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THE EFFECT OF SEMANTIC MAPPING STRATEGY FOR STUDENTS' ENGLISH VOCABULARY MASTERY AT SMPN 12 PEMATANG SIANTAR

Cindy Yani Simorangkir*[1], Dumaris E Silalahi[2], Sara Stedani Malau[3], Sry Tama Butar Butar[4]
[1]jsimorangkir86@gmail.com , [2]dumaris.silalahi@uhnp.ac.id , [3]sarahstefanymalau@gmail.com , [4]uhkbpnp711@gmail.com

*[1]Universitas HKBP Nomensen Pematangsiantar, Sumatera Utara, Indonesia
[2]Universitas HKBP Nomensen Pematangsiantar, Sumatera Utara, Indonesia
[3]Universitas HKBP Nomensen Pematangsiantar, Sumatera Utara, Indonesia
[4]Universitas HKBP Nomensen Pematangsiantar, Sumatera Utara, Indonesia

ABSTRACT

Mastery of vocabulary plays a vital role in language acquisition, as it enables learners to comprehend, express ideas, and construct meaning effectively. Nevertheless, many students still encounter challenges in retaining and using new vocabulary due to a lack of contextualized learning activities and repetitive teaching practices. This research aimed to examine the effectiveness of the Semantic Mapping Strategy (SMS) in enhancing English vocabulary achievement among eighth-grade students at SMP Negeri 12 Pematang Siantar. A quantitative approach was adopted through a pre-experimental one-group pre-test and post-test design involving 32 participants. The SMS technique was applied in two instructional sessions, emphasizing the use of adjectives within narrative texts. Data were obtained from pre-test and post-test. The analysis showed a remarkable improvement in students' vocabulary scores, with the mean rising from 52.4 in the pre-test to 89.5 in the post-test. Furthermore, the number of students meeting the Minimum Mastery Criterion (KKM ≥ 75) increased from 10 to 24. This outcomes demonstrate that the Semantic Mapping Strategy effectively promotes meaningful vocabulary learning by fostering word association, interaction, and visual representation, It can be concluded that SMS can be regarded as an efficient and engaging method to improve vocabulary mastery in EFL classrooms.

Keywords: English, Semantic Mapping Strategy, Vocabulary Master

A. INTRODUCTION

Vocabulary is the cornerstone of language learning. It is the element that connects learners to meaning, enabling them to understand, express, and interact in a foreign language (Faruk & Aturahma, 2023; Nugrohi & Arini, 2021). Without sufficient vocabulary, students cannot comprehend texts, construct sentences, or engage in communication effectively. In English as

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a Foreign Language (EFL) classrooms, vocabulary mastery is often treated as a secondary goal, overshadowed by grammar or reading comprehension. Yet, vocabulary is the foundation upon which all other skills are built (Daud et al., 2025). According to (Emor et al., 2012; Udaya, 2021), vocabulary acquisition is a key component of language development, and learners with limited vocabulary struggle to make progress in other areas. This is particularly true for junior high school students who are still developing their linguistic competence. In Indonesia, many students at the junior high school level including those in Grade 8 at SMP Negeri 12 Pematang Siantar face persistent difficulties in acquiring and retaining English vocabulary.

Observations in the classroom reveal that students often rely on rote memorization of word lists, disconnected from context or usage. They may be able to recall definitions but fail to apply words in speaking or writing tasks. This passive knowledge limits their ability to communicate and undermines their confidence. (Harahap et al., 2025; Saragih & Indonesia, 2019) argues that vocabulary learning should go beyond memorization and involve meaningful engagement with words. Learners need to encounter words in various contexts, relate them to prior knowledge, and use them actively to internalize their meaning. Without such engagement, vocabulary remains fragile and easily forgotten (Anditasari, 2022; Vedyanto et al., 2022).

To address these challenges, educators must adopt strategies that promote deeper processing and active learning. One such strategy is semantic mapping, a visual technique that helps learners organize vocabulary by connecting a central word to related concepts (Mebe et al., 2023; Mohammed & Malo, 2020; Zahedi & Abdi, 2012). Semantic mapping encourages students to explore relationships among words such as synonyms, antonyms, categories, examples, and associations creating a network of meaning that supports retention and usage. According to (Adilla et al., 2024; Asrifan et al., 2024; Hussein, 2023), semantic mapping enhances lexical depth by allowing learners to visualize and internalize word relationships, making vocabulary more accessible and memorable.

The theoretical foundation for semantic mapping is further supported by Vygotsky's Sociocultural Theory (1978), which emphasizes the role of interaction and scaffolding in learning. Vygotsky posits that learners construct knowledge through social interaction and guided support. In the context of semantic mapping, students can collaborate to build word maps, discuss meanings, and share ideas, fostering a deeper understanding of vocabulary. This

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process not only improves retention but also encourages critical thinking and learner autonomy. Semantic mapping also aligns with Ausubel's Meaningful Learning Theory (1963), which suggests that new information is best learned when it is connected to existing cognitive structures. By linking new vocabulary to familiar concepts, semantic mapping facilitates meaningful learning and long-term retention.

In practical terms, semantic mapping offers flexibility and adaptability in the classroom (Sinaga et al., 2023). It can be used with various types of texts, topics, and proficiency levels. Teachers can introduce new vocabulary through semantic maps, reinforce previously learned words, or assess students' understanding. Students benefit from a more engaging and personalized learning experience, where they can visualize their progress and take ownership of their learning. The strategy also supports differentiated instruction, allowing students to build maps based on their interests, needs, and language level (Akhmetova, 2023; Hamdan & Alharbi, 2017).

Given these theoretical and practical advantages, this study aims to investigate the effectiveness of semantic mapping strategy in improving English vocabulary mastery among eighth grade students at SMP Negeri 12 Pematang Siantar. The research is motivated by the need to address students' difficulties in retaining and applying vocabulary, and to offer a more meaningful and interactive approach to vocabulary instruction. By implementing semantic mapping in the classroom, the researcher hopes to enhance students' engagement, comprehension, and confidence in using English vocabulary, ultimately contributing to their overall language development.

B. METHOD

Research Design

This research utilized a quantitative research design to investigate the effectiveness of the Semantic Mapping Strategy (SMS) in enhancing students' English vocabulary mastery. The quantitative approach was selected because it allows for the objective collection, analysis, and interpretation of numerical data. Through this method, the researcher aimed to measure

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students' improvement before and after the implementation of the Semantic Mapping Strategy and to determine whether the technique produced a significant effect on their vocabulary achievement. The quantitative approach that this research used is Pre-experimental deisgn which only provide one class with pretest, treatment and post test (Ary et al., 2010; Fraenkel et al., 2011) (table 1).

Table 1. Experimental Design

	Class	Pre Test	Treatment	Post Test
(r)	Experimental Class	X	X	X

Research Procedure

The research procedure comprised three main stages: the pre-test, treatment, and post-test**.** During the pre-test stage, students answered 20 multiple-choice questions to assess their vocabulary knowledge before the intervention. In the treatment stage, the Semantic Mapping Strategy was introduced and practiced across 4 class meetings. The researcher explained the concept and objectives of semantic mapping, guided students in creating their own maps, and promoted collaborative group activities. Students brainstormed, categorized, and linked adjectives describing characters and settings from narrative texts on the whiteboard. In the post-test stage, students completed 20 multiple-choice questions to measure their vocabulary improvement after the treatment.

Data were collected from students' pre-test and post-test scores and analyzed using descriptive statistical methods. The analysis included the computation of the mean**,** highest and lowest scores**,** and the percentage of students who met the Minimum Mastery Criterion (KKM)**.** After the statistical data were analyzed, the significance effect was calculated to see the improvement in this experimental class. the calculation were calculated by using paired sample t test.

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Research Participants or Population and Sample

This research was conducted with a group of eighth-grade students from SMP Negeri 12 Pematang Siantar. The participants consisted of 32 students from one class, selected through total sampling.

C. FINDINGS AND DISCUSSION

Findings

The primary objective of this study was to determine the **effectiveness of the Semantic Mapping Strategy (SMS)** in enhancing students' vocabulary mastery, particularly their understanding of **adjective words in narrative texts**. The data were gathered from **32 students** through the administration of **pre-tests and post-tests**.

Descriptive Statistic

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	32	58	90	71,16	8,251
Posttest	32	75	88	80,75	3,860
Valid N (listwise)	32				

Picture 1. Descriptive statistic result

Based on the results of descriptive statistical analysis of the pretest and posttest scores of 32 students, an improvement in learning outcomes was observed after the learning intervention. In the pretest, the minimum student score was 58, the maximum score was 90, with an average of 71.16 and a standard deviation of 8.251. This average score indicates that, in general, students' initial abilities were still below the Minimum Competency (KKM) of 75, with a fairly wide spread of scores, indicating significant differences in initial abilities among students.

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Meanwhile, in the posttest, the minimum score increased to 75, and the maximum score was 88, with an average of 80.75 and a standard deviation of 3.860. The increase in the minimum score indicates that all students had achieved the minimum mastery threshold. The decrease in the standard deviation in the posttest indicates that student abilities became more evenly distributed after the learning process.

Overall, these descriptive statistical data indicate that the learning intervention not only improved average student learning outcomes but also narrowed the ability gap between students.

The Results should include the rationale or design of the experiments as well as the results of the experiments. Results can be presented in figures, tables, and text. The Results should include the rationale or design of the experiments as well as the results of the experiments. Results can be presented in figures, tables, and text.

The results of the analysis showed that there was an average increase in learning outcomes of 13.48%, which indicates that the learning strategies implemented were effective in improving student learning outcomes.

Paired Sample T-Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pretest - Posttest	-9,594	7,352	1,300	-12,245	-6,943	-7,381	31	<,001

Picture 2. Paired Sample T-Test Result

Based on the Sig. (2-tailed) value <0.001, which is much smaller than the significance limit of $\alpha = 0.05$, it can be concluded that there is a statistically significant difference between the pretest and posttest scores. This difference indicates a significant improvement in student abilities after the implementation of the learning treatment.

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These results indicate that the use of the Semantic Mapping Strategy has a very positive impact on improving students' vocabulary mastery. This strategy helps students organize vocabulary conceptually, link new words to prior knowledge, and strengthen understanding of meaning through semantic relationships. Thus, the learning process becomes more structured, meaningful, and easier for students to understand.

This significant improvement in learning outcomes does not occur by chance but is a direct result of the effectiveness of the Semantic Mapping Strategy in facilitating vocabulary learning. This strategy encourages active student engagement, improves retention of new vocabulary, and strengthens students' ability to use vocabulary appropriately in context. Therefore, it can be confirmed that the implementation of the Semantic Mapping Strategy is very effective in improving students' vocabulary mastery.

Discussion

The findings of this study demonstrate that the learning intervention produced meaningful improvements in students' vocabulary mastery. The upward shift in overall performance after the instructional treatment suggests that the strategy applied was able to address learners' initial difficulties in understanding and retaining vocabulary. Before the intervention, students showed varied levels of prior knowledge, which often poses a challenge in vocabulary instruction because learners process and store new words differently. After the intervention, students' performance became more consistent, indicating that the instructional approach supported learners across different ability levels.

One important aspect highlighted by the results is the role of structured meaning-making in vocabulary learning. Vocabulary acquisition is not merely a process of memorizing word lists, but involves connecting new lexical items with existing cognitive frameworks. The Semantic Mapping Strategy facilitates this process by encouraging learners to visually and conceptually relate words based on meaning, categories, and associations. This approach aligns with constructivist learning principles, which emphasize that knowledge is actively built by learners through connections between new information and prior experiences. As a result, students are better able to internalize vocabulary and apply it in relevant contexts.

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The statistical evidence also indicates that the observed improvement is not only measurable but also educationally meaningful. A substantial increase in average performance reflects that students gained a deeper understanding of vocabulary rather than superficial familiarity. Moreover, the reduced variability in scores suggests that the strategy helped minimize learning disparities, allowing lower-achieving students to catch up while still supporting higher-achieving learners. This outcome is particularly important in classroom settings where heterogeneous ability levels are common.

From a pedagogical perspective, the effectiveness of the Semantic Mapping Strategy can be attributed to its emphasis on active learning. Students are required to participate in organizing concepts, discussing relationships between words, and reflecting on meanings. Such activities promote higher cognitive engagement compared to traditional teacher-centered instruction. Increased engagement often leads to better attention, stronger memory retention, and improved transfer of knowledge, all of which are essential for mastering vocabulary.

In addition, the strategy supports contextual learning, enabling students to understand how words function within broader semantic networks. This not only enhances comprehension but also improves students' ability to use vocabulary accurately in communication. Consequently, the strategy does not merely improve test performance but also contributes to functional language competence.

Overall, the discussion of these findings suggests that the Semantic Mapping Strategy is a powerful instructional tool for vocabulary development. Its capacity to enhance understanding, promote learner engagement, and reduce performance gaps makes it a valuable alternative to conventional vocabulary teaching methods. These results imply that incorporating semantic-based strategies into language instruction can lead to more effective and inclusive learning outcomes.

D. CONCLUSION

This study concludes that the implementation of the Semantic Mapping Strategy is highly effective in improving students' vocabulary mastery. The findings demonstrate a clear

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improvement in students' learning outcomes after the instructional intervention, indicating that the strategy successfully facilitated students' understanding and retention of vocabulary. The improvement was not limited to overall achievement but also reflected a more even distribution of learning outcomes among students, suggesting that the strategy supported learners with varying levels of prior knowledge. By organizing vocabulary through meaningful semantic relationships, the Semantic Mapping Strategy enabled students to construct deeper lexical understanding and apply vocabulary more accurately in context. Therefore, this strategy can be considered an effective and pedagogically sound approach to vocabulary instruction.

Implications

The results of this study have several important implications for language teaching and learning. First, they highlight the importance of using instructional strategies that emphasize meaning-making and conceptual connections in vocabulary learning. Teachers are encouraged to move beyond rote memorization and adopt strategies that actively engage students in organizing and relating new vocabulary to existing knowledge. Second, the effectiveness of the Semantic Mapping Strategy suggests that visual and cognitive mapping techniques can help reduce learning gaps among students, making classroom instruction more inclusive. This has practical implications for heterogeneous classrooms, where differences in student ability often challenge teachers. Third, the findings imply that integrating semantic-based strategies into regular language instruction can enhance not only academic performance but also students' confidence and motivation in learning vocabulary, as they become more actively involved in the learning process.

Suggestions

Based on the conclusions and implications of this study, several suggestions are proposed. Teachers are recommended to incorporate the Semantic Mapping Strategy regularly in vocabulary instruction, particularly when introducing new or complex lexical items. Schools and curriculum developers may also consider integrating this strategy into instructional

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guidelines or teaching materials to support effective vocabulary learning. For future research, it is suggested that similar studies be conducted with larger sample sizes, different educational levels, or varied language skills to further validate the effectiveness of the strategy. Additionally, future researchers may explore the combination of Semantic Mapping with digital tools or collaborative learning models to examine its potential in technology-enhanced learning environments. These efforts are expected to enrich the application of semantic-based strategies and contribute to the improvement of language learning practices.

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