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The Comparison of Mind Mapping and Semantic Mapping to Enhance the Reading Comprehension

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ABSTRACT

This research was to prove which technique (Mind Mapping or Semantic Mapping) was effective to enhance the reading comprehension of the second graders of SMA Muhammadiyah Kalosi Enrekang regency and to prove which technique (Mind Mapping or Semantic Mapping) was effective to enhance the interests of the second graders of SMA Muhammadiyah Kalosi Enrekang regency. This research employed experimental design and cluster random sampling technique. The population of this research was the second graders of SMA Muhammadiyah Kalosi Enrekang regency in academic 2018/2019. The sample consisted of 72 students which belong to two classes; 36 students in first experimental class and 36 students in second experimental class. Research instruments were used to collect the data in this research namely reading comprehension test and questionnaire. The mean score of the students in Mind mapping technique class was 84.00 and the mean score of the students in Semantic mapping technique class was 76.97. The result of the students' interest showed that Mind Mapping is higher than Semantic Mapping. Therefore, H_1 (alternative hypothesis) of this research which said Mind Mapping is more effective than Semantic Mapping to enhance students' reading comprehension was accepted.

INTRODUCTION

Reading comprehension as the reader's ability "to read and remember, reproduce, learn from, and find deeper meaning in text for later use" (Souvignier, 2018). In other explanation, in the process of reading the reader not only needs to comprehend the direct meaning of the text, but, readers also needs to understand the implied meaning of the text (Tierney, 2017). Furthermore, Grabe (2018) asserted that reading comprehension is remarkably complex, involving many lower and higher-level processing skills that are coordinated in very efficient combinations which it is one point in ESL and EFL learners confront tremendous problems in the act of reading. Finally, reading comprehension can be defined as the term used to identify some skills, needed to understand and apply

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information contained within the researcher form (Burn, 2017). In conclude that, reading comprehension is a crucial skill for professional successful and academic learning (Pritchard, 2017).

Some difficulties and problems faced by the teachers in their reading comprehension have appeared for long time. One of the problems namely: many students difficulties in the implicit and explicit information of the text because the students difficult to work using dictionaries so they often go wrong answers and had low proficiency in understanding a text.

Dealing with the difficulty in reading comprehension, the second graders of SMA Muhammadiyah Kalosi Enrekang regency shown by the low reading comprehension. It is still less than the standard of Minimum Completeness Criterion (KKM) of English subject of SMA Muhammadiyah Kalosi Enrekang regency that is 74. In other words, the English score that the students gain is 70 at average. Thus, it still needs to be enhanced in order to reach 74 or higher than it.

Referring to solve the problem, the researcher is motivated to conduct comparative research in comparing two techniques; mind mapping and semantic mapping to know which one the best technique that suitable to enhance reading comprehension of the students. These techniques can give positive impact (purpose) on students; interest in studying English as well as in increasing reading comprehension. The main explanation that, Mind mapping and Semantic mapping are the best techniques to enhance the reading comprehension and the students' interest in studying English reading. Interest is desire or curiosity to know deeply about something that reflects from attitude, attention, even perception (Good, 2017).

According to Siriphani (2017), Mind mapping and semantic mapping are used during the study as a technique to facilitate the students in comprehending texts properly. Mind mapping helps students see connections between prior knowledge and new information, which helps them transfer what they learn and apply it to new situations (Mirley, 2019). Furthermore, semantic mapping technique is a schematic diagram of the major concepts of a text. Semantic mapping helps the students to activate their background knowledge before reading, monitor their comprehension when they are reading, and evaluate their comprehension after reading. Also, it can be a helpful reference for students to use in clarifying confusing points as they are reading. Besides, it can be easily applied in the classroom (Antonacci, 2019).

In the last explanations, Mind-mapping is an effective technique for harnessing the power of both sides of the human brain to foster studying, problem solving, critical thinking and memory recall. Semantic mapping can be used as a strategy to allow students to record what they are learning during reading (Anastasia, 2019).

METHOD

1. Design and Samples

This research applied quasi experimental design by using two classes namely; first experimental class and second experimental class. The researcher used cluster random sampling technique which means two classes from the seven classes (X_1-X_7). Class X_7 was taken as first experimental class (E_1) and class X_6 was taken as second experimental class (E_2). The result of calculation of the total number sample was 72 students. The first experimental class employed treatment by using mind mapping technique, while second experimental class was employed treatment by using semantic mapping technique which both of these ways used narrative text. Both of groups were given pre-test and post-test.

2. Instruments and Procedures

This research used two kinds of instruments in collecting data namely reading

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test and questionnaire. In reading test, the students were given a narrative reading test means that the researcher provided multiple choices. It administered in pre-test and post-test. Pre-test was used to measure of the prior knowledge of the students, while post-test was aimed to see the students' reading comprehension after giving the treatment in first experimental and second experimental classes for six meetings to enhance reading comprehension. Meanwhile, a questionnaire was distributed to students in the experimental group to measure their interest in learning reading process through mind mapping and semantic mapping techniques.

a. First Experimental Class (E_1)

There were some procedures of the treatment which were used for experimental group, and all of them were as follows:

1. At the first meeting, the researcher explained about Mind Mapping Technique and explained about the text that will be learned. In this case, the type of texts learned was based on the curriculum, narrative text.
2. In the second, third, fourth, fifth meeting the students did the same activity but the difference was the text used in the learning process. The researcher implemented Mind Mapping Technique in learning and comprehended a narrative text. The activities in this meeting were:
   a. The teacher divided the students into six groups.
   b. The teacher provided narrative text.
   c. Each group read the narrative text carefully approximately 15 minutes.
   d. The teacher distributed blank chart of mind mapping.
   e. The teacher asked the students to fill the blank chart of mind mapping that focused on the characteristic and plot in narrative text.
3. In the sixth meeting the students did the same activity such as in the second, third, fourth, and fifth but in individual.

b. Second Experimental Class (E_2)

The process of the treatment in the control group was conducted in chronological order as follows:

1. At the first meeting, the researcher explained about Semantic Mapping Technique and explained about the text that would be learned. In this case, the type of texts learned was based on the curriculum, narrative text.
2. In the second, third, fourth, fifth meeting the students did the same activity but the difference was the text that was used in the learning process. The researcher implemented Semantic Mapping Technique in learning and comprehends a narrative text. The activities in this meeting were:
   a. The teacher divided the students into six groups.
   b. The teacher provided narrative text.
   c. Each group read the narrative text carefully approximately 15 minutes.
   d. The teacher distributed blank chart of semantic mapping.
   e. The teacher asked the students to fill the blank chart of semantic mapping that focused on the characteristic and plot in narrative text.
   f. Each group had a representative to retell the narrative text based on the chart of semantic mapping.
3. In the sixth meeting until sixth meeting the students did the same activity such as in the second, third, fourth, and sixth but in individual.

3. Data Analysis

a. Reading comprehension test

1) Scoring the students' answers of pre-test and post-test. Each of students' correct answer will get 1 and wrong answer will get 0.
2) Classifying the scores of the students' answer. The scores were classified into

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seven level classifications which adapted to the scoring system from Depdiknas (2018).

3) Calculating the mean score of the students' answer. To find out the mean score, standard deviation and the t-test value between the pre-test and the post-test of both experimental and control group by using *Statistical Package for Social Sciences* (SPSS) program version 20.0 (Gay, 2018).

b. Questionnaire

The data of questionnaire was analyzed by using liker Scale. It is aimed to see the students' interest in learning English by using Mind Mapping technique and Semantic Mapping technique. The measuring of instrument item of Likers Scale consisted of positive and negative statements as follows:

1. Scoring Data

The questionnaire was given to the students by using Likert scale. It aimed at asking the sample to respond to a series of statements by indicating whether one strongly agrees (SA), agrees (A), undecided (U), disagrees (D), or strongly disagrees (SD) with the statements given. Each response had its own value.

2. Measuring the students' interest

As explained by the researcher previously, the questionnaire consisted of 20 items. It concern on four items namely: students' involvement, feeling of pleasure, attraction, and attention (Sugiyono, 2018).

RESULTS AND DISCUSSIONS

1 Students' Reading Comprehension

a. The frequency and percentage of pre-test and post-test score for Mind mapping class (E1) and Semantic mapping class (E2)

The students' research achievement both pretest and posttest for the research subjects are tabulated in the table 4.

Table 4: *Frequency and Percentage of Pre-test Score for Both Classes*

Classification	Score	Mind Mapping /E1		Semantic Mapping/ E2	
		Pre-test		Pre-test	
		F	P (%)	F	P (%)
Excellent	96-100	0	0	0	0
Very Good	86-95	0	0	0	0
Good	76-85	6	17	9	25
Fairly Good	66-75	21	58	16	44
Fair	56-65	7	19	7	19
Poor	36-55	2	6	4	11
Very Poor	0-36	0	0	0	0
Total		**36**	**100**	**36**	**100**

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Based on the data of table 4, it was known that most of the students' pre-test result for good, fairly good, fair and poor category. In E1 class, the data of pre-test showed that there were 6 students (17%) got good score, 21 students (58%) got fairly good score, 7 students (19%) got fair score and 2 students (6%) got poor score. In E1 class most of students got fairly good scores in pre-test. While in E2 class, there were 9 students (25%) got good score, 16 students (44%) got fairly good score, 7 students (19%) got fair score and 4 students (11%) got poor score. In E2 class most of students got fairly good score in pre-test. So, it can be concluded the mean score of students for both classes is almost same.

Table 5: *Frequency and Percentage of Post-test Score for Both Classes*

Classification	Score	Mind Mapping/E1		Semantic Mapping/E2	
		Post-test		Post-test	
		F	P (%)	F	P (%)
Excellent	96-100	0	0	0	0
Very Good	86-95	15	42	4	11
Good	76-85	21	58	20	56
Fairly Good	66-75	0	0	11	31
Fair	56-65	0	0	1	3
Poor	36-55	0	0	0	0
Very Poor	0-36	0	0	0	0
Total		**36**	**100**	**36**	**100**

Based on the data of table 5, it was known that most of the students' post-test result for very good, good, fairly good, and fair category. In E1 class, the data of post-test showed that there were 15 students (42%) got very good score and 21 students (58%) got good score. In E1 class most of students got very good t-test. While in E2 class, there were 4 student (11%) got very good score, 20 students (56%) got good score, 11 students (31 %) got fairly good score and 1 students (3%) got fair score. In E2 class most of students got good score in pos score in post-test.

Table 6: *The Tabulation for Students' Reading comprehension Result in Pre-test and Post-test*

	Pre-test		Post-test	
	E1	E2	E1	E2
N	36	36	36	36
Mean	68.86	69.00	84.00	76.97
Std. Deviation	6.937	9.417	4.362	6.416

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Table 6 showed the different students' score for both two group in pretest and posttest. For E1 class, the mean score of the student improved from 68.86 with standard deviation 6.937 to 84.00 with standard deviation 4.362. For E2 class, the mean score of the students also improved significantly from 69.00 with standard deviation 9.417 to 76.97 with standard deviation 6.416. Therefore, explained that the pre-test mean score of E1 and E2 was slight different for the score before giving the treatment. After giving the treatment, the post-test score to both of the groups; Mind Mapping and Semantic Mapping classes showed a difference score of mean score. It meant that there was an improvement in reading between two classes after giving the treatment. In finding, the researcher concluded that "Mind Mapping is more effective than Semantic Mapping to enhance students' reading comprehension achievement".

b. The Inferential Analysis between pre-test and post-test for mind mapping class

Table 7: *The t-test between Pre-test and Post-test for Mind Mapping Class*

Variable	t-value	Df	Probability Value
Pre-test and Post-test	25.845	36	0.000

Table 7 explained above the *t-value* was 25.845 with degree of freedom 36 and *P value* 0.000. From the degree of freedom we could be known the *t-table* of this research was 1.690. Based on the data, the *t-value* (25.845)> *t-table* (1.690) and *P value* (0.000) < 0.05. It could be concluded that there was a significant different between pre-test and post-test for Mind mapping class. In other word, there was an improvement on the students' reading comprehension between pre-test and post-test by applying Mind mapping in E1 class.

c. The inferential analysis between pre-test and post-test for semantic mapping class

Table 8: *The t-test between Pre-test and Post-test for Semantic Mapping Class*

Variable	t-value	Df	Probability Value
Pre-test and Post-test	12.281	36	0.000

Table 8 explained the *t-value* was 12.281 with degree of freedom 35 and *P value* 0.000. From the degree of freedom we can be know the *t-table* of this research was 1.690. Based on the data, the *t-value* (12.281)> *t-table* (1.690) and *P value* (0.000) < 0.05. It can be concluded that there is a significant different between pretest and posttest for Semantic Mapping class. In other word, there was an improvement on the students' reading achievement between pretest and posttest by applying Semantic Mapping in E2 class.

d. The mean score and standard deviation of the students' reading comprehension in pre-test

Table 9: *The mean score and standard deviation of the students' reading comprehension in pre-test*

Classes	Mean Score	Standard Deviation
Mind Mapping	70.25	6.973
Semantic Mapping	68.06	9.417

Table 9 showed the mean score of students' reading comprehension in pre-test of Mind Mapping class was 70.25 and Semantic Mapping class was 68.06. It

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concluded that the students mean score of Mind Mapping class was statistically the same with Semantic Mapping class.

e. The inferential analysis on pre-test for mind mapping and semantic mapping classes

Table 10: *The t-test of the Students' reading comprehension on pre-test*

Variable	t-value	Df	Probability Value
Students' Score	1.148	72	0.943

Table 10 explained the *t-value* was 1.148 with degree of freedom 72 and *P value* 0.000. From the degree of freedom we could be known the *t-table* of this research was 1.667. Based on the data, the *t-value* (1.148) < *t-table* (1.667) and *P value* (0.943) > 0.05. In pre-test, there was no significant difference between two classes score because the *P value* higher than 0.05 (0.943<0.05). It meant that H_0 was accepted and H_1 was rejected in pre-test. In other word, the students' ability or level were same before giving the treatment.

f. The inferential analysis on post-test for mind mapping and semantic mapping classes

Table 11. *The t-test of the Students' reading comprehension on post-test*

Variable	t-value	Df	Probability Value
Students' Score	5.435	72	0.000

Table 11 showed the *t-value* was 5.435 with degree of freedom 72 and *P value* 0.000. From the degree of freedom we could be known the *t-table* of this research was 1.667. Based on the data, the *t-value* (5.435)> *t-table* (1.667) and *P value* (0.000) < 0.05. In post-test, there was a significant difference between two classes score because the *P value* less than 0.05 (0.00 <0.05). It meant that H_1 was accepted and H_0 was rejected in post-test. In other words, there was a significant difference of the students' score between the use of Mind Mapping and Semantic Mapping of both classes after receiving treatment.

2. Students' Interest

a. Students' Interest on Mind Mapping

Table 12. *The Percentage of Students' Interest*

No.	Interval	Categories	Frequency	Percentage (%)
1	85-100	Very high	14	38.9
2	68-84	High	19	52.8
3	52-68	Moderate	3	8.3
4	36-51	Low	0	0
5	20-35	Very low	0	0
Total			**36**	**100**

This data indicated that 14 (38.9%) students were "very interested", 19 (52.8%) students were "interested", 3 (8.3%) student was "moderate", none "uninterested" and none "very uninterested". It meant that all of the students were interested in learning English by using Mind Mapping technique.

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b. Students' Interest on Semantic Mapping

Table 13. *The Percentage of Students' Interest*

No.	Interval	Categories	Frequency	Percentage (%)
1	85-100	Very high	4	11.1 %
2	68-84	High	10	27.7 %
3	52-68	Moderate	18	50 %
4	36-51	Low	3	8.3 %
5	20-35	Very low	0	0
Total			**36**	**100**

This data indicated that 4 (11.1%) students were "very interested", 10 (27.7%) students were "interested", 18 (50%) student was "moderate", 3 (8.3%) students were "uninterested" and none "very uninterested". It meant that half of the students were moderate interest in learning English by using Semantic Mapping. From the findings above, it concluded that the interest of the students in learning English using Mind Mapping is higher than using Semantic Mapping.

CONCLUSION AND SUGGESTION

Mind Mapping was more effective than Semantic Mapping to enhance students' reading comprehension of the second graders of SMA Muhammadiyah Kalosi Enrekang regency. It was proved by the mean score of the students in Mind Mapping class (E1) was 84.00 higher than the mean score of the students in Semantic Mapping (E2) class was 76.97. In another side, the questioners consisted of 20 items which was whether the techniques were not interesting and helpful for the students got higher scores compared to the others. The researcher found that all of the students' activities from all of the indicators of interest were reached which could be seen on the students' involvement, feeling pleasure, attraction, and attention in using Mind Mapping.

Based on the conclusion, the researcher would put some suggestion and recommendation. The English teacher of SMA Muhammadiyah Kalosi Enrekang regency must to use Mind Mapping as teaching technique in learning English. The teaching learning process should enhance students' interest and reading comprehension. Finally, for the next researchers were suggested to explore more on not only Mind Mapping but also Semantic Mapping in engaging the students' interest and helping enhanced the students' learning achievement in learning English.

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