
The Effectiveness of Using Mind Mapping Technique in Teaching Writing

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Abstract

As one of the compulsory subjects in junior high school, it is undeniable that English must be taught to students. The objectives of this study are to find out whether there is a significant difference in students' writing achievement between students who are taught using the Mind Mapping Technique and those who are not taught using the Mind Mapping Technique at Pesantren Modern Al-Manar Bener Meriah. The sample was selected using a purposive sampling technique, where 15 of boys students were treated to an experimental group, and the other 15 of girl students were assigned as a control group. The data were collected from written tests (pre-test and post-test), they were analyzed using some formula: mean, standard deviation, and t-test. By comparing t-test score and t-table score, it shows that the result is 2.93 while the result of t-table at a level significance with $\alpha = 0.05$ is 2.160. It means that t-test score is higher than t-table score. It can be concluded that the students who were taught by using mind mapping technique achieve a better performance than those who did not. Therefore, when concentrating students' writing becomes the goal of instruction, mind mapping should be utilized as an alternative teaching strategy.

Keywords: mind mapping, writing, aspects of writing, teaching writing

INTRODUCTION

English is one of the most frequently used language in international communication. This definition follows the role of English as a global language as stated by Crystal (2003, p. 3), he states that the role of English as a global language or world language is due to the fact that English is studied and used as a means of communication in numerous countries, whether as a first language, second language, or foreign language. In Indonesia, English is the first foreign language studied as a required subject from junior high school through university.

As required subjects in junior high school, it is indisputable that students must be taught English. Teaching English focuses on improving students' skills and enabling them to use the target language (English syllabus templates, Kemendikbud, 2017). Among the objectives of teaching English in junior high school are the development of oral and written communication skills, the acquisition of fundamental knowledge, and the motivation of students to learn English. From the aforementioned expectations of the students, it can be concluded that students are expected to be able to communicate using their English language proficiency. Therefore, they are encouraged to convey their thoughts and emotions through writ-

ten and spoken English.

Writing is one of the English skills. Writing is an essential skill that students should develop. It has a function as a tool to communicate in order to access, save and share information. However, writing is important because it is now considered more than just a communication tool in academic circles. Dastjerdi & Samanian (2011) also state about the important thing of writing, this argument is inferred in their statement as follows, the ability to convey meaning in written texts is an essential skill for academic and professional success. The purpose of teaching writing in junior high school is to develop students' social and academic potential in writing various text types and genres, such as procedure, descriptive, recount, narrative and report (Permendikbud, 2014). In addition, based on the Content Standard (Permendikbud, 2014), the standard writing competency for first-year students is being able to articulate meaningful functional texts in narrative, descriptive, and news item in order to interact with people in their surroundings.

Based on the aforementioned objectives of teaching writing, students in junior high school are introduced to English to develop their abilities. The students should be able to communicate using both spoken and written English (Permendikbud, 2014). Specifically, in the basic compe-

tence of 4.7, the first-year students of junior high school are expected to compose short and simple descriptive text both oral and written. However, based on the author's teaching experiences, it shows that many students struggle with certain text types, specifically descriptive text.

In the first grade of Pesantren Modern Al-Manar Bener Meriah, the preliminary study (interview with the English teacher on January 18, 2023) revealed that the majority of students struggle in writing descriptive texts. They experience difficulty to begin writing, particularly with generating ideas. Also, lack of vocabulary, grammar and mechanics makes it harder for students. The researcher also asked to the teacher about document of students' test related to writing descriptive text, it showed out of the 15 students, there were only three students who reached the score > 70; 4 students got 60, and the remaining students scored < 60. In order to pass English subject, the students should attain the minimum standard criteria (KKM) score, 70. Therefore, it can concluded that the students had problems in writing descriptive text.

Mind Mapping Technique is one of the appropriate teaching writing. Mind mapping is a diagram that organizes ideas and represents words, tasks, and other connections, typically arranged in branches from a central keyword. It consists of words, colours, phrases, and images (Buzan, 2006). Buzan also said that mind mapping is the primary tool used to stimulate thought by displaying how ideas generated around a central theme are interconnected. According to Cahyono (2012), mind mapping is predicated on the concept of writing as a process. In addition, he claims that this method can enhance and concentrate, students' vocabulary and grammar. In his conclusion, Cahyono states that mind mapping is considered a writing concentration on content because it is used to generate ideas.

Furthermore, Oshima and Hogue (2007) claim that the Mind Mapping Technique is an alternative idea-generation activity that students can use. Typically, students have trouble formulating their ideas, however mind mapping technique can solve this problem. Therefore, Mind Mapping Technique affects the quality of the students' writing because it facilitates comprehension.

Based on aforementioned research, mind mapping can be utilized to improve the students' writing skill. Subsequently, this research mainly focuses on implementing mind mapping at school in Bener Meriah, specifically at Pesantren Modern Al-Manar Bener Meriah. The researcher

considers the results can be different following application at different sample. Hence, the title of this study is "The Effectiveness of Using Mind Mapping Technique in Teaching Writing [An Experimental Study to Junior High School Students at at Pesantren Modern Al-Manar Bener Meriah]".

METHODS

The research is experimental and concentrates on implementing the Mind Mapping technique in teaching. This study utilized quasi-experimental research methods. Two groups participated in the quasi-experimental study: a control group and an experimental group. The experimental group was taught using Mind Mapping, while the control group was taught using an expository technique. Tests were given to the experimental and control groups to collect data.

The author used quantitative analysis to answer the research questions when analyzing the data. The data analysis will be carried out by organizing the data that was obtained from the pre-test and post-test. The researcher created a frequency distribution table based on these data and analyzed them using the mean, variance, standard deviation, and t-test. Before analyzing the score using the t-test, there were tests for normality and homogeneous variances. The objective of the normality test is to determine whether or not a data set has a normal distribution. The purpose of normality test is to identify whether the data set has normal distribution or not. Meanwhile, the aim of homogeneous test is to determine whether the sample comes from population that has homogeneous variance are not.

Mean, standard deviation, and the t-test are some of the formulas utilized in the analysis of research problems. Prior to analyzing data with the t-test, it is necessary to conduct normality and homogeneity tests.

RESULTS AND DISCUSSIONS

The Raw Score of the Data

The raw score which are presented above is the result of the whole test for both experimental group and the control group in writing the descriptive text before and after the mind mapping was implemented in the class. The first score obtained from the pre-test of experimental group that was conducted before the mind mapping presented. Furthermore, the second score derived from the post-test of the experimental group were

Table 1. The Raw Score of Experimental and Control Group

Experimental Group		Control Group				
No	Sample	Score		Sample	Score	
		Pre-test	Post-test		Pre-test	Post-test
1	A	65	83	A	45	60
2	B	65	81	B	47	53
3	C	51	73	C	45	52
4	D	63	78	D	55	63
5	E	57	64	E	35	66
6	F	34	44	F	38	48
7	G	70	75	G	58	64
8	H	71	76	H	59	71
9	I	39	59	I	63	67
10	J	49	64	J	42	60
11	K	62	79	K	54	63
12	L	45	60	L	59	62
13	M	67	77	M	46	57
14	N	34	58	N	39	55
15	O	64	72	O	47	60

gained after applying mind mapping technique in the classroom. Meanwhile, for the control group, the result of the pre-test and the post test score were obtained without giving any treatments at all.

From the new score above, there are some steps of statistical procedure used in order to examine the comparison of the scores from both groups. The steps of analyzing the data that are employed as follow: Mean, variance, standard deviation, normality test, homogenous test, Analysis and T-test.

The result of Normality Test on the Pre-test for Both the Experimental and the Control Groups

The Purpose of normality test is to identify whether the data set has normal distribution or not. In this case, there are two hypotheses that should be formulated; they are null hypothesis (H_0) and alternative hypothesis (H_a).

H_0 : the score of experimental group and control group are normally distributed.

H_a : the score of experimental group and

control group are not normally distributed

The criteria of examining these hypotheses are that H_0 would be rejected, if and the other hand, H_0 would be accepted, if .

Table 2. Statistical Summary of the Result of Normality test on the Pre-test of both Experimental and Control Groups

	χ^2_{count}	range	a	χ^2_{table}
Experimental Group	9.16	4	0.05	9,49
Control Group	7.73			

Based on the level of significance with $\alpha = 0.05$ and $df = (1-0.05) = 4$, it is found that $\chi^2 = 9.49$ while χ^2_{table} for both of groups is lower than χ^2 . It can be concluded that the data obtained from the pre-test of the experimental and the control group have a normal distribution. Thus, the null hypothesis was not rejected.

The Result of Homogeneity of Variance Test on the pre-Test for both Experimental and Control Group

The test for homogeneity means to evaluate the quality of several populations of categorical data. In this case, there are two hypothesis that should be formulated; they are null hypothesis and alternative hypothesis. The null hypothesis is that both groups have the same mean, and the alternative hypothesis is that at least one of the means is different from the others. If the null hypothesis is true, all the groups are samples from populations with the same mean. Meanwhile, if the null hypothesis is not true and the groups are samples of populations with different means.

H_0 : the variances of experimental and control group are homogenous

H_a : the variances of experimental and control group are not homogenous

The Criteria of examining these hypotheses are, if hypothesis null would be accepted and on the other hand, if hypothesis null would be accepted.

Table 3. Statistical Summary of the Result of Homogenous test on the Pre-test and Post-test of both Experimental and Control Groups.

	χ^2_{count}	n	a	χ^2_{table}
Experimental Group	1.28	(13.13)	0.05	2.160
Control Group				

According to the Table 3. for both of groups is 1.28 and is 2.160. By comparing the result of and , it shows that in which $1.21 < 2.160$. It can be concluded that both of variances are homogenous for the pre-test. It means that both samples are assumed in the same level of competence.

The Result of the Independent t-test on the Pre-test both control and Experimental Group

The pre-test aims to discover student' initial ability and equity of two groups before applying the treatment. In this case, the students' writing on the pre-test were evaluated based on score guide which covers five aspects of writing: content/idea, vocabulary, organization, gram-

mar and mechanics. Later, the scores were statistically showed a significance difference between two groups.

The pre-test score of the experimental and the control groups were statistically summarized as can be seen in the Table 4. A mean score of the pre-test results was calculated for both experimental and control groups. The difference between these mean scores from both groups was compared by employing an independent sample t-test. The means of the pre-test scores of the experimental group is 56.33 and the pre-test score of the control group is 52.1. Next, the mean score of these two groups is compared through an independent sample t-test with the level of significance degree = 0.05.

If the significance > 0.05, the null hypothesis is accepted

If the significance < 0.05, the null hypothesis is rejected.

According to the level of significance degree with = 0.05 and $= (n_1 + n_2 - 2) = (15 + 15 - 2) = 28$, the result of t-table with the level of significance 0.05 is $2.160 (t_{(0.95)(28)}) = 2.160$ and the result of t-test is 1.28. It means that t-test is lower than t-table.

By comparing the result from t-test and t-table., it is found that $t\text{-test} < t\text{-table}$ in which $1.28 < 2.160$. This result indicates that there is no significance difference between the data both of group. In other words, it implies that the experimental and control groups were similar in term of their initial ability in writing on the pre-test.

The Result of the Independent t-test on the Post-test both Control and Experimental Groups

After gathering the data of post-test score, similar statistical analysis as in the pre-test was accomplished. It aimed to discover whether or not the mind mapping technique influences students' writing ability. It was also specially designed to investigate whether or not the students who were taught by using mind mapping technique achieved a better performance compared to those who were taught by using the commonly used technique.

Table 4. Statistical Summary of the Result of Pre-test for both Experimental and Control Group.

	Experimental Group	Sgab	t-test	N	df	t-table	Control Group
N	15						15
Mean	56.33						52.1
	129.70	6.46	2.01	28	0.05	2.160	74.24
s	11.78						8.91

As a consequence, null hypothesis (H_0) and alternative hypothesis (H_a) were determined, they were:

H_0 : There is no significant difference in students' writing achievement between those who are taught using the Mind Mapping Technique and those who are not taught using the Mind Mapping Technique.

H_a : There is a significant difference in students' writing achievement between those who are taught using the Mind Mapping Technique and those who are not taught using the Mind Mapping Technique.

In examining the hypothesis, an independent sample t-test was used in order to offer the significant examining of the students' score.

The difference between these means score of the experimental and control groups was compared by employing and independent sample t-test. The mean of the post-test scores of the experimental group is 74 while the mean score of the post-test scores of the control group is 59.8. Furthermore, the two means are compared through an independent sample t-test as shown in the table above with the level significance degree (α) = 0.05.

If the significance > 0.05 , the null hypothesis is accepted

If the significance < 0.05 , the null hypothesis is rejected

According to the level of significance degree with (α) = 0.05 and $(n_1 + n_2 - 2) = (15 + 15 - 2) = 28$, the result of t-table with the level of significance 0.05 is 2.160 ($t_{(0.95)(28)}$) = 2.160 and the result of the t-test is 4.11. Based on the criteria for test two means that if $t\text{-test} < t\text{-table}$, H_0 should be accepted. On the other hand, if the $t\text{-table} > t\text{-test}$, H_a should be accepted. By comparing the result from t-test and t-table, it is found that t-

test $> t\text{-table}$ in which $4.11 > 2.160$. Therefore, H_a should be accepted since the value of t-table exceeds the t-test score. It means that the students who were taught by using mind mapping technique achieved better performance in writing compared to those who were taught by using non mind mapping technique.

The Result of Paired t-test Analysis

A paired t-test was conducted to discover the differences both in control and in experimental group' score before and after giving the treatment. It was also to identify the extent effect of mind mapping technique in teaching writing after mind mapping was implemented. The gain score calculated for both groups by subtracting students' pre-test scores from their post-test scores.

As can be seen in the Table 6. and 4.7 that the mean score of students' writing in experimental group showed a significant difference from the control group. The table above showed the result of experimental group is 3.55 and the result t-test of control group is 2.35. Meanwhile, the result of t-table with the level of significance 0.05 is 11. It showed that the result of t-test of experimental group was larger than control group's ($3.55 > 2.35$). It indicates that there is a significance progression between students' pre-test and post-test score in experimental group after mind mapping technique implemented. Thus, it can be inferred that the treatment successfully caused an effect to the experimental group. The students in the experimental group experienced a great improvement on their writing performance after the treatment given. For this reason, the alternative hypothesis was supported by this finding that there was a great effect of mind mapping technique in teaching writing descriptive text.

Table 5. Statistical of the Result of the Post-test both Experimental and Control Group

	Experimental Group	Sgab	t-test	N	a	t-table	Control Group
N	15						15
Mean	74	6.46	4.11	28	0.05	2.160	59.8
	276.91						107.58
s	11.02						9.56

Table 6. Statistical Result of Pair Sample Statistic Pre-test and Post-test of Experimental Group

Group I	t-test	df	t-table
N	28		
Pre-test – Post-test of Experimental Group	14.25 69.04	3.55 28	0.05 2.160
s	8.31		

Table 7. Statistical of Pair Sample Statistic Pre-test and Post-test of Control Group

Group I		t-test	df	t-table	
	N				
	28				
Pre-test – Post-test of Experimental Group	9.53	2.35	28	0.05	2.160
	28.19				
	s				
	5.30				

Discussion

The first discussion was about the result of quantitative data obtained from t-test analysis. Having calculated a mean score of the pre-test result for both the experimental and control groups, the difference between these mean scores was compared by employing an independent sample t-test. According to the mean of pre-test scores for each group presented in the Table 2, was found that the mean of the pre-test scores of experimental groups is 56.33 while the mean of pre-test scores of the control group is 52.1. After the mean score of these two groups are compared through an independent sample t-test as shown in the Table 4, that the result of t-test is 2.01 while the result t-table at a confidence level of 0.05 is 2.160. It means that the result of t-test is lower than the result of t-table. It can be inferred that the differences between two means are not significant since the t-table exceed the t-test. This result indicated that there is no significance difference between the data both of group. In other words, it implies that the experimental and control groups were similar in term of their initial ability in writing on the pre-test.

Furthermore, the same procedure was followed by the post-test scores. For each group, a mean score of the post-test results was calculated. The difference between these mean scores of the experimental and control group was compared between these mean scores of the experimental and control groups was compared by employing an independent sample t-test. Based on the means of the pre-test scores for each group presented in the Table 5., it can be seen that the mean of the post-test scores of the experimental group is 74 while the mean of the post-test scores of the control group is 59.8. When the two means are compared through the independent sample t-test as shown in the Table 1.1, it is shown that the result of t-test is 2.160 while the result of t-table at a confidence level of 0.05 is 2.160. It can be assumed that the differences between two means are significant since the t-test exceed the t-table. Therefore, the null hypothesis (H_0) is accepted by means the students who were taught by using mind mapping achieve a better performance in

writing compared to those who were taught by using non mind mapping technique.

CONCLUSIONS

First, compared to students who were taught without the use of mind maps, students who received instruction using this method performed better while writing sentences. The pre-test mean for both groups was 55.73 for the experimental group's pre-test scores and 51.73 for the control group, which helps to explain the conclusion. The result of the t-test is 1.28, but the result of the t-table at a level of significance with = 0.05 is 2.160, as can be seen by comparing the two scores. It shows that the t-test and t-table scores are different. Additionally, the outcome between the pre-test score and the post-test score was different. The results of the post-test for each group show that the experimental group's mean post-test scores is 74, while the mean post-test scores of the control group is 59.8. The result of the t-test is 2.93, whereas the result of the t-table at a level of significance with = 0.05 is 2.160, as can be seen by comparing the two scores. It shows the t-test score above the t-table score. It is clear that students who were taught applying the mind mapping technique perform better than those who were not.

Second, there was a great effect of the mind mapping technique in improving students' writing ability. It shows that the result of paired t-test indicated that there is a significance effect between students' pre-test and post-test score in experimental group after mind mapping implemented. The result of t-test of experimental group is 3.55 and the result t-test of control group is 2.35. Meanwhile, the result of t-table with the level of significance = 0.05 is 2.160. It showed that the result of t-test of experimental group was larger than the control group ($3.55 > 2.35$). Thus, it can be inferred that the treatment that there was a great effect of mind mapping technique in improving students' writing ability.

REFERENCES

- Alice, O. H. (1999). *Writing Academic English*. New York : Longman
- Arikunto, S. (2006). *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: PT. Rineka Cipta.
- Baghbadorani, E, A. & Roohani, A. (2014). The Impact of Strategy-Based Instruction on L2 Learners' Persuasive Writing. *Procedia – Social and Behavioral Sciences* 98 235 – 241.
- Bram, B. (2006). *Write Well*. Yogyakarta: Kanisius.
- Brown, J. D. (1990). *Teaching by Principle an Interactive Approach to Language Pedagogy*. (3rd Ed.). San Fransisco: San Fransisco State University.
- Brown, H. D. (2007). *Teaching by Principle an Interactive Approach to Language Pedagogy*. (3rd Ed.). San Fransisco: San Fransisco State University.
- Budiono, I., Degeng, N., Ardhana, W. & Suyitno, I. (2016). The Effect of Mind Mapping Method And Learning Motivation on Writing Short Story Learning Skills In Indonesian Subject, *Journal of Research & Method in Education*. 109-112.
- Buzan, T. (2004). *The Buzan Study Skills Handbook. Thy short cut to Success in Your Studies with Mind Mapping and Writing Memory Technique*. Cambridge: Prentice Hall Inc.
- Cahyono, B. Y. (2012). *Techniques in Teaching EFL Writing*. Malang: State University of Malang Press.
- Gerot, L., & Wignell, P. (1994). *Making Sense of Functional Grammar* (B.N. Khajati Ed). Sidney: Gerd Stobler
- Hairston, M. C. (1986). *Contemporary Composition* (4th Ed). Boston: Houghton Mifflin Company.
- Heaton, J. B. (1986). *Writing English Language Tests*. New York: Longman.
- Hedge, T. (2000). *Teaching and Learning in the Language Classroom*. New York: Oxford University Press.
- Hedge, T. (2002). *Teaching Learning in Language Classroom*. New York: Oxford University Press.
- Hofland, C. (2007). *Mind Mapping in EFL Classroom. Sittard Collage, Amsterdam: Fontys Hogescholen*.
- Hogue, A., & Oshima, A. (1999). *Writing Academic English* (3rd Ed.). New York: Addison-Wesley Longman.
- Hogue, A., & Oshima, A. (2007). *Introduction to Academic Writing* (1st Ed.). New York: Addison-Wesley Longman.
- Kemendikbud, (2013). *Kompetensi Inti dan Kompetensi dasar Kurikulum 2013*. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Kemendikbud, (2014). *Pedoman Guru Mata Pelajaran Bahasa Inggris 2014*. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Khotari, R. C. (2004). *Research methodology : Method and techniques* (2nd ed). New Delhi: New age international (p) limited, publisher.
- Lindemann, E. (1982). *A Rhetoric for Writing Teachers*. Oxford University press.
- Muhib, A., Anggani L.B., D., & Hartono, R. (1). Mind Mapping And Everybody Writes Techniques For Students With High And Low Writing Achievement. *English Education Journal*, 4(2).
- Oshima, A. & Hogue, A. (1997). *Introduction to Academic Writing*. London and New York: Longman Group UK Limited.
- Petty, W. T., & Jensen, J.M.. (1980). *Developing Children's Language*. Boston: Allyn and Bacon, Inc.
- Rahmah, U.(2017). *The Effectiveness of Using Mind Mapping Technique on Students' Writing Skill in Descriptive Text*. Degree of Strata.Syarif Hidayatullah State Islamic University. Jakarta.
- Reid, J. M. (1993). *Teaching ESL Writing*. New York: Prentice Hall Regent.
- Riswanto & Prandika, P. P. (2012). The Use of Mind Mapping Strategy in the Teaching of Writing at SMAN 3 Bengkulu, Indonesia. *International Journal of Humanities and Social Science*, 2, 60-68
- Saed, H.& AL-Omari, H.(2014). The Effectiveness of a Proposed Program Based on a Mind Mapping Strategy in Developing the Writing Achievement of Eleventh Grade EFL Students in Jordan and their Attitudes Towards Writing. *Journal of Education and Practice* ,5.88-100
- Slavin, E. R. (1984). *Research Methods in Education*. New York: Prentice Hall.
- Sudjana, (2002). *Metode Statistika*. Edisi 5. Bandung: Tarsito Bandung.
- Tsinakosh, A. A. (2009). A Comparative Strategy Survey on Mind Mapping Tools. *Turkish Online Journal of Distance Education (TOJDE)*. 10(3), 22-28.
- Nurlaila, A. P. (2013). The Use of Mind Mapping Technique in Writing Descriptive Text. *Journal of English and Education* 2013, 1(2), 9-15.
- Nuttal, C. (1998). *Teaching Reading skill in Foreign Language*. London: Heinman Educational Books.
- Ur, P. (1986). *A Course in Language Teaching: Practice of Theory*. Cambridge: Cambridge University Press.
- Vahid Dastjerdi, H., & Hayati Samian, S. (2011). Quality of Iranian EFL learners' argumentative essays: Cohesive devices in focus. *Mediterranean Journal of Social Sciences*, 2(2), 65-76.
- Weigle, S. C. (2004). *Assessing Writing*. Cambridge: Cambridge University Press.