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Mei Hotma Mariati Munte

Majalah Ilmiah  
Universitas HKBP Nommensen

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**THE EFFECT OF SEMANTIC MAPPING STRATEGY ON STUDENTS READING COMPREHENSION AT THE THIRD SEMESTER OF ENGLISH DEPARTMENT STUDENTS.**

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**ABSTRACT**

The aim of this research is to investigate the effect of semantic mapping strategy on students' reading comprehension of narrative text and the significant different on reading comprehension of narrative text between two groups: (1) using semantic mapping strategy and (2) using conventional method. The design of the research is experimental study. The population of this reseach is the third semerter of English Department Students of HKBP Nommensen University in academic year of 2015/2016. The number of the sample is 60 students. The data are obtained by administering reading test to experimental group and control group. The research is started by giving pre-test, treatment and post-test to both experimental and control groups. The data of the test are analyzed by using t-test formula to know the difference of the students' comprehension in reading narrative text between two groups. In the pre-test the mean score of the experimental group is 54 and the control group is 53.67. The result of post-test of the experimental group is 78.33 and the control group is 67.5. The result of the t-test of mean difference is 3.046 and t- table is 2.00 It means that t-value is higher than t-table ( $3.046 > 2.00$ ). The calculation revealed that the hypothesis about a significant difference on reading comprehension between students who are teach narrative text by using semantic mapping strategy and those who are taught by using conventional method is accepted. It can be concluded that Semantic Mapping Strategy worked effectively to help students increase their achievement in reading comprehension. It is suggested that teachers of English apply Semantic Mapping Strategy as one of the alternatives in teaching reading comprehension.

Key Words: Semantic Mapping Strategy, Reading Comprehension, Alternatives.

## 1. The Background of the Study

Nunan (2003:68) states, "Reading is a fluent process of readers combining information from a text and their own background knowledge and build meaning." Reading is one of the four basic skills in learning a language besides listening, speaking and writing. Reading is an essential skill for all students at all levels. There are several reasons why students are weak on reading. In order to quench the curiosity about the factors, which causes the weaknesses on reading skills among students, many interested party had conducted a research on this area. Among of them are Arbaiyah & Zaidah (2001) who found that students are less efficient in reading because they lack independent reading. Secondly, students are unable to use context clues to guess the word meaning. The last factor is that they do not converse in English outside the classroom; as the result they don't have the ability to express their idea in English.

These problems motivated the writer to find a strategy in order to solve them. The writer chose semantic mapping strategy as the strategy which is used to solve the problem. Semantic mapping strategy which can be a visual representation of knowledge that supports students to create their own understanding of certain text into their own work by drawing a figure, table or chart which the represented the content of the text ( Zaid, 1995:6). From the writer's observation toward at the third's semester of English department students when they were learning in the classroom, the students are not motivated to learn reading subject. So from this research' proposal the writer hopes that can increase the ability of students in reading comprehension by semantic mapping strategy.

The problem of the research is "Does Semantic Mapping Strategy significantly affects to the students' reading comprehension?". And then The writer focused "*on the effect of Semantic Mapping Strategy on students' reading comprehension in narrative text.*" The objective of the research is to find out whether Semantic Mapping Strategy significantly affects the students' reading comprehension.

### The Hypothesis of the Research

Ha: There is a significant effect of using Semantic Mapping Strategy on students' reading comprehension.

Ho: There is not significant effect of using Semantic mapping Strategy on students' reading comprehension.

## 2. Research Design

There are two variables in this research, namely the independent variable is semantic mapping strategy while the dependent variable is reading comprehension. The strategy using by the experimental design which

consisted of two groups: *Experimental Group and Control Group*. Best & Khan (2002:135-136) stated that an experiment involves the comparison of the effects of particular treatment with that of a different treatment or of no treatment. In a simple conventional experiment, reference is usually made to an experimental group and to a control group. The experimental group is exposed to the influence of the factors under consideration; the control group is not. Groups are pre-test and post-test in order to know the differences of average scores:

**Research Design**

Group	Pretest	Treatment	Post test
Experimental group (EG)	Y1	X	Y2
Control Group (CG)	Y1	Y (without)	Y2

Where: EG : Experimental group,  
 X : Using Semantic Mapping Strategy  
 CG : Control group,  
 Y : Without Semantic Mapping Strategy,  
 Y1 : Pre test,  
 Y2 : Post test

**Population and Sample**

Best & Khan (2002:13) state” Population is any group of individuals that have one or more characteristics in common that are of interest to the researcher. ”The population of this study is the third semester of English department students of HKBP NOMMENSEN MEDAN”. The total number of the students is 146 students. Sample of the study is 60 students selected as randomly. The sample is divided into two groups. The first group as experimental group (EG) and the second group as control group (CG).

**Instrument for Collecting Data**

In collecting the data, the writer gave the multiple – choice test which is taking from the English reading comprehension test. The procedure as bellows:

1. **Pre-test:** The pre-test conducted to find out the homogeneity of the sample. It is used to determine whether the two groups (EG, CG) are relatively equal in reading.
2. **Treatment:** The treatment conducted after doing the pre-test.
3. **Post Test:** After the teaching presentation, both the experimental group and the control group gave a post test. The post test is similar to the test that is lead in pre-test. The writer given the students a post tests in order see the result whether the strategy is effective or not. And also to measured the students’ competence in

reading comprehension after the treatment done. The results of this text are analyzed to evaluate the two groups.

**Scoring the Test**

In scoring the test, this study used score ranging 0-100 by counting the correct answer and applying this formula:  $S = \frac{R}{N} \times 100$

Where: S: score of the test,  
 R: the correct answer,  
 N: number of the question

**Validity and Reliability of the Test**

Best & Khan (2002:208) state, "Reliability and validity are essential to the effectiveness of any data –gathering procedure."

Best & Khan (2002:208) state, "Validity is that quality of the data-gathering instrument or procedure that enables it to measure what it is supposed to measure." Arikunto (2003:196) stated that the validity question is concerned with the extent to which an instrument measures what one thinks it measuring. It is absolutely essential that the writer as this question" so, in this case the validity of the text is measured whether the test is really measured the reading comprehension. The data would calculate with formula

Spearman Brown product moment:  $r_{xy} = \frac{N(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\{N(\sum X^2) - (\sum X)^2\}\{N(\sum Y^2) - (\sum Y)^2\}}}$

Where:  $r_{xy}$  : Validity of the coefficient,  
 X : sum of the students with correct answer  
 Y : sum of the students with incorrect answer,  
 N: number of the students

Best & Khan (2002:208) argued that reliability is the degree of consistency that the instrument or procedure demonstrates: Whatever it is measuring, it does so consistently. Reliability is a necessary but not sufficient condition for validity. The data calculated by the Kuder - Richardson 21 formulas. The Kuder Richardson in Arikunto (2010:189) is

formulate  $KR_{21}(r) = \frac{k}{k-1} \left( 1 - \frac{m(k-m)}{ks^2} \right)$

Where: R : reliability of the test,  
 K : number of items in the students  
 M : mean score of the students,  
 SD: standard deviation

To complete the mean of the test, the writer uses the following:

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

Where: M : mean of the score,  
 $\sum x$  : The sum of the score,  
 N : sum of the students.

And then we can use standard deviation:  $S = \sqrt{\frac{\sum X^2}{n}}$

Where: S : standard deviation  
 $\sum x$  : The sum of the score,  
 N : sum of students

According to Best & Khan (2002:308) the coefficient of (r) can be interpret using these criteria as follow:

- 0.0 - 0.20 : negligible,
- 1.0 0.21 - 0.40 : low,
- 2.0 0.41 - 0.60 : moderate,
- 3.0 0.61 - 0.80 : substantial,
- 0.81 - 1.00 : high to very high.

**Technique of Analyzing the Data**

To test the hypothesis, the writer used the t- test formula as the following:

$$t = \frac{Ma - Mb}{\sqrt{\left\{ \frac{da^2 + db^2}{Na + Nb - 2} \right\} \left\{ \frac{1}{Na} + \frac{1}{Nb} \right\}}}$$

Where: Ma : mean score of experimental group  
 Mb : mean score of the control group  
 Da<sup>2</sup> : score of the experimental group  
 Db<sup>2</sup> : score of control group  
 Na : number of experimental group  
 Nb : number of control group.

**3. Data and Data Analysis**

**The Data**

This reseach was conducted by applying experimental research. There are two groups in this research, namely the experimental group and the control group. The treatment was done to the experimental group while there was no treatment given to the control one. In order words, students in the



experimental group were taught by using semantic mapping strategy while students in the control group were taught by using conventional method.

**The Score of Pre-Test and Post-Test by the Students of Experimental Group**

No	Initial Names	Pre-Test (T1)	Post-Test (T2)
1	ENS	60	75
2	LS	55	75
3	CAG	55	70
4	PPP	60	80
5	FH	50	70
6	IS	55	80
7	ELS	50	80
8	YP	50	85
9	LKP	60	75
10	TAP	50	85
11	EP	60	75
12	DLS	45	75
13	EM	50	85
14	GE	45	70
15	AHS	55	70
16	FD	65	70
17	ANP	65	85
18	BRP	55	90
19	YN	50	80
20	LCPL	55	80
22	VOP	45	75
23	LMS	55	85
24	SM	65	85
24	JS	45	85
25	SYP	45	75
26	DKT	55	80
27	AS	55	75
28	AM	55	80
29	YS	60	80
30	MS	50	75
<b>Total</b>		<b>1620</b>	<b>2350</b>
<b>Mean</b>		<b>54.00</b>	<b>78.33</b>

The data showed that the total score in experimental group of pre – test was 1620 and the post – test was 2350. The mean score in experimental group of pre – test was 54 and the post – test was 78.33. There is different numbers show that was achievement of students' reading comprehension after teaching process.

The lowest score for pre-test is 45 and the highest score is 65, while for post-test, the lowest score is 70 and the highest score is 90. The different of the score between the pre-test and the post-test shows that was an increasing of students' reading comprehension after taught by using semantic mapping strategy.

**The Score of Pre-Test and Post-Test by the Students of Control Group**

No	Initial Names	Pre-Test (T1)	Post-Test (T2)
1	GM	45	55
2	KNSMS	50	65
3	YDH	55	75
4	DLS	50	65
5	SM	50	65
6	OA	50	60
7	YGM	45	55
8	IJS	50	70
9	FAS	45	65
10	SS	50	70
11	USM	55	75
12	ASN	50	65
13	NPN	55	70
14	SG	55	70
15	DEB	50	70
16	JCM	60	70
17	EMS	45	75
18	MT	60	70
19	RKP	50	65
20	DSS	55	65
21	DNS	45	65
22	EUAS	55	70
23	DKRM	55	75
24	KIM	55	75
25	IVM	45	65
26	SDRS	50	65
27	QMS	45	65
28	AGPS	50	70
29	AFH	50	65
30	SPSS	45	70
	<b>Total</b>	<b>1520</b>	<b>2025</b>
	<b>Mean</b>	<b>53.67</b>	<b>67.5</b>

Moreover, the total score in control group of pre- test was 1520 and the post – test 2025. The mean score in control group of pre – test was 50.67 while the post – test was 67.5. Based on the data above, it proves that there are significantly different score between both of groups. The increase of students’ score in experimental group is higher than control group.

**Data Analysis**

To know the differences between the students’ reading comprehension in the experimental group and the control group, it is interesting to know the testing reliability and validity of the test.

Before the test given to the students, the reseacher have done try out of the test to know the validity of the test. And then before analyzing the data, the reseacher obtains the reliability of the test by using Kuder Richardson formula ( $KR_{21}$ ) after tried out instrument. The calculation shows that the coefficient of reliability of the test is 0.89. According to Best & Khan (2002:308) the coefficient of (r) can be interpret using these criteria as follow:

- 0.01- 0.20 : negligible
- 0.21 – 0.40 : low
- 0.41 – 0.60 : moderate
- 0.61 – 0.80 : substantial
- 0.82 – 1.00 : high to very high.

**The Reliability of the Test**

Item	Scores (X)	Squared Scores (X)
1	25	625
2	24	576
3	25	625
4	25	625
5	25	625
6	25	625
7	25	625
8	24	576
9	25	625
10	24	576
11	20	400
12	22	484
13	21	441
14	24	576
15	25	625
16	22	484
17	22	484
18	24	576
19	22	484

20	25	625
Total	474	11282
Mean	23.7	

The formula to obtain the standard deviation (Sd) is as follows:

$$\begin{aligned}
 SD &= \sqrt{\frac{\sum X^2}{n}} \\
 &= \sqrt{\frac{11282}{30}} \\
 &= 5.31
 \end{aligned}$$

To obtain the reliability :

$$K=20 \quad M=23.7 \quad SD=5.31$$

The calculation of the reliability can be shown as in the following :

$$\begin{aligned}
 KR_{21}(r) &= \frac{k}{k-1} \left( 1 - \frac{m(k-m)}{ks^2} \right) \\
 &= \frac{20}{20-1} \left( 1 - \frac{23.7(20-23.7)}{20(35.31^2)} \right) \\
 &= 1.052(0.8445) \\
 &= 0.89
 \end{aligned}$$

The result of testing reliability is 0.89 It means that the reliability of the test is high.

#### Analyzing the Data by using t-test formula

To know whether the use of semantic mapping strategy has a significant effect on the students' comprehension in reading comprehension or not, the result of the test is calculated by using t - test formula.

$$t = \frac{Ma - Mb}{\sqrt{\left\{ \frac{da + db}{Na + Nb - 2} \right\} \left\{ \frac{1}{Na} + \frac{1}{Nb} \right\}}}$$

**The Calculation of Mean (M) and Standard Deviation (SD) for Experimental Group**

No	Initial Names	Pre-Test	Post-test	D	da	da <sup>2</sup>
		T1	T2	(T2-T1)	(d-Ma)	(d-Ma) <sup>2</sup>
1	ENS	60	75	15	-9.33	87.05
2	LS	55	75	20	-4.33	18.75
3	CAG	55	70	15	-9.33	87.05
4	PPP	60	80	20	-4.33	18.75
5	FH	50	70	20	-4.33	18.75
6	IS	55	80	25	0.67	0.45
7	ELS	50	80	30	5.67	32.15
8	YP	50	85	35	10.67	113.85
9	LKP	60	75	15	-9.33	87.05
10	TAP	50	85	35	10.67	113.85
11	EP	60	75	15	-9.33	87.05
12	DLS	45	75	30	5.67	32.15
13	EM	50	85	35	10.67	113.85
14	GE	45	70	25	0.67	0.45
15	AHS	55	70	15	-9.33	87.05
16	FD	65	70	5	-19.33	373.65
17	ANP	65	85	20	-4.33	18.75
18	BRP	55	90	35	10.67	113.85
19	YN	50	80	30	5.67	32.15
20	LCPL	55	80	25	0.67	0.45
22	VOP	45	75	30	5.67	32.15
23	LMS	55	85	30	5.67	32.15
24	SM	65	85	20	-4.33	18.75
24	JS	45	85	40	15.67	245.55
25	SYP	45	75	30	5.67	32.15
26	DKT	55	80	25	0.67	0.45
27	AS	55	75	20	-4.33	18.75
28	AM	55	80	25	0.67	0.45
29	YS	60	80	20	-4.33	18.75
30	MS	50	75	25	0.67	0.45
	<b>Total</b>	<b>1620</b>	<b>2350</b>	<b>730</b>	<b>0.1</b>	<b>1836.67</b>

$$\begin{aligned}
 Ma &= \frac{730}{30} \\
 &= 24.33
 \end{aligned}$$

The Calculation of Mean (M) and Standard Deviation (SD) for Control Group

No	Initial Names	Pre-Test	Post-test	d	da	da <sup>2</sup>
		T1	T2	(T2-T1)	(d-Ma)	(d-Ma) <sup>2</sup>
1	GM	45	55	10	-6.83	46.65
2	KNSMS	50	65	15	-1.83	3.35
3	YDH	55	75	20	3.17	10.05
4	DLS	50	65	15	-1.83	3.35
5	SM	50	65	15	-1.83	3.35
6	OA	50	60	10	-6.83	46.65
7	YGM	45	55	10	-6.83	46.65
8	IJS	50	70	20	3.17	10.05
9	FAS	45	65	20	3.17	10.05
10	SS	50	70	20	3.17	10.05
11	USM	55	75	20	3.17	10.05
12	ASN	50	65	15	-1.83	3.35
13	NPN	55	70	15	-1.83	3.35
14	SG	55	70	15	-1.83	3.35
15	DEB	50	70	20	3.17	10.05
16	JCM	60	70	10	-6.83	46.65
17	EMS	45	70	25	8.17	66.75
18	MT	60	75	15	-1.83	3.35
19	RKP	50	65	15	-1.83	3.35
20	DSS	55	65	10	-6.83	46.65
21	DNS	45	65	20	3.17	10.05
22	EUAS	55	70	15	-1.83	3.35
23	DKRM	55	75	20	3.17	10.05
24	KIM	55	75	20	3.17	10.05
25	IVM	45	65	20	3.17	10.05
26	SDRS	50	65	15	-1.83	3.35
27	QMS	45	65	20	3.17	10.05
28	AGPS	50	70	20	3.17	10.05
29	AFH	50	65	15	-1.83	3.35
30	SPSS	45	70	25	8.17	66.75
	<b>Total</b>	<b>1520</b>	<b>2025</b>	<b>505</b>	<b>0.1</b>	<b>5242</b>

$$M_b = \frac{505}{30} = 16.83$$

$$M_a = 24.33$$

$$M_b = 1Da^2 = 1856.67$$

$$Db^2 = 524.2$$

$$N_a = 30$$

$$N_b = 30$$

Further the reseacher applied t-test formula as follows:

$$\begin{aligned} t &= \frac{M_a - M_b}{\sqrt{\left\{ \frac{da^2 + db^2}{N_a + N_b - 2} \right\} \left\{ \frac{1}{N_a} + \frac{1}{N_b} \right\}}} \\ &= \frac{24.33 - 16.83}{\sqrt{\left\{ \frac{1856.67 + 524.2}{30 + 30 - 2} \right\} \left\{ \frac{1}{30} + \frac{1}{30} \right\}}} \\ &= \frac{7.5}{\sqrt{\left\{ \frac{2380.87}{58} \right\} \left\{ \frac{2}{30} \right\}}} \\ &= \frac{7.5}{\sqrt{\{41.049\} \{0.06\}}} \\ &= \frac{7.5}{1.5693} = 4.779 \end{aligned}$$

The result of the data analysis shows  $t_{\text{observed}}$  was 4.779.

it means  $t_{\text{observed}}$  as higher that the  $t_{\text{table}}$  ( $4.779 > 2.00$ :  $\alpha=0.05$ ).

### Testing Hypothesis

The testing hypothesis was aimed at showing the result of the data analysis. In this reseach, the null hypothesis ( $H_0$ ) was rejected because  $t_{\text{observed}} = 4.779$  was higher than the value of  $t_{\text{table}} = 2.00$ :  $\alpha=0.05$  at level of significant  $p = 0, 05$  and at degree of freedom ( $df$ ) = 58 (obtained from  $N_a + N_b - 2 = 30 + 30 - 2 = 58$ ). so hypothesis alternative is accepted. It indicates that there is a significant effect of using semantic mapping strategy on the students' reading comprehension.

### Research Finding

After collecting and analyzing the data by using t – test formula, the researcher finds that the value of t – test (4.779) exceeds the value of t – table (2.00), so Hypothesis Alternative is accepted. This finding shows that hypothesis is really true in this research. It indicates that the students' reading comprehension taught by using semantic mapping strategy is higher than those by using conventional strategy as showed in the total score of the experimental group in the pre-test was 1620 but in the post-test was 2350 and in the pre-test of the control group was 1520 but in the post test was 2025.

### 4. Conclusion

Based on the research analysis, it was concluded that:

- 1) The Semantic Mapping Strategy significantly affects the students' reading comprehension especially for the students of the third's semester of English Department of HKBP Nommensen in Academic years of 2015/2016. It was shown by the increasing of the students' mean from the pre-test up to the post-test. The students' mean of the pre-test was 63.00, the post-test 83.83. From the result, it was concluded that the application of the Semantic Mapping Strategy had successfully increase students' reading comprehension.
- 2) The Semantic Mapping Strategy can be applied for students. The achievement of students in the third's semester of English Department of HKBP Nommensen in Academic year of 2015/2016 in reading comprehension increased after taught reading comprehension through the application of the Semantic Mapping Strategy . The Semantic Mapping Strategy is a quite good strategy to improve students' reading comprehension skill and increase their involvement in classroom activities.



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