 df = 43. This difference can indicate that Brainstorming Technique can significantly affect the the students' reading comprehension.

CHAPTER IV

CONCLUSIONS AND SUGGESTIONS

4.1 Conclusions

After carrying out this research and analysed the data, it can be known that Brainstorming Techniue significanlty affect the reading comprehension of SMA Swasta Gajah Mada Medan students. There is significant difference in teaching reading comprehension to the students after the implementation of Brainstorming Technique in the experimental class and those students who learned by implementing conventional teaching method.

The mean scores is very different for students who learned by implementing Brainstorming technique in the experimental class and students who learned by implementing conventional teaching method. It can be seen that 71.11 is the mean scores after the writer did the post-test in the control class. Then it was known that 83.52 is the mean scores after the writer did post-test in the experimental class.

From the calculation ot the t-test it can be seen that t-observed value was 5.38. t-test (5.38) is higher than t-table value (1,675) with $p = 0.05$, and df = 43. This difference can indicate that Brainstorming Technique can significantly affect the the students' reading comprehension. By seeing this data, alternative hypthesis (Ha)is accepted and null hypothesys (Ho) is rejected. As the conclusion, the students' reading comprehension can be improved by using Brainstorming Technique. Students who learned by implementing Brainstorming technique got better result than the students who learned by implementing conventional teaching method.

4.2 Suggestions

For suggestions, the writer suggest to the English teachers to be able to use Brainstorming Technique in teaching English, especially related to the reading comprehension. English teachers must be able to be more creative in designing the learning proces. Furthermore, the writer also suggest to the next researchers who are going to do the research with same topic as the writer has done in this research. This research can be used as one of the references that can be used by the next researchers. The students also are suggested to be more motivated in joining English class, especially in learning reading comprehension.

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