The Use of Mind Mapping Strategy in the Teaching of Writing at SMAN 3 Bengkulu, Indonesia

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Abstract

The main objective of this study was aimed to identify whethier the use of Mind Mapping strategy was effective in improving the students' writing achievement. Non-equivalent groups pretest-posttest design was used in this study. The population was the First year students of SMAN 3 Bengkulu Town in academic year of 2011/2012 with a total number of 234 students. Out of this population, 66 students were taken as sample. There were two groups, each of which consisted of 33 students. The data were collected by using writing test. The data obtained were analyzed by using t-test formula. From the t-test calculation of the pre test result was known that t obtained was 0.25 by using t table p level and 64 df results in a figure of 2.0, so the obtained < t table (0.25 < 2.0). it means that there was not a statistically, the average of two groups were the same grade. Then after giving the treatment for sixteen meetings the post test was given to the two groups. The mean score of the experimental group was 68.1212 and the control group was 62.7727. In testing the significant difference between these two group means; t obtained was 2.7 and t table value at 0.05 p level and the 64 df was 2.0. So that t obtained > t table (2.7 > 2.0). It meant that there was a significance difference on students writing achievement which was taught through Mind Mapping Strategy. Therefore, it can be concluded that Mind Mapping Strategy improved students' writing achievement.

Keywords: Writing Achievement, Mind Mapping Strategy

1. Introduction

Language is an important device and a very beneficial means for human being to communicate with other people. By using language, people can talk and understand each other. Writing is one of the language skills that will never be left in education. It is very essential part of the lesson, not only in language class, but also in other classes such as Biology, Mathematics, and History etc. Writing skills are complex and sometime difficult to teach, requiring mastery not only of grammatical and rhetorical device but also of conceptual and judgmental elements (Heaton ,1988). As Harmer (1998) stated writing as a skill, of course, it is a basic language skill, just as important as speaking, listening and reading. Students need to know how to write letters, how to put written reports together, how to reply to advertisements and increasingly, how to write using electronic media. They need to know some of writing's special conventions (punctuation, paragraph, construction etc).

The mind mapping strategy is one of the teachers' strategies in teaching. Not only Mind Maps show facts, but also show the overall structure of a subject and the relative importance of individual parts of it. It helps students to associate ideas, think creatively, and make connections that might not otherwise make (Tony Buzan, 2010).As Alamsyah (2009) explained that Mind maps work well as their visual design enables students to see the relationship between ideas, and encourages them to group certain ideas together as they proceed. Mind maps work especially well when created in groups, since the discussion this engenders aids the production of ideas, and makes the task livelier and more enjoyable. The mind mapping strategy can be used to explore almost any topics in writing and also used in every kind of writing such as : narrative, descriptive, recount, persuasive, argumentative, essay etc. Students can improve their ideas and lend themselves to discussing ideas in groups.

In order to increase students' interested of learning English especially in writing subject, therefore thearticle reports a research entitled : "Improving Students' Writing Achievement Using Mind Mapping Strategy" (A Study of the first Year Students at SMA.N 3 Bengkulu City Indonesia, Academic Year 2011/2012).

2. Review of Literature

2.1 Technical Writing

Technical writing is characterized by certain formal elements, such as its scientific and technical vocabulary, its use of graphic aids and its use of conventional report forms. As Gordon and Walter (1962) emphasized that technical writing is writing in which there is a relatively high concentration of certain complex and important writing techniques, in particular description of mechanisms, description of a process, definition, classification and interpretation. Technical writing refers to a type of writing where the author outlines the details and operations of administrative, technical, mechanical, or scientific systems. The main goal of technical writing is to educate, direct, and give others the ability to use a certain system. Still in Gordon and Walter (1962 : 13) stated that there are many more than five principles involved in good technical writing, but the five stated below are so important that they may be taken as a foundation on which further development rest :

1. Always have in mind a specific reader, real or imaginary, when you are writing a report and always assume that he is intelligent but uninformed.
2. Before you start to write, always decide what the exact purpose of your report is; and make sure that every paragraph, every sentence, every word, makes a clear contribution to that purpose and makes it at the right time.
3. Use language that is simple, concrete and familiar.
4. At the beginning and end of every section of your report check your writing according to this principle : "first you tell the reader what you are going to tell him, then you tell him what you have told him."
5. Make your report attractive to look at.

2.2 Process Writing Approach

The process writing approach involves a number of interwoven activities, including creating extended opportunities for writing; emphasizing writing for real audiences; encouraging cycles of planning, translating, and reviewing; stressing personal responsibility and ownership of writing projects; facilitating high levels of student interactions; developing supportive writing environments; encouraging self-reflection and evaluation; and offering personalized individual assistance, brief instructional lessons to meet students' individual needs, and, in some instances, more extended and systematic instruction. The overall effect of the process writing approach was small to moderate, but significant (Graham and Perin, 2007). According to White and Arndt in Harmer (1991 :5), process writing is an interrelated set of recursive stages which include :Drafting, Structuring (ordering information, experimenting with arrangements, etc.), reviewing (checking context, connections, assessing impact, editing), focusing (that is making sure you are getting the message across you want to get across), generating ideas and evaluation (assessing the draft and/or subsequent draft).
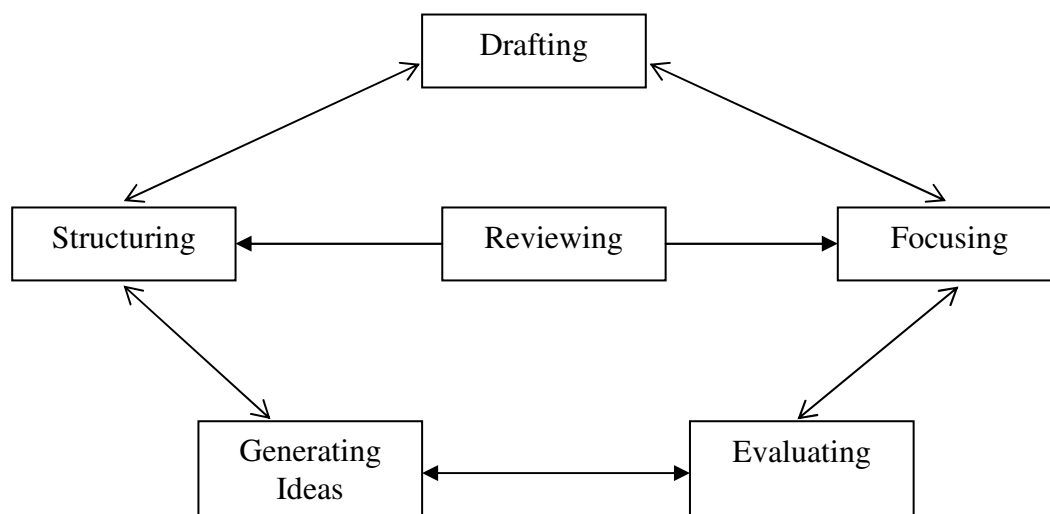

Figure1: White and Arndt's process writing model (Harmer, 1998)

White and Arndt's model can be represented diagrammatically, one of the disadvantages of getting students to concentrate on the process of writing is that it takes time : time to brainstorm ideas or collect them in some other way ; time to draft a piece of writing and then, with the teacher's help perhaps, review it and edit it in various ways before, perhaps, changing the focus, generating more ideas, redrafting, re-editing and soon. This cannot be done in fifteen minutes. However, the various stages may well involve discussion, research, language study, and a considerable amount of interaction between teacher and students and between the students themselves so that when process writing is handled appropriately it stretches across the whole curriculum.

2.3 Intensive Writing

Readers are supposed to learn how to apply Intensive Writing while writing. As Brown (1998) stated that writing is sometimes used as production mode for learning, reinforcing, or testing grammatical concepts. This intensive writing typically appears in controlled, written grammar exercises. This type of writing does not allow much, if any creativity on the part of the writer. A common form of controlled writing is to present a paragraph to students in which they have to alter a given structure throughout. So, for example, they may be asked to change all present tense verbs to past tense; in such a case, students may need to alter other time references in the paragraph.

2.4 Teaching Writing

The reason for teaching writing to students of English as a foreign language include reinforcement, language development, language style, and most importantly writing as a skill in its own right (Harmer, 1998). Reinforcement is some students acquire languages in a purely oral/aural way, but most of us benefit greatly from seeing the language written down. Language development, it seems that the actual process of writing (rather like the process of speaking) helps us to learn as we go along. Learning style is some students are fantastically quick at picking up language just by looking and listening. The last is writing as a skill, by far the most important reason for teaching writing is a basic language skill, just as important as speaking, listening, and reading. Students need to know how to write letters, how to put written reports together, how to reply to advertisements and increasingly, how to write using electronic media.

2.4 The Mind Mapping Strategy

Mind Maps were popularized by author and consultant, Tony Buzan. He used a two-dimensional structure, instead of the list format conventionally used to take notes. As Tony Buzan (2002), mind mapping is a graphic representation of ideas (usually generated via a brainstorming session). It shows the ideas which are generated around a central theme and how they are interlinked. It is a tool primarily used for stimulating thought. He realized that the education system primarily focused on the left and brain strength, which include the use of "language, logic, numbers, sequence, looks at detail, linier, symbolic representation and judgmental characteristics. Mind Mapping is a useful technique that helps you learn more effectively, improves the way that you record information, and supports and enhances creative problem solving (Alamsyah, 2009)

Mind mapping (or concept mapping) involves writing down a central idea and thinking up new and related ideas which radiate out from the centre. By focusing on key ideas written down in your own words, and then looking for branches out and connections between the ideas, you are mapping knowledge in a manner which will help you understand and remember new information. To use Mind Maps effectively, make sure you print your words, use different colors to add visual impact, and incorporate symbols and images to further spur creative thinking. Having an organized display of information from the outset of the writing process may help some students, as it is more easily converted into a draft, whereas in brainstorming, the random recording of ideas might lead to problems with the structure of students' texts. As Alamsyah (2009) explained that Mind maps work well as their visual design enables students to see the relationship between ideas, and encourages them to group certain ideas together as they proceed. Mind maps work especially well when created in groups, since the discussion this engenders aids the production of ideas, and makes the task livelier and more enjoyable.

3. Research Question

In order to improve students' writing achievement using mind mapping strategy (A Study of the first Year Students at SMA.N 3 Bengkulu City Indonesia, Academic Year 2011/2012), the following research question will be answered.

1) Is there a significant difference in students' writing achievement between the students who are taught using mind mapping strategy and that of those who are not ?

4. Method

Quasi Experimental Method was applied to answer the research question. As Jacobs et al (2010) said that a quasi experimental method is occurs when it is not possible for the researcher to randomly assign subjects to group. The data was analyzed by using SPSS software program.

5. Population and Sample

5.1 Population

The population of this research was the first year students of SMA N 3 Bengkulu city 2011/2012 academic year. It consisted of 7 classes, from A to G (XA-XG). The population number was shown in the table below.

Table 1: Population

Class	XA	XB	XC	XD	XE	XF	XG	Σ
Number of students	34	33	33	33	34	33	33	233

5.2 Sample

In choosing the sample, the researcher used purposive sampling. purposive sampling is also referred to as judgment sampling, sample elements judge to be typical, or representative, are chosen from the population (Jacobs, 2010). Among the 7 classes of the first year students, two classes were selected randomly in order to be an experimental or control group. In this way, XC as the experimental class and XB as the control class.
There is table of sample that consisted experimental class and control group.

Table 2: Sample

	XC (Experimental Class)	XB (Control Group)
Female	18	20
Male	15	13
Number of Students	33 Students	33 Students

6. Instument

The data were collected by giving a pretest and a post test to both experimental and control groups. While the writing test was used to be a research instrument for both pre and post test.

7. Data Analysis Procedure

Since this research was a quasi experimental research and it used an interval scale, the data were analyzed by using T- Test (Paired sample) in order to calculate the pre and post test results. The procedures for data analysis technique were as follows :

1. The hypothesis of this research were reviewed
   H_1 : There is a significant positive improvement on the students' writing achievement between the pre-test and the post test score.
   H_0 : There is no significant positive improvement on the students' writing achievement between the pre-test and the post test score.
2. The T-Test formula was used to find out T-Count
   See the formula using SPSS 16.0 analyzed by using T test of SPSS. The researcher counted the data by using SPPS, where SPSS (Statistical Package for the Social Sciences) is a computer application that provides statistical analysis of data. It allows for in-depth data access and preparation, analytical reporting, graphics and modeling.
   In this case the researcher counted the data to see the homogeneity and normality of the instrument before the researcher give the pre test, treatment and post test to the student.

3. If the t-count was found to be smaller than the t-table, it means that the null hypothesis was accepted and the alternative one was rejected. Vice versa, if the t-count was found to be higher than the t-table, it means that the null hypothesis was rejected and the alternative one was accepted.
4. Criteria of writing score based on Heaton (1998 : 146)

Table 3: Writing Grading System

Student Score	Level	Criteria Comment
C O N T E N T	30-27	EXCELLENT TO VERY GOOD : fluent expression*ideas clearly stated/supported* Succinct*Well organize*Logical sequencing*Cohesive
	26-22	GOOD TO AVARAGE : Sure knowledge of the subject adequate range*Limited development of thesis*Mostly relevant to topic but lack detail
	21-17	FAIR TO POOR : Limited knowledge of subject*little substance*inadequate development of topic
	16-13	VERY POOR : Does not show knowledge of subject* non-substantive* not pertinent* or not enough to evaluate
O R G A N I Z A T I O N	20-18	EXCELLENT TO VERY GOOD : fluent expression*ideas clearly stated/supported* Succinct*Well organize*Logical sequencing*Cohesive
	17-14	GOOD TO AVARAGE : Somewhat choppy*Loosely organized but main ideas stand out*Limited support*Logical but incomplete sequencing
	13-10	FAIR TO POOR : Non fluent* Ideas confused or disconnected*Lacks logical sequencing and development
	9-7	VERY POOR : Does not communicate*No organization* or not enough to evaluate
V O C A B U L A R Y	20-18	EXCELLENT TO VERY GOOD : Sophisticated range* Effective word/idiom choice and usage* Word form mastery* Appropriate register
	17-14	GOOD TO AVARAGE : Adequate range* Occasional errors of word/idiom, choice, usage but meaning not obscured
	13-10	FAIR TO POOR : Limited range* Frequent errors of word/idiom form, choice, usage* Meaning confused or obscured
	9-7	VERY POOR : Essentially translation* Little knowledge of English vocabulary, idioms, word form* or not enough to evaluate
L A N G U A G E U S E	25-22	EXCELLENT TO VERY GOOD : Effective, complex construction* Few errors of agreement, tense, number, word order/function, articles, pronouns, prepositions
	21-18	GOOD TO AVARAGE : Effective but simple constructions* Minor problems in complex construction* Several errors of agreement, tense, number, word order/function, articles, pronouns, preposition, but meaning seldom obscured
	17-11	FAIR TO POOR : Major problem in simple/complex construction* Frequent errors of negation, agreement, tense, number, word order/function, articles, pronouns, preposition and fragments, run-ons, deletion* Meaning confused or obscured
	10-5	VERY POOR : Virtual no mastery of sentences construction rules* Dominated by errors* Does not communicate* or not enough to evaluate
M E C H A N I C S	5	EXCELLENT TO VERY GOOD : Demonstrates mastery of construction* Few errors of spelling, punctuation, capitalization, paragraphing
	4	GOOD TO AVARAGE : Occasional errors of spelling, punctuation, capitalization, paragraphing but meaning not obscured
	3	FAIR TO POOR : Frequent errors of spelling, punctuation, capitalization, paragraphing* Poor handwriting* Meaning confused or obscured
	2	VERY POOR : No mastery of conventions* Dominated by errors of spelling, punctuation, capitalization, paragraphing* handwriting illegible*
Total Score	Reader	Comments*

$$\frac{C+V+O+LU+M}{5}$$

For the average score, the student's ability in writing can be concluded by using the standard taken from Reid (1993 : 237).

Table 4 : Writing Category

	Score	Category
A	**90-100**	**Excellent**
B	**80-90**	**Very Good**
C	**70-80**	**Average**
D	**60-70**	**Poor**
E	**Below 60**	**Very Poor**

8. Research Procedure

The research procedures were as follows :
a. The sample was divided into two groups- the experimental group and the control one.
b. All the test items were tried out before giving the pre test to find out the instrument and reliability.
c. The pre test was given to both groups in order to analyze whether both groups were at same level.
d. The treatment, which used the mind mapping strategy was given to the experimental group while for the control group conventional procedures were used.
e. The post test was given to both groups.

9. Result and Discussion

9.1 Result

9.1.1 Pre Test

Pre test was held on 23 April 2012 to control and experiment group in SMA.N 3 Bengkulu city. The pre test was given before the treatment to see the starting point of the two classes; experimental and control group or to see the students' writing achievement before the researcher give the treatment. The researcher took X-C as experimental group and X-B as Control group. In the pre test the student were asked to write one topic based on the topic given and instruction. The topic was provided to the students based on tried out where the number of topic was five topics. The pre testresult were analyzed by using T test of SPSS. The researcher counted the data by using SPPS, where SPSS (Statistical Package for the Social Sciences) is a computer application that provides statistical analysis of data. It allows for in-depth data access and preparation, analytical reporting, graphics and modeling.

Table 5:Independent Sample Test

Levene's Test for Equality of Variances		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
.570	.453	**.252**	64	.802	.65152	2.58392	-4.51047	5.81350

The t-table was found to be 2.0 (level significance = 0,05, df = 66-2 = 64), two tailed of test. The T count was compared to the T- Table, T count was found to be smaller than T table (0.25< 2.0). the conclusion that H_0 was accepted and H_1 was rejected. In the other words, there was no significance difference in pre test average score before treatment done (using mind mapping) in experimental group with the students' average score in control group (without mind mapping). Based on the result of pre test, the students' writing achievement was weak.

9.1.2 The Post Test Result

The post test was conducted on 25th Mei 2012. After the researcher had done treatment by giving mind mapping strategy for sixteen meeting in the experimental class, at the last meeting the researcher gave the post test for the two classes. In the post test, the researcher asked to the students to write based on the topic.

The aim of post-test was to know is there significance effect to apply mind mapping strategy as a treatment in experimental group. The result of the post test showed better quality of experimental class composition from many aspect such as content, organization, vocabulary, language use and mechanic. The pre testresult were analyzed by using T test of SPSS. The researcher counted the data by using SPPS, where SPSS (Statistical Package for the Social Sciences) is a computer application that provides statistical analysis of data.

Table 6: Independent Samples Test

Levene's Test for Equality of Variances		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
5.672	.020	**2.718**	64	.008	5.34848	1.96816	1.41664	9.28033

The t-table was found to be 2.0 (level of significance = 0.05, df = n1 + n2 = 33 + 33 – 2 = 64), two tailed test. The T count was compared to the T-table, t count was found to be higher than t-table (2.7 >2.0). The conclusion was than H_1 was accepted and H_0 was rejected. In other words, there was significance difference in post test average score after treatment done (using Mind Mapping Strategy) in experimental group and from average score in control group (without using mind mapping strategy). As the result, the treatment as using mind mapping strategy could be called successful.

10. The Statistical Analysis Result

In order to verify the hypotheses proposed, the statistical analyses were applied. The t-test used both paired sample t-test and independent sample t-test in which paired t-test was used to find out whether there was significant difference instudents' writing achievement before and after the treatment in the experimental and control groups, (SPSS) 16 program for window was applied in order to find out whether or not there was significant difference in students' writing achievement between the experimental and the control group.

10.1   Paired Sample t-test Analysis
10.1.1 Statistical analysis on the result of pre-test and post-test in the experimental group

Table 7: Paired Samples Statistics

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pre test Experimental	51.61	33	11.289	1.965
Post test experimental	68.12	33	6.318	1.100

Based on the paired sample statistic (Table 5), the mean of writing achievement pretest in the experimental group was 51.61 and the standard deviation was 11.28. The mean of writing achievement posttest in the experimental group was 68.12 and the standard deviation was 6.31

Table 8: Paired Samples Test

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	Df	
Pair 1	Pre test Experimental Post test experimental	16.515	10.290	1.791	20.164	12.867	9.220	32	.000

The result of the paired sample t-test , paired sample difference in mean between pretest and posttest of writing achievement in the experimental group was 16.51 with standard deviation of 10.29 and t-obtained was 9.22 at the significant level of 0.05 and the degree of freedom 32 and the critical value of t-table for two tailed test was 2.0 From Table 13, it can be seen that t-obtained 9.22 was higher than the critical value of t-table 2.0. It can be stated that the research hypothesis (H$_1$) was accepted and the null hypothesis (Ho) was rejected. It means that there was significant difference in writing achievement within the students in the experimental group, who were taught by using Mind Mapping strategy and those who were not.

10.1.2 Statistical analysis on the result of pre-test and post-test in the experimental group

Table 9: Paired Samples Statistics

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	score of pre test control	50.9545	33	9.63827	1.67781
	score of post test control	62.7727	33	9.37591	1.63214

Based on the paired sample statistic (Table 7), the mean of writing achievement pretest in the experimental group was 50.95 and the standard deviation was 9.63. The mean of writing achievement post test in the experimental group was 62.77 and the standard deviation was 9.3

Table 10: Paired Samples Test

Paired Samples Test

		Paired Differences							Sig. (2-tailed)
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	
Pair 1	score of pre test control score of post test control	11.818	11.13400	1.93818	15.766	7.87024	6.098	32	.000

The result of the paired sample t-test , paired sample difference in mean between pretest and posttest of writing achievement in the control group was 11.81 with standard deviation of 11.13 and t-obtained was 6.09 at the significant level of 0.05 and the degree of freedom 32 and the critical value of t-table for two tailed test was 2.0 From Table 13, it can be seen that t-obtained 6.09 was higher than the critical value of t-table 2.0. It can be stated that the research hypothesis (H$_1$) was accepted and the null hypothesis (Ho) was rejected. It means that there was significant difference in writing achievement within the students in the control group.

11. Discussion

Most of the students were more interested in writing the topics that provided where the topic written about the social organization and news item.Even though based on Heaton the writing skills are complex and sometime difficult to teach, requiring mastery not only of grammatical and rhetorical device but also of conceptual and judgmental elements. It indicated the topicthat provided which are difficult for the students ofSenior high school did not guarantee that they could not writing the topic. It was concluded that as long as the students had high interest to the topic that provided, even though quite difficult for their writing level, it will be easier for them to write.

12. Conclusion

There was significant difference in Writing Achievement between the students who were taught by using Mind Mapping strategy and those who were not. These experimental students could improve their writing achievement significantly better. Their better achievement toward writing achievement can be seen based on the scores of the posttest which were higher than the scores of the pretest.

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