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The Effect of Using Semantic Mapping Strategy on Reading Comprehension of Grade Eight Students at SMP Negeri 12 Pematangsiantar

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Abstrak

Penelitian ini dilakukan untuk mengetahui pengaruh penggunaan Strategi Pemetaan Semantik terhadap pemahaman membaca siswa kelas delapan di SMP Negeri 12 Pematangsiantar. Penelitian ini menggunakan desain kuasi eksperimen dengan pendekatan kuantitatif. Populasi penelitian ini adalah siswa kelas delapan SMP Negeri 12 Pematangsiantar tahun ajaran 2024/2025. Peneliti mengambil dua kelas sebagai sampel. Sampelnya adalah VIII-1 sebagai kelompok eksperimen yang terdiri dari 31 siswa dan VIII-2 sebagai kelompok kontrol yang terdiri dari 31 siswa. Kelompok eksperimen diajarkan dengan menggunakan strategi pemetaan semantik sedangkan kelompok kontrol diajarkan dengan strategi konvensional. Data diperoleh dengan menggunakan tes awal dan tes akhir yang diberikan kepada kedua kelompok. Nilai rata-rata kelompok eksperimen adalah 27,2 pada tes awal dan 64,84 pada tes akhir. Sementara itu, nilai rata-rata kelompok kontrol adalah 32,42 pada tes awal dan 55,32 pada tes akhir. Untuk memperoleh data, peneliti menggunakan tes pilihan ganda sebagai instrumen. Data dianalisis menggunakan IBM SPSS versi 30.0. Hasil uji t diperoleh sig. two tailed 0,04 yang lebih kecil dari sig. 0,05 yang menunjukkan bahwa hipotesis alternatif (Ha) diterima, sedangkan hipotesis nol (Ho) ditolak. Oleh karena itu terdapat pengaruh yang signifikan dengan menggunakan Strategi Pemetaan Semantik terhadap pemahaman membaca siswa kelas delapan di SMP Negeri 12 Pematangsiantar.

Kata Kunci: *Pengaruh, Pemahaman Membaca, Teks Deskriptif, Strategi, Pemetaan Semantik*

Abstract

This research was carried out to find out the effect of using Semantic Mapping Strategy on reading comprehension of grade eight students at SMP Negeri 12 Pematangsiantar. This research employed a quasi-experimental design with a quantitative approach. The population of this research was eight grade students of SMP Negeri 12 Pematangsiantar in academic year 2024/2025. The researcher took two classes as the sample. The sample were VIII-1 as the experimental group consisted of 31 students and VIII-2 as the control group consisted of 31 students. The experimental group was taught by using semantic mapping strategy meanwhile control group was taught by conventional strategy. The data were obtained by using pre-test and post-test given to both groups. The experimental group mean score was 27,2 on the pretest and on the post test was 64,84. Meanwhile, the mean score of the control group was 32,42 on the pretest and 55,32 on the posttest. To acquire the data, the researcher used multiple choice test as an instrument. The data analyzed using IBM SPSS version 30.0. The result of t-test was sig. two tailed 0.04 which lower than sig. 0.05 it indicates that alternate hypothesis (H_a) was accepted, while the null hypothesis (H_0) was rejected. Therefore there was significant effect by using Semantic Mapping Strategy on students reading comprehension of grade eight students at SMP Negeri 12 Pematangsiantar.

Keywords: *Effect, Reading Comprehension, Descriptive Text, Strategy, Semantic Mapping*

INTRODUCTION

As a communication system, language is used by individuals to convey thoughts, feelings, and information through words, both verbally and in written form. English has become crucial in the realm of education in Indonesia as it is considered an international language that opens access to science, technology, and global career opportunities. English is rapidly becoming the world's dominant language of communication (Alrajali, 2021). The Indonesian government and many educational institutions have included English in the curriculum to improve students' competence in facing the globalization era.

In the process of English learning, Harmer (2007) cited in Paarmawati & Inayah (2019), described English as having four basic skills, which include reading, listening, writing, and speaking. While these four skills may stand on their own, they are closely related. Brown (2000) cited in Suhardiana & Lestari (2020), stated that a course that deals with reading skills will also deal with related listening, speaking, and writing skills. Therefore, reading comprehension is one of the most fundamental skills because it is the basis for mastering information and knowledge from various English skills. It enables students to decode and understand texts, construct meanings, and integrate new knowledge with existing information (Nussy & Pekpekay, 2024). Without good reading skills, students will find it

difficult to understand subject matter, follow instructions, and develop other aspects of language skills.

In the context of English as a Foreign Language (EFL), effective reading comprehension strategies are crucial for students to navigate and make sense of texts written in a non-native language (Rinantanti, et al, 2024). This means reading skills have become very important in the education field. This can be seen from the lessons in class and the items in national examinations, which are mostly in the form of reading passages. Therefore, students need to be exercised and trained to develop good reading skills.

Reading is one of the crucial academic skills in learning English (Laličić & Dubravac, 2021). Through reading, students can acquire more information than what is typically provided in a limited classroom lesson time. It is essential both to develop their reading skills, as those who read well can independently improve their knowledge and gather information. When reading, it is important for readers to comprehend the content of the text. If readers struggle to understand the content, they may simply read the words without grasping their significance. Effective comprehension requires familiarity with the vocabulary used in the text. There are various reasons why students may struggle to understand what they read.

Additionally, reading comprehension can determine the quality and success of students in pursuing their studies and can help broaden their experience in the world. Chard (2008) cited in Muhammad, et al (2021), adds that reading comprehension requires active and purposeful effort; it doesn't happen automatically. If students have poor reading skills, they may find it difficult to succeed in their academic journey. They will struggle to answer questions if they do not understand the text, and they may also find it challenging to gather information if they do not know how to read effectively. This highlights the importance of reading comprehension for EFL students.

According to Saputri (2011) cited in Guna (2023), reading comprehension is affected by factors that come from the students, the instructors, and the text. One of the students' factors is their background knowledge. Students with poor experiences will find it difficult to understand the text because the story they read is not connected to their prior knowledge. Vocabulary knowledge is related to the experiences they have encountered previously. Students often come to school with a passive mindset; they sit on the chair, listen to the teacher's explanation, and wait for instructions. This is very dangerous for students who have low capability in learning English. They will be passive in class and lack

confidence. It makes students less creative, and although they may have good background knowledge, they need to recall or activate it both directly and indirectly.

Moreover, based on the researcher's observations during the previous Field Experience Practice (PPL), which took place in the same location where this research will be conducted, it was observed that many students there have difficulties related to reading skills, such as finding main ideas, details, and conclusions in reading sources. Therefore, the researcher concluded that there is an urgent need to improve reading comprehension skills among eighth-grade students at SMP Negeri 12 Pematangsiantar.

In the process of teaching and learning, there needs to be a variety of strategies conducted in the classroom. This aims to maintain student engagement to achieve successful learning. According to Gerlach and Ely (1980) cited in Dewi (2023), learning strategies are methods chosen to convey teaching techniques in a particular learning environment. A teacher's role in teaching and learning is crucial in addressing students' reading comprehension challenges, particularly in selecting appropriate teaching strategies and materials (Sibanda, et al., 2024). Teachers must be able to choose suitable strategies for teaching in the classroom. There are many approaches and strategies that can be used to improve students' reading comprehension skills, including semantic mapping, summarizing, skimming, scanning, and many more (Fisher, 2016). One promising approach to address this issue is the use of semantic mapping strategies.

Semantic mapping is a visual strategy that involves creating graphic organizers to represent relationships among words and concepts within a text (Sundari & Daulay, 2024). This technique aids students in organizing information, making connections between ideas, and enhancing their understanding and retention of the material. By visually structuring information, semantic mapping helps students process and recall content more effectively.

Based on the description above, the researcher is interested in understanding the effect of using semantic mapping compared to not using it on students' reading comprehension. This strategy will be applied to eighth-grade students at SMP Negeri 12 Pematangsiantar. This study aims to investigate the effect of the semantic mapping strategy in improving students' reading comprehension. The study will determine whether the use of semantic mapping strategies can significantly improve students' reading comprehension abilities, especially in English reading texts. By implementing and assessing the effectiveness of this strategy, the study seeks to contribute to the development of innovative instructional practices that can support English language learners in achieving

better academic outcomes. Therefore, the researcher has chosen the title, "The Effect of Using Semantic Mapping Strategy on Reading Comprehension of Grade Eight Students at SMP Negeri 12 Pematangsiantar."

RESEARCH METHOD

This research employs a quasi-experimental design with a quantitative approach. According to Ary (2010), a quasi-experiment is a design where the researcher is able to control the treatment but is not able to randomly assign the subjects of treatment. The quasi-experimental design is chosen because it allows for the comparison of groups while controlling for variables that could influence the outcome. This design is suitable for educational settings where random assignment to groups is not feasible. A quasi-experiment is an experimental design that is conducted without randomization but involves assigning participants to groups.

In this research, the researcher selected class VIII-1, consisting of 31 students, as the experimental group that was taught using the Semantic Mapping Strategy. Class VIII-2, also consisting of 31 students, was selected as the control group and was taught using a conventional teaching strategy. The researcher gives a reading test consisting of 20 multiple-choice items based on English descriptive text, and students are given 45 minutes to answer all the questions on the provided question sheet. The data analysis techniques were applied to answer the research questions and test the proposed hypotheses. Data from the pre-test and post-test results were processed to draw conclusions about the effect of the Semantic Mapping Strategy on students' reading comprehension skills.

RESULT AND DISCUSSION

Data Description

The data was collected from eighth-grade students at SMP Negeri 12 Pematangsiantar. Class VIII-1 consist of 31 students served as the experimental group, while Class VIII-2 consist of 31 students was the control group. The data was obtained through a multiple-choice consist of 20 items. The experimental group was taught using the Semantic Mapping Strategy, whereas the control group followed a conventional teaching strategy.

The students pre-test and post-test score of experiment class could be shown on the table 1. as follow :

Table 1. The data result of the Pre-Test and Post-Test in Experimental Class

No	Student's Initial Name	Pre Test	Post Test
1.	ANI	35	60
2.	AT	35	55
3.	ATS	35	70
4.	AS	20	50
5.	AN	25	55
6.	BKB	50	80
7.	DJM	25	50
8.	DW	30	75
9.	ES	15	50
10.	EZ	15	25
11.	FM	40	80
12.	FCP	35	75
13.	GS	30	75
14.	GA	25	70
15.	HA	20	60
16.	IAS	10	30
17.	IW	35	75
18.	JS	10	40
19.	KT	15	55
20.	LAD	25	60
21.	MR	35	75
22.	MS	30	80
23.	MOP	25	60
24.	MRS	10	50
25.	NN	40	90
26.	NAS	25	75
27.	NF	30	65
28.	NSN	40	85
29.	NS	30	80
30.	SNB	25	75
31.	TAN	30	85
	Σ	850	2010
	AVERAGE	27,42	64,84

Based on the table above, it describes the pre-test and post-test results of experimental class students (VIII-1). The data shows that the lowest score of the pretest was 10 and the highest score was 50 with an average pre-test score of 27.42. Meanwhile, the lowest score of the post-test was 25 and the highest score was 90 with an average post-test score of 64.84. The pre-test and post-test results of control class students (VIII-2). The data shows that the lowest score of the pretest was 10 and the highest score was 55 with an average pre-test score of 32.42. Meanwhile, the lowest score of the post-test was 15 and the highest score was 85 with an average post-test score of 55.32.

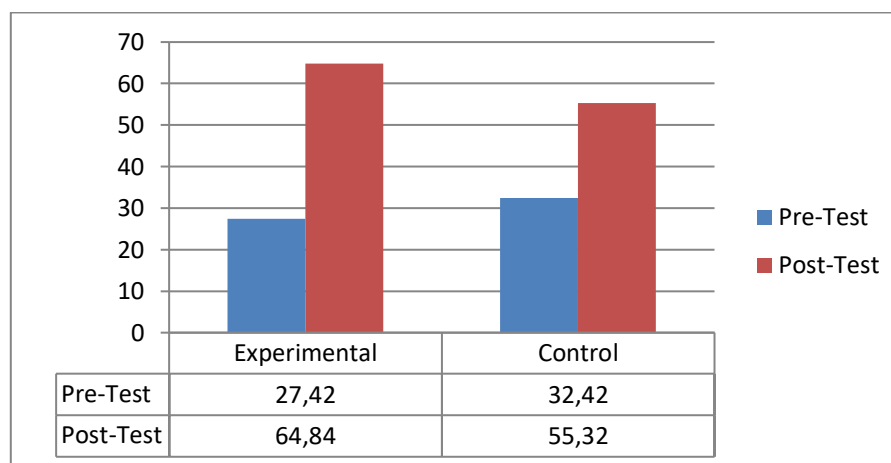


Figure 1. Improvement in Experimental and Control Class

After calculating the average scores for the pre-test and post-test in both the experimental and control classes, the researcher created a graph to display the results, illustrating how students improved their reading comprehension skills. The experimental class, which was taught using the Semantic Mapping Strategy, had a mean score of 27.42 on the pre-test and an impressive 64.84 on the post-test, resulting in a significant improvement of 37.42 points. In contrast, the control class, which followed conventional teaching methods, had a pre-test mean score of 32.42 and a post-test mean score of 55.32, reflecting a more modest increase of 22.90 points. This data indicates that the experimental class demonstrated a greater improvement in their reading comprehension compared to the control class, highlighting the effectiveness of the Semantic Mapping Strategy in enhancing students' understanding of descriptive texts.

Research Findings

This research involved collecting pre-test and post-test results from both the experimental and control classes, requiring comprehensive data analysis. The analysis was

conducted using IBM SPSS version 30.0, a widely used statistical software for research data management and analysis.

1. Descriptive Statistics

Table 2. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
PreTest_Experimental	31	10	50	27.42	9.821
PostTest_Experimental	31	25	90	64.84	16.150
PreTest_Control	31	10	55	32.42	11.893
PostTest_Control	31	15	85	55.32	19.491
Valid N (listwise)	31				

Based on the table above, it can be seen that each class consists of 31 students, represented by the letter N. In the experimental class, the pre-test value has a minimum value of 10 and a maximum of 50, with an average value (mean) of 27.42 and a standard deviation of 9.821, then the post-test value has a minimum value of 25 and a maximum of 90, with an average value (mean) of 64.84 and a standard deviation of 16,150. While in the control class it is shown that the pre-test value has a minimum value of 10 and a maximum of 55, with an average value (mean) of 32.42 and a standard deviation of 11.893 then the post-test value has a minimum value of 15 and a maximum of 85, with an average value (mean) of 55.32 and a standard deviation of 19.491.

2. Normality Test

Table 3. Normality Test

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PreTest_Experimental	.145	31	.097	.956	31	.223
PostTest_Experimental	.187	31	.007	.936	31	.064
PreTest_Control	.125	31	.200*	.969	31	.488
PostTest_Control	.161	31	.039	.937	31	.070

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The table above shows the statistics, df and sig, for the Shapiro-Wilk and Kolmogorov-Smirnov normality tests. As explained earlier, data is considered normal if the significance value is more than 0.05. The sample in this study is less than 50, so the focus of the significance value (Sig.) is on Shapiro-Wilk. According to experts Sugiyono (2014:114), the Shapiro-Wilk normality test is conducted to determine the distribution of random data in a small sample, using data simulations of no more than 50 samples. All significance values that appear on Saphiro-Wilk are above 0.05, so this states that the data is normally distributed.

3. Homogeneity Test

Table 4. Homogeinety Test

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Students leaning outcomes	Based on Mean	2.742	1	60	.103
	Based on Median	1.996	1	60	.163
	Based on Median and with adjusted df	1.996	1	59.997	.163
	Based on trimmed mean	2.728	1	60	.104

From the table above the significance value (Sig.) based on the mean score is 0.10 which is greater than 0.05, it can be concluded from the homogeneity test output in the table that the variance of the data is homogeneous. This shows that the variance of the experimental class post-test data and the control class post-test data is the same or homogeneous.

4. Testing Hypothesis

Table 5. Group Statistics

Group Statistics					
	Class	N	Mean	Std.Dev	Std.Err.M
Outcomes	Post exp	31	64.84	16.150	2.901
	Post cont	31	55.32	19.491	3.501

Based on the table of group statistics above, it shows that there is a significant difference between the experimental class and the control class. This can be seen from the group statistic which presents the average gain score of the experimental class of 64.84

while the average gain score of the control class is 55.32. This means that descriptive statistics can conclude that there is an average difference in student learning outcomes between the experimental and control classes.

5. Independent Samples Test

Table 6. Independent Samples Test

		Levene's Test for Equality of Variances		Independent Samples Test						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	Lower	Upper
						One-Sided p	Two-Sided p				
Outcomes	Equal variances assumed	2.742	.103	2.093	60	.020	.041	9.516	4.546	.422	18.610
	Equal variances not assumed			2.093	57.996	.020	.041	9.516	4.546	.416	18.616

Based on the Independent T-test output, shows the significance of two-tailed is 0.04 which lower (<) than 0,05. As the criteria of hypothesis decision H0 is accepted if the significance of two-tailed > 0.05, otherwise Ha is accepted if the significance of two-tailed < 0.05. Therefore, Ha is accepted which the use of the semantic mapping strategy is significantly effective in improving the reading comprehension of the eighth-grade students at SMP Negeri 12 Pematangsiantar.

Discussion

After conducting the data analysis process, several findings were obtained that could answer the research problems:

1. Experimental Class: The pre-test scores had a minimum value of 10 and a maximum value of 50. The mean score was 27.42, with a standard deviation of 9.821, and the post-test scores ranged from a minimum value of 25 to a maximum value of 90, with an average (mean) score of 64.84 and a standard deviation of 16.150. This indicates that there is an improvement in students' reading comprehension skills with the implementation of the Semantic Mapping strategy in the experimental class.
2. Control Class: The pre-test scores had a minimum value of 10 and a maximum value of 55. The mean score was 32.42, with a standard deviation of 11.893, and the post-test scores ranged from a minimum value of 15 to a maximum value of 85, with an average (mean) score of 55.32 and a standard deviation of 19.491. This indicates that with the implementation of conventional strategies, some students still face similar challenges, such as difficulties in comprehending English texts.

The analysis indicated that the use of Semantic Mapping strategy significantly affects students' reading comprehension among eight-grade students at SMPN 12 Pematangsiantar. The value of Sig. (2-tailed) on the independent t-test was 0.04, which is less than 0.05, therefore meeting the condition for accepting H_a . This result suggests a significant effect of the intervention.

CONCLUSION

Based on the findings, the researcher concluded that Semantic Mapping Strategy has a significant effect on students' reading comprehension skill. The findings suggest that the implementation of the Semantic Mapping strategy significantly enhances students' reading comprehension skills compared to conventional strategies. The experimental class showed notable improvement in post-test scores, indicating the effectiveness of the intervention. Meanwhile, students in the control class, who followed conventional methods, still faced challenges in text comprehension. The statistical analysis further supports this conclusion, as the independent t-test result showing Sig. 0.04, which means lower than 0,05 confirms a significant effect, leading to the acceptance of H_a . Therefore, the Semantic Mapping strategy proves to be an effective approach in improving students' reading comprehension.

Several issues were discovered by the researcher during this research, including the following facts: 1). Some students do not understand the topic being discussed at all. 2). The classroom atmosphere was not conducive when the teacher left the classroom or did not participate in the research process. 3). Some students chose to be passive because they did not feel confident in their own abilities, for example when they were ordered to come forward to the whiteboard to model the application of the content of the reading text into visual semantic mapping.

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