

THE EFFECT OF MIND MAPPING TECHNIQUE TOWARDS THE STUDENTS' SPEAKING ABILITY AT 7TH GRADE OF SMPN 4 BANDAR LAMPUNG

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Abstract

The main objective of this research was aimed to identify whether the use of Mind Mapping technique was effective in improving the students' speaking achievement. The population was the First year students of SMPN 4 Bandar Lampung in academic year of 2013/2014 with a total number of 234 students. Out of this population, 52 students were taken as sample. There were two groups, each of which consisted of 26 students. One class became the experimental, while the other one became the control group. Different treatments were given to both groups, that was mind mapping given to the experimental group while the control group taught by traditional teaching. The test of speaking was the instrument and then administered in two sections: pretest and posttest. The score obtained was analyzed by using t-test formula. The experimental data revealed two important results. First, adopting a technique of mind mapping technique could significantly improve the students' speaking ability because it was supported by pictures and colors. Results were obtained of experimental groups revealed that mind mapping performed better on the post test. Second, the final findings of this research were formulated. From the t-test calculation of the pre test of experimental group the result was 1856.4 and the post-test was 5644.82 with the achievement until 19.5%. Whereas in control group the result of pretest was 1856.6 and the post test was 1952.3 with the achievement 4.9%. The result of this study showed that the students taught by mind mapping technique got better score than those who were not. It could be seen that the students' speaking ability in the experimental group after treatment was significant. By calculating the scores to the t-Test, the result was $P_{\text{value } 1\%} = 2,68$, $P_{\text{value } 5\%} = 2,01$. Moreover, the t-Test value was 7,6. It described clearly that the t-Test value was greater than the p value. This meant that the application of mind mapping technique was very effective technique. Therefore, it could be concluded that Mind Mapping Technique improved the students' speaking achievement.

Keywords: Speaking Achievement, Mind Mapping Technique, EFL Students.

1. INTRODUCTION

The teaching of speaking is emphasized at Junior High school level because it is considered as the most important language skill. Speaking involves the development of a particular type of communication skill. Therefore, it should be taught longer than the other language skills. Speaking is an oral language, because its circumstance of production tends to differ from written language in its grammatical, lexical, and discourse patterns. The intent is to have students engaged in realistic tasks rather than practicing linguistic material (Martin Bygate, 1987). The causes of the problems are determined. The first cause that makes the students difficult in speaking English is that the teacher and environment give little support the students to speak English frequently. The second cause is grammar problem. English always deals with reference of time while Indonesian has no one. In that case, appropriate teaching technique is an excellent solution. The technique should be able to help the students understand how to express their message in speaking.

2. THE RELATION OF MIND MAPPING AND SPEAKING ABILITY

Mind mapping is an effective visual way to connect and organize our thoughts because it conducts the color, picture/symbol, and association. It also requires a map with the central theme at the center and supporting ideas around it. Using a mind map can help us to plan and to deliver our speech. Making a mind map can convey ideas to be presented visually as a supporting material for speaking about the lesson. At this case, the students can produce their own mind maps to answer questions which are formulated for speaking. It can be done individually, pair work, or group work. By using mind map, students can produce oral language in a coherent, cohesive, clear, organized, and memorable way, because its advantages are to describe, compare, classify, make sequence, and make a decision. It also allows them to expand their vocabulary and associate new and old words to images that help to convey meaning easily in a specific context. These mind maps serve as a record of the learner's thinking process and can be used to assess students' knowledge and understand the content, thinking skills, and creativity (Steve Darn, 2012).

Creating mind maps require the understanding of the basics of mind maps. Literacies and critical thinking are also presented in the use of mind maps. We can see of mind maps created by the students to prove that. Selecting appropriate images and relating them to concepts and ideas should be done by the teacher to allow students share their knowledge in the map. They can discuss it critically and make this as a good tool that helps them talk in a clear, organized, and fun way. They notice that mind maps use images, words, and arrows to show the relations. They are placed in the graphic in a specific way. Then, the students need to follow relations in order to read and talk about them. By using this way, students become creators that inspire and help others to keep on creating. It can be done by making groups of work. They can amplify and create waves each other. As the result, students compare their work and evaluate themselves with their classmates. Consequently, they do not only study about the lesson, but also increase their knowledge in a community that learn together and help each other. In conclusion, the effectiveness of using pictures, color, and association in mind map relate with the needs of the students to produce their oral sounds, called as speaking. It can be done not only in individuals, but they can make their own groups, which can help each other to speak (Doris Molero, 2012).

Table 1: Oral proficiency scoring categories (Brown, 2001, pp. 406-407)

Level	Grammar (20%)	Vocabulary (20%)	Comprehension (20%)	Fluency (10%)	Pronunciation (10%)	Task (20%)
E (0-54)	Errors in grammar are frequent, but speaker can be understood by a native speaker used to dealing with foreigners attempting to speak his language	Speaking vocabulary inadequate to express anything but the most elementary needs	Within the scope of his very limited language experience, can understand simple questions and statements if delivered with slowed speech, repetition, or paraphrase.	(No specific fluency description. Refer to other four language areas for implied level of fluency.)	Errors in pronunciation are frequent but can be understood by a native speaker used to dealing with foreigners attempting to speak his language	Can ask and answer questions on topics very familiar to him. Able to satisfy routine travel and minimum courtesy requirements. (Should be able to order a simple meal, ask for shelter or lodging, ask and give simple directions, make purchases, and tell time.)

D (55-64)	Can usually handle elementary constructions quite accurately but does not have thorough or confident control of the grammar.	Has speaking vocabulary sufficient to express himself simply with some circumlocutions.	Can get the gist of most conversations of non-technical subjects (i.e., topics that require no specialized knowledge).	Can handle with confidence but not with facility most social situations, including introductions and casual conversations about current events, as well as work, family, and autobiographical information.	Accent is intelligible though often quite faulty.	Able to satisfy routine social demands and work requirements; need help in handling any complication or difficulties.
C (65-74)	Control of grammar is good. Able to speak the language with sufficient structural accuracy to participate effectively in most formal and informal conversations on practical, social, and professional topics.	Able to speak the language with sufficient vocabulary to participate effectively in most formal and informal conversations on practical, social, and professional topics. Vocabulary is broad enough that he rarely has to grope for a word.	Comprehension is quite complete at a normal rate of speech.	Can discuss particular interests of competence with reasonable ease. Rarely has to grope for words.	Errors never interfere with understanding and rarely disturb the native speaker. Accent may be obviously foreign.	Can participate effectively in most formal and informal conversation on practical, social, and professional topics.
B (75-84)	Able to use the language accurately pertinent to professional needs. Errors in grammar are quite rare.	Can understand and participate in any conversations within the range of his experience with a high degree of precision of vocabulary.	Can understand any conversations within the range of his experience	Able to use the language fluently on all levels normally pertinent to professional needs. Can participate in any conversations within the range of his experience with a high degree of fluency.	Errors in pronunciation are quite rare.	Would rarely be taken for a native speaker but can respond appropriately even in unfamiliar interpreting from and into language.

A (85- 100)	Equivalent to that of an educated native speaker.	Speech on all levels is fully accepted by educated native speakers in all its features including breadth of vocabulary and idioms, colloquialisms, and pertinent cultural references.	Equivalent to that of an educated native speaker	Has complete fluency in the language such that his speech is fully accepted by educated native speaker.	Equivalent to and fully accepted by educated native speakers.	Speaking proficiency equivalent to that of an educated native speaker
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3. RESEARCH METHOD

In conducting the research, the research procedures were used in the experimental and the control group. The procedure of this research was described into some steps. They were determining the population and sample, selecting the materials, doing the pre-test, the treatment, and the post-test. Cluster sampling technique was used to get the sample. Class VII A was the experimental group, and class VII B was the control group. The sample for class VII A consisted of 26 students, and 28 students for class VII B. Selecting the materials was done next. In selecting materials, the syllabus in the second semester of grade VII was adopted. Arranging the test instrument was done after selecting the materials. It used their speaking ability.

In the pre-test, two pre-tests were administered in order to find out the students' current speaking ability before the treatment. In the test, the students were asked to speak out in about 10 minutes. The spoken test was about particular topic, such as *describing famous person*.

Next, the treatments were conducted twice a week. Each meeting was held in 90 minutes. In that treatment, the speaking was taught using mind mapping technique in the experimental class, and traditional teaching in control class. The topics in the speaking were particularly the given topics in the pre-test.

The last, two post tests were conducted after the treatment. In this test, the students were asked to make groups to speak based on the particular topics in 10 minutes then calculated the result of the test to find out the effect of using mind mapping toward students' speaking ability. And the last, reporting the result of the research.

$$t = \frac{\bar{M}_x - \bar{M}_y}{\sqrt{\left(\frac{x^2}{N_x} + \frac{y^2}{N_y} - 2\right) \left(\frac{1}{N_x} + \frac{1}{N_y}\right)}}$$

df: $(N_x + N_y - 2)$

Figure 1. The Equation of t-test two group design

Descriptions:

M : The mean of the group result

(x) : Deviation of (X_1) and (X_2) of control group

(y) : Deviation of (y_1) and (y_2) of experimental group.

Df : degree of freedom

N_x : The number of the students in control group

N_y : The number of the students in experimental group

4. FINDINGS AND DISCUSSION

4.1. Findings

The pre-test results are analyzed by using t-Test for two group design in this research. The scores of the pre-test of experimental group (VIIA class) are presented in table 4.1 and the post test are presented in table 4.2. The students are examined in the form of dialogue. Then, the students' answers are evaluated by the oral proficiency scoring categories (Brown, 2001). There are six elements of speaking are appraised. They are pronunciation (P), grammar (G), vocabulary (V), fluency (F), comprehension (C), and task (T). Every component has its own percentage to be 100%. For pronunciation (P), the percentage is 10%, grammar (G) is 20%, vocabulary (V) is 20%, fluency (F) 10%, comprehension (C) is 20%, and task (T) is 20%. The scores are calculated into statistic.

Table 2: The Score Calculation of Experimental Group

No	Subject	Pre-test (y ₁)	Post-test (y ₂)	Deviation (Y)	(Y ²)
1	Anggun Amalia Ahdaningtyas	71.5	80.6	9.1	82.81
2	Cherissa Amarylis	66.9	79.8	12.9	166.41
3	Dhia Shafira	69.5	83.1	13.6	184.96
4	Diana Ariana	66.5	75.3	8.8	77.44
5	Dwi Febriani	69.2	82.8	13.6	184.96
6	Dzakwan Cendri K	64.3	84.3	20	400
7	Fajar Nugroho	70.3	87.5	17.2	295.84
8	Jaka Mulya Pratama	71.3	87.7	16.4	268.96
9	M. Naufal Rafi	66.5	88.8	22.3	497.29
10	M. Daffa Anggito A	72.5	88.6	16.1	259.21
11	Masyta Dinda Riani	83.1	84.8	1.7	2.89
12	Maulidea Tamari	74.7	85.5	10.8	116.64
13	Mohammad Helmi K	59.9	87	27.1	734.41
14	Mohammad Fajar Arif	67.3	90.1	22.8	519.84
15	Muhamad Fikran Herdi	63.3	84.7	21.4	457.96
16	Muhamad Surya Dwi A	67.4	81.3	13.9	193.21
17	Nadia Silvia Oktaviani	74.2	80	5.8	33.64
18	Nurul Husniah Lathifah	75.9	84	8.1	65.61
19	Okta Yuliza Caroline	74.5	86.6	12.1	146.41
20	Rizky Aditya	74.6	80.2	5.6	31.36
21	RR. Halimatu Hanna	77.1	88.9	11.8	139.24
22	Sadam Alamsyah	74.3	87.5	13.2	174.24
23	Sella Febri Aidina	75	85.4	10.4	108.16
24	Tiara Arlinda	74.9	89.7	14.8	219.04
25	Tri Wahyuningsih	73.1	88.1	15	225
26	Vivian Chen	78.6	86.3	7.7	59.29
	N=26	1856.4	2208.6	352.2	5644.82

The table above is the result of the total calculation of pre-test and pos-test in experimental group. The deviation explains about the dispute between pre-test and post-test scores. The pre-test total score (y₁) is 1856.4 and the post-test (y₂) is 2208.6. Based on the result of pre-test and post-test, the students get the achievement until 15.95%. In the pre-test, there are 8 students who get C and 18 students who get B. Somehow, there are 9 students who get B and 17 students who get A in the post test. In summary, there is considerable comparison that can be seen based on the table.

Table 3: The Score Calculation of Control Group

No	Subject	Pre-test (x ₁)	Post-test (x ₂)	Deviation (X)	(X ²)
1	Aditya Aryandi	65.7	69.9	4.2	17.64
2	Ainaya MZ	70.9	77.3	6.4	40.96
3	Andi Bunga S	72.7	74.5	1.8	3.24
4	Anissa Lutfiah	68.3	74.2	5.9	34.81
5	Aulidia Jiwani	73.7	75.9	2.2	4.84
6	Ayu F	69.9	76.7	6.8	46.24
7	Dela Oktachya	69	76.1	7.1	50.41
8	Dinda M.	69.9	71.7	1.8	3.24
9	Dita Anggraeni	73.5	74.1	0.6	0.36
10	Fadillah Aulia	70.9	74.8	3.9	15.21
11	Fathia A.P.	71.4	71.4	0	0
12	Fauzan Budi P.	71.5	72.6	1.1	1.21
13	Gendis K.	73.1	75.3	2.2	4.84
14	Ghufron Faqih	67.4	69.3	1.9	3.61
15	Guruh Upesa	73.3	74.4	1.1	1.21
16	Inola	74.7	76.1	1.4	1.96
17	M. Iqbal F.	67.8	72.6	4.8	23.04
18	Made Astriani	72.2	70.4	-1.8	3.24
19	Mirza T.S.	72.5	75.4	2.9	8.41
20	M. Haris	68.5	75.6	7.1	50.41
21	Nurmaulyanti	71	73.6	2.6	6.76
22	Retno Ayu	78.6	84.5	5.9	34.81
23	Rewisya N	73	81.7	8.7	75.69
24	Safia Fazila	73.2	76.2	3	9
25	Sandy Febrian	69.7	75.9	6.2	38.44
26	Vania A.	74.2	82.1	7.9	62.41
N=26		x₁= 1856.6	x₂= 1952.3	X= 95.7	X²= 541.99

Table 3 shows the score calculation of control group. There is insignificant evolution between pre-test and post-test after using traditional teaching technique. The pre-test total score is 1856.6 and the post-test is 1952.3. The deviation is 95.7. Based on the result of pre-test and post-test, the students get the achievement only 4.9%. There is considerable comparison that can be seen based on the table. In the pre-test, there are 5 students who get C and 21 students who get B. In the post-test, there are 2 students who get C, 23 students who get B, and 1 student who gets A.

From the calculation above, the results of the pre-test and the post-test of experimental and control group are found. Furthermore, the research statistic calculation is done to gain the whole score based on the equation of t-Test. The aim of this calculation is to know whether the treatment towards experimental group has impact by using mind mapping technique and control group is not. The statistical calculation experimental group and control group can be seen in the figures below.

$$\begin{aligned}
 Mx &= \frac{\sum x}{N} \\
 Mx &= \frac{95.7}{26} \\
 Mx &= 3,68 \\
 X^2 &= X^2 - \frac{(\sum x)^2}{N} \\
 X^2 &= 541.99 - \frac{(95.7)^2}{26} \\
 X^2 &= 541.99 - \frac{9158.49}{26} \\
 X^2 &= 541.99 - 352.25 \\
 X^2 &= 189.74
 \end{aligned}$$

Figure 2. Control Group

There are two things that have to be measured. Before calculating t-value, the score of mean for control group (Mx) must be calculated first. Then the result is consequently 3.68. The second, to get X², all scores that are squared is minus the total score (Σx) then divided by the number of the students. The result that is gotten is 189.74. The function of the score of mean for control group is to calculate t-value.

The figure above illustrates the calculation of t-Test, degree of freedom (df), and the result of probability

$$\begin{aligned}
 My &= \frac{\sum y}{N} \\
 My &= \frac{352.2}{26} \\
 My &= 13.55 \\
 Y^2 &= \sum Y^2 - \frac{(\sum y)^2}{N} \\
 Y^2 &= 5644.82 - \frac{(352.2)^2}{26} \\
 Y^2 &= 5644.82 - \frac{124044.84}{26} \\
 Y^2 &= 5644.82 - 4770.96 \\
 Y^2 &= 87386
 \end{aligned}$$

Figure 3. Experimental Group

$$\begin{aligned}
 t &= \frac{|Mx - My|}{\sqrt{\left(\frac{\sum x^2 + \sum y^2}{N_x + N_y - 2}\right) \left(\frac{1}{N_x} + \frac{1}{N_y}\right)}} \\
 t &= \frac{|3,68 - 13,55|}{\sqrt{\left(\frac{189,74 + 873,86}{26 + 26 - 2}\right) \left(\frac{1}{26} + \frac{1}{26}\right)}} \\
 t &= \frac{9,87}{\sqrt{\left(\frac{1063,6}{50}\right) \left(\frac{2}{26}\right)}} \\
 t &= \frac{9,87}{\sqrt{(21,272)(0,08)}} \\
 t &= \frac{9,87}{\sqrt{1,70}} \\
 t &= \frac{9,87}{1,30} \\
 t &= 7,6
 \end{aligned}$$

$df = N_x + N_y - 2$
 $df = 26 + 26 - 2$
 $df = 50$
 $P_{value} = 5\% : 2,01$
 $1\% : 2,68$
 $t_{value} = 6,55 > P = 5\% : 2,01 > 1\% : 7,6$
 $P < t$

Figure 4. the equation of t-Test for two group design

value (P_{value}). The data is analyzed by using t-Test formula first. The result of Mx is 3.68 and My is 13.55. Furthermore, the result of X² is 189.74 and Y² is 873.86. The end result of t_{value} is 7.6. After that, the degree of freedom which is gotten is 50. That figure indicates that P_{value} for 5% is 2.01 and P_{value} for 1% is 2.68. The result of the analysis proves that P_{value} is smaller than t_{value}. It can be stated that the research hypothesis (H_a) is accepted and the null hypothesis (H_o) is rejected. It means that there is significant difference in the students' speaking ability within the students in the control group.

4.2. Discussion

In this part, there are two discussions that are talked. The effectiveness of mind mapping through the students' speaking and the result of the research to the final findings are discussed. The explanations are stated briefly.

The first is the effectiveness of mind mapping through the students' speaking. Most of the students are more interested in speaking the topics that provides where the topics are supported by pictures and colors. Results are obtained of experimental groups revealed that mind mapping performed better on the post test. To conclude, the results of this study suggest the existence of positive improvement of the students' speaking ability after they are treated by using mind mapping technique. Organizing information, using pictures and symbol, and abbreviations instead of full words rather than in sentences help the mind mapping can be easily understood by the students. The second is the final findings of this research. In line

with Sudijono who states that if t_{value} is bigger than P_{value} ($t_{\text{value}} > P_{\text{value}}$), so the null hypothesis is rejected (Arif Prayogo, 2010). The result suggested that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. This means that the application of mind mapping technique is very effective technique than the application of a traditional technique towards the students' speaking ability at grade seventh of SMP N 4 Bandar Lampung. It can be seen that the students' speaking ability in the experimental group after treatment is significant, that is $p\ 1\% = 2,68$, $p\ 5\% = 2,01$. The t-Test value is 7,6. So, it describes clearly that the t-Test value is greater than the p value.

5. CONCLUSION AND SUGGESTIONS

The results obtained from the calculation by using t-Test is the other consideration. The result shows that t-value is 7.6. The p value with the 5% significant level is 2.01 and the 1% significant level is 2.68. So, it describes clearly that the t-Test value is greater than the p value.

After finishing this study, the researcher offers some suggestions related to the findings of the study. The suggestions are for the English students, the English teachers, and the future researchers. Those three suggestions are elucidated succinctly.

The first suggestion is intended toward the students. English students should do more practice to enhance their speaking ability. It is because speaking English seems very difficult for them. The use of mind mapping technique may help a lot to organize ideas so that they get ease to construct the dialog. The students should also concern on the speaking elements engaged in such as grammar, the use of vocabulary.

Then, it is presented to the English teachers. The English teacher is suggested to apply this strategy to improve students' speaking ability. As many of us know that starting speaking is very difficult, organizing ideas is very important then. Mind mapping helps students to organize ideas in a very good manner. The existence of colors and pictures in mind maps makes this technique easy to learn.

The next suggestion is given toward the future researchers. If the same application is done related this research, it is better to spend longer time investigating the effect of this technique. It is intended that the result of the study can be more reliable and valid. The more time you have in your research, the better the result will be. Moreover, the understanding of using mind mapping strategy should be certainly mastered by a researcher so that he or she can do better for the application.

REFERENCES

- [1] Bailey, K. M. (2005). *Practical English Language Teaching : Speaking*. New York, America, The Mc. Graw Hill Companies.
- [2] Budd, J. W. (2003). *Mind maps as classroom exercises*. Minnesota: University of Minnesota.
- [3] Buzan, Tony. (2009). *Buku Pintar Mind Mapping*. Jakarta : PT Gramedia Pustaka Utama.
- [4] Bygate, Martin. (1979). *Speaking*. London: Oxford University Press.
- [5] Bygate, Martin. (1987). *Teaching Speaking*. London: Oxford University Press.
- [6] Davies, Martin. (2010). *Concept mapping, mind mapping, argument mapping: what are the differences and do they matter?.* Australia: University of Melbourne.
- [7] Fiktorius, Teddy. (2013). *The use of mind-mapping technique in the EFL classroom*. Pontianak: University of Tanjung Pura.
- [8] Harmer, Jeremy. (1998). *How to Teach English*. London: Longman.
- [9] Harmer, Jeremy. (2007). *How to Teach Speaking*. New York : Edinburg Gate.
- [10] Hetrakul, Kavin. (1995). *The Second Language*.
- [11] Mc. Donald, E.S. & Hersnman, D.M. (2010). *Recharge and revive your teaching*. Second Edition. Classroom that spark!
- [12] Molero, Doris. (2012). *Advantages of using mind maps for speaking*.
- [13] Murley, D. (2007). *Mind mapping complex information*. Illinois: Southern Illinois University School of Law Library.
- [14] Palmberg, R. (2011).
- [15] Sahyadri, J. M. (2011). *How to be a good teacher*.
- [16] Siegle, Del. (Ph.D). *Cluster random sampling*. Neag School of Education: University of Connecticut
- [17] Wellman, H.M., & Lagattuta, K.H. (2004). *Theory of mind and for learning and teaching : the nature and role of explanation*. (479-497). Cognitive development. USA: University of Michigan and University of California.