THE APPLICATION OF SEMANTIC MAPPING TECHNIQUE TO ENHANCE STUDENTS' VOCABULARY MASTERY

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Abstract:

This study aims to investigate the potential impact of employing the Semantic Mapping technique on improving students' proficiency in vocabulary. By examining the reactions and feedback from students who have undergone instruction using this technique, valuable insights can be gained into its efficacy in bolstering vocabulary acquisition. The findings hold significance for researchers seeking innovative approaches to enhance language learning. This research is a Classroom Action Research (CAR). The research findings showed that teaching vocabulary mastery using the Semantic Mapping Technique to the eleventh-grade students of SMA Dharma Wanita Medan could improve their vocabulary mastery. It is advisable that English teachers try applying the Semantic Mapping Technique in teaching vocabulary mastery. Quantitative data analysis shows an increase in the average score of 48% in the Pre-test, with 25% of students scoring ≥ 75. In the Formative-test, 65% of students scored ≥ 75,

and 79 in the Post-test, with 80% of students achieving a value of ≥ 75. Then the results of this study increased. This research was carried out in SMA Dharma Wanita Medan with the eleventh-grade students during the academic Year 2022/2023. This research was successfully conducted at SMA Dharma Wanita Medan, as evidenced by the improved student achievement from the pre-test to the formative-test to the post-test. The results of this study are expected to provide valuable information on how to enhance students' vocabulary mastery by applying the Semantic Mapping Technique. During the research, the writer discovered that in order to improve students' vocabulary mastery skills, it is essential to create an interesting technique for students, fostering their enthusiasm for learning.

Keywords: classroom action research, semantic mapping technique, vocabulary acquisition

INTRODUCTION

Vocabulary acquisition holds a pivotal position in the process of acquiring proficiency in English as a foreign language. A well-rounded vocabulary equips students with the tools to effectively communicate their thoughts and ideas. When students possess limited vocabulary, their ability to articulate themselves is hampered, irrespective of their knowledge of grammatical rules. In essence, vocabulary serves as the cornerstone of effective language expression. To address the challenge of expanding students' vocabulary, this study advocates for the application of the Semantic Mapping technique, a pedagogical approach designed to facilitate the acquisition of English vocabulary.

Semantic Mapping represents a valuable instructional tool that enables students to uncover intricate relationships between words and concepts. It assists students in the assimilation of new vocabulary and enhances their capacity to formulate ideas with greater precision and fluency. As posited by Graves (2008), Semantic Mapping stands out as one of the most effective strategies for vocabulary instruction as it engages students in critical thinking about the interconnectedness of words. This technique is chosen based on the promising outcomes observed in previous research. Notably, the work of Rahmawati (2009), titled "Improving Students' Vocabulary Mastery through Semantic Mapping," conducted in a primary school context, demonstrates substantial enhancements in students' vocabulary proficiency. The results of this research underline the potential of Semantic Mapping as a powerful pedagogical approach for vocabulary development.

Vocabulary is undeniably a pivotal component of language learning, forming the foundation upon which effective communication and knowledge absorption are built. As aptly emphasized by Benjamin and Crow (2009), vocabulary serves as the linchpin of our ability to communicate and grasp new information. The complexity of vocabulary extends beyond individual words; it encompasses word combinations, word families, core meanings, and their interconnections. As defined by Linse (2005), vocabulary constitutes the reservoir of words an individual comprehends and assigns meaning to. In the absence of an adequate vocabulary, effective communication and the articulation of ideas become challenging, as human thought is fundamentally intertwined with words (Schmit, 2000). Vocabulary mastery, therefore, signifies

the capacity to not only apprehend words but also to effectively employ them in interpersonal communication (Graves, 2006).

Yet, vocabulary acquisition is not a mere process of rote memorization. It hinges on a profound understanding of word relationships and interconnectivity. Semantic Mapping, as expounded by Rebecca (1990), simplifies the learning of vocabulary, allowing students to retain words through the comprehension of the relationships that underlie them. This technique transcends the mere memorization of words and fosters a deeper understanding of the intricate web of word meanings. Rubin (1993) aptly characterizes Semantic Mapping as a strategy for the structured organization of information. It not only aids students in visualizing the interplay among concepts but also highlights the various ways information can be categorized and organized, either in broad or specific categories. Notably, the versatility of Semantic Mapping enables its introduction to learners at various proficiency levels, rendering it a valuable strategy in the pedagogical repertoire. In essence, Semantic Mapping is instrumental in guiding students through the intricate relationships woven within the realm of vocabulary.

METHODOLOGY

This Classroom Action Research (CAR) aligns with the broader educational movement, emphasizing the principles of reflective practice and the teacher as a researcher, as expounded by Burns (2010). Classroom Action Research is an essential component of contemporary educational practices, fostering a spirit of inquiry and critical reflection within the teaching profession. This research endeavors to explore the efficacy of employing the Semantic Mapping technique as a means to enhance students' vocabulary proficiency. To ascertain the impact of this pedagogical approach, a diverse range of qualitative and quantitative data sources have been harnessed.

Qualitative data, integral to this investigation, have been gathered through multiple channels. These include observations conducted by the teacher, questionnaires administered to the students, and the collection of field notes. In parallel, quantitative data are derived from vocabulary assessments conducted before, during, and after the teaching and learning process. The amalgamation of these data types offers a comprehensive perspective on the effectiveness of the Semantic Mapping technique in advancing students' vocabulary proficiency.

In this research, a collaborative partnership has been established with a key collaborator, the English teacher responsible for instructing eleventh-grade students at SMA Dharma Wanita Medan. Situated at Jl. Melati II No. 30, Komplek Pemda TK I, Medan Selayang, Kota Medan, Sumatera Utara, 20132, SMA Dharma Wanita Medan has been chosen as the research site. The rationale behind this selection arises from the writer's recognition of the necessity to enhance vocabulary mastery among eleventh-grade students at this institution. Additionally, a dearth of similar studies conducted at this school accentuates the research's significance. Spanning eight sessions, this study is set to commence in June 2023, coinciding with the Academic Year of 2022/2023.

The research cohort comprises eleventh-grade students at SMA Dharma Wanita Medan, with particular focus on Class MIA-1, a class encompassing 30 students, including 16 males and 14 females. This class was singled out for the study based on teacher recommendations and an interview with the teacher, which highlighted the class's identified weaknesses in English vocabulary. The collaborative synergy between the writer and the teacher, who also assumes the role of an observer, is pivotal in elucidating the contribution of the Semantic Mapping technique. The teacher's observations, recorded in observation sheets during the two action cycles, provide valuable insights into the technique's impact on vocabulary understanding. Field notes complement

this data collection process by capturing nuances related to learning and teaching, including challenges and obstacles.

Furthermore, questionnaires have been administered to eleventh-grade students to gauge their perceptions and experiences throughout the teaching and learning process, specifically concerning the use of the Semantic Mapping technique. Their motivations, problems, and responses, both pre and post-instruction, offer valuable insights into the dynamics of vocabulary acquisition in this context. This multi-faceted data collection strategy underpins the research's comprehensive evaluation of the Semantic Mapping technique's efficacy in improving vocabulary mastery.

FINDINGS AND DISCUSSION

This research employed a dual-pronged approach in its data analysis, encompassing both quantitative and qualitative data to unveil its findings comprehensively. The subsequent sections delineate the detailed analyses of each data type. Quantitative data were meticulously extracted from pre-tests, formative tests, and post-tests conducted during the course of this research. The students' scores in each of these assessments are presented in full detail within the subsequent table, accompanied by a histogram illustrating the distribution of scores across various intervals and their corresponding frequencies.

Table 1. Pre-Test Score Interval

Score Interval	Frequency	Percentage
16-27	2	10%
28-39	7	35%
40-51	1	5%
52-63	4	20%
64-75	1	5%
76-87	5	25%
Total	**20**	**100%**

Analyzing the table, it becomes apparent that the highest number of students, a total of seven, fell into the 28-39 score interval, accounting for 35% of the students. This indicates that a significant portion of the students scored in this range, highlighting a central tendency in their performance. The table, therefore, functions as a visual aid in assessing the students' pre-test scores and their distribution across various score intervals, facilitating a better understanding of their performance levels.

Chart 1. The Histogram of Pre-test
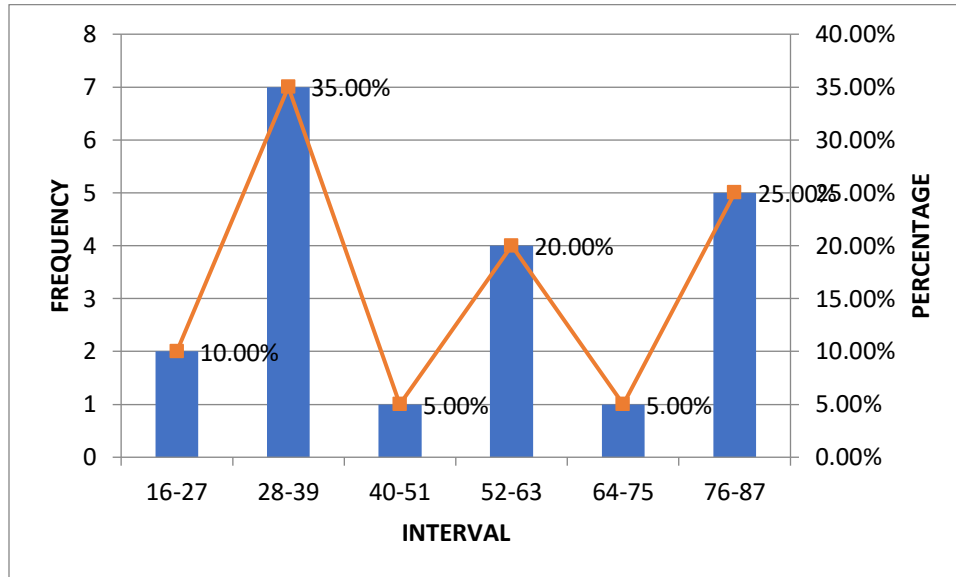
The analysis of the pre-test results, as presented in the histogram, reveals a distinct distribution of students' performance across different score intervals. Each interval corresponds to a specific range of scores, and a certain percentage of students achieved scores within these intervals. Within the lowest score interval, ranging from 16 to 27, two students, constituting 10% of the total, obtained scores in this range. In the next interval, which spans scores from 28 to 39, a substantial portion of students, seven in total, achieved scores within this range, accounting for 35% of the cohort. However, only one student, or 5%, reached the score interval of 40-51. A slightly larger group, comprising four students (20%), achieved scores within the range of 52-63. In the score interval of 64-75, one student (5%) secured their score, and the most substantial number of students, five in total (25%), achieved scores between 76 and 87. Further examination of the data suggests that six students successfully met the minimum mastery criteria (KKM), as stipulated by the school's requirements, which stands at a score of 75. This insight underscores the significance of assessing the proportion of students who attained this benchmark, which has implications for their overall performance and academic progress.

Table 2. Formative – Test Score Interval

Score Interval	Frequency	Percentage
36-43	5	15%
44-51	2	10%
52-59	1	5%
60-67	1	10%
68-75	7	25%
76-83	7	35%
Total	**20**	**100%**

Analyzing the data, it becomes evident that there is a prominent distribution of students in the higher score intervals. For instance, the score interval of 76-83 contains the largest number of students, totaling seven, and representing 35% of the students. This interval, characterized by higher scores, emerges as a central tendency in student performance during the formative test. Conversely, some score intervals, like 52-59 and 44-51, contain fewer students, signifying that fewer students achieved scores within these ranges. The table, therefore, serves as a valuable resource for comprehending the distribution of student performance across various score intervals in the formative test, contributing to a more comprehensive assessment of their progress and proficiency.

Chart 2. The Histogram of Formative-test
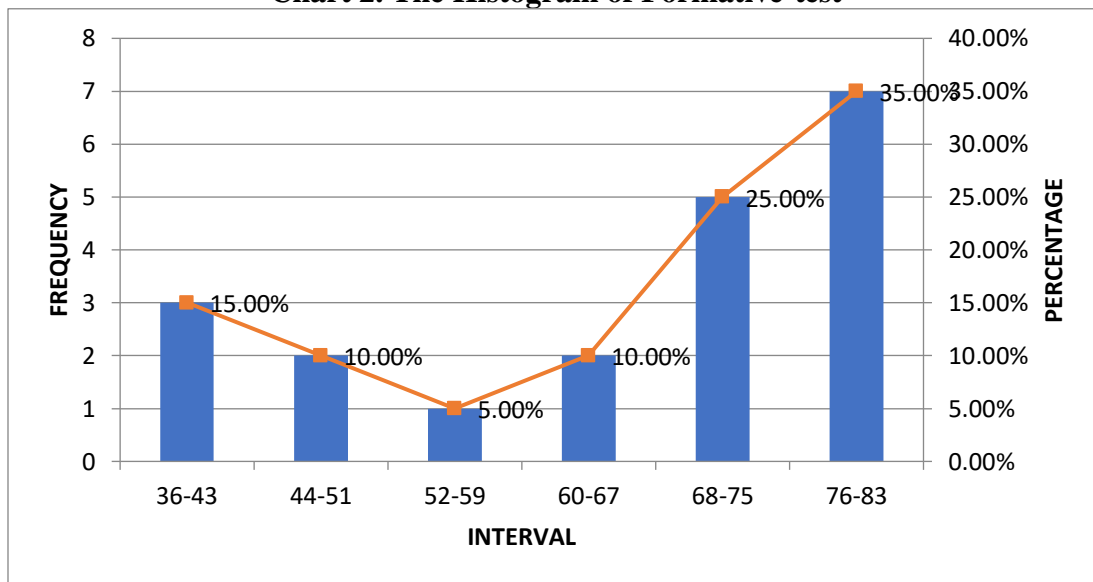
The analysis of the formative test results, as depicted in the histogram, provides a detailed representation of the distribution of student performance across distinct score intervals. Each interval corresponds to a specific range of scores, and a particular percentage of students achieved scores within these defined intervals. Within the lowest score interval, ranging from 36 to 43, three students, representing 15% of the total, attained scores within this range. The subsequent interval, spanning scores from 44 to 51, accommodated two students, equating to 10% of the cohort, who achieved scores within this range. In the score interval of 52-59, one student (5%) secured their score, while another two students (10%) occupied the interval of 60-67. Notably, a significant number of students, five in total (25%), performed within the score interval of 68-75. However, the most substantial proportion of students, totaling seven (35%), attained scores within the score interval of 76-83. This examination of the data underscores the variance in student performance across these defined intervals and emphasizes the concentration of students within certain score ranges. The insights derived from this data analysis are pivotal in evaluating how students performed in the formative test, shedding light on the distribution of scores and their implications for the learning progress of the cohort.

Table 3. Post-Test Score Interval

Score Interval	Frequency	Percentage
60-65	2	10%
66-71	0	0%
72-77	3	15%
78-83	9	45%
84-89	5	25%
90-95	1	5%
Total	**20**	**100%**

Upon closer examination of the data, it is evident that there is a discernible variance in students' performance across the specified intervals. Notably, the interval from 78 to 83 encompasses the largest cohort of students, totaling nine individuals, which constitutes 45% of the overall student population. This particular score range, characterized by relatively higher scores, serves as a central tendency in student performance during the post-test. Conversely, certain score intervals, such as 66-71, remain unutilized, indicating that no students attained scores within this particular range. Consequently, the table furnishes valuable insights into the dispersion of student performance across the diverse score intervals in the post-test, thereby contributing to a comprehensive evaluation of their academic progress and proficiency.

Chart 3. The Histogram of Post-Test
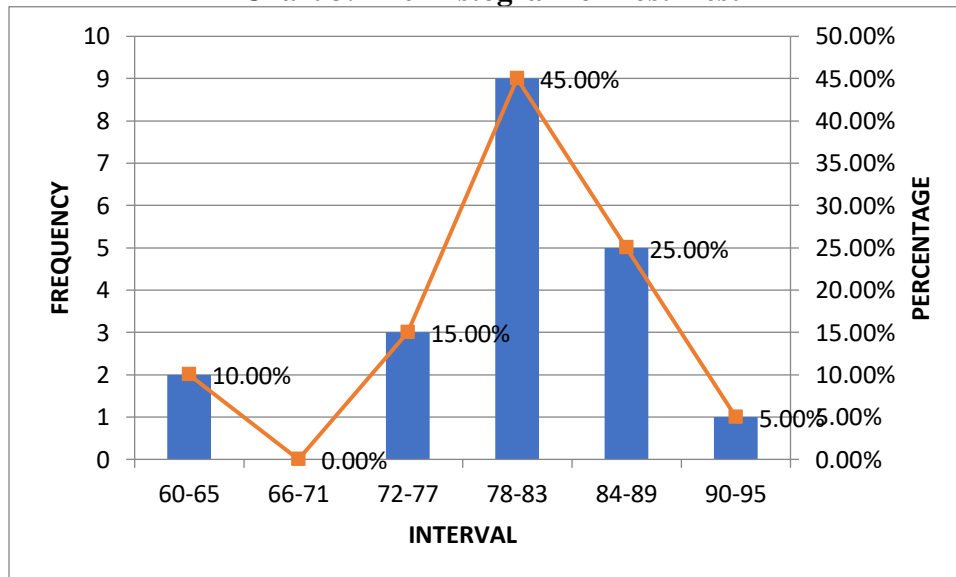
Upon a thorough examination of the post-test histogram, it is discernible that students' performance exhibits variation across the defined score intervals. Notably, the score interval ranging from 78 to 83 emerges as the most populated, with a total of nine students, constituting 45% of the student cohort, achieving scores within this range. These scores, characterized by their relatively higher values, establish a central tendency in student performance during the post-test. Conversely, certain score intervals, such as 66-71, are unrepresented in the distribution. This absence indicates that no students secured scores within this specific range. Consequently, the

tabulated data offers invaluable insights into the dispersion of student performance across a spectrum of score intervals in the post-test, thereby contributing to a comprehensive assessment of their academic progress and level of proficiency.

Table 4. Percentage of students achievement who get score ≥ 75

Test	Students who get score ≥ 75	Percentage
Pre-test	5	25%
Formative-test	11	55%
Post-test	16	80%

Upon close examination of the data, it is apparent that there is a consistent trend in the percentage of students attaining the proficiency benchmark throughout the research. The pre-test initially indicated that 25% of students achieved this standard, which then increased to 55% during the formative-test, ultimately reaching a substantial 80% in the post-test. This consistent upward trajectory underscores the positive influence of the intervention or teaching methodology on student performance, leading to a noteworthy enhancement in their level of proficiency. The data presented in this table encapsulates the overarching enhancement in students' performance as they advance through the various assessments, providing valuable insights into the effectiveness of the instructional approach implemented in the research.

Chart 4. The histogram of percentage of students' achievement who got score ≥ 75
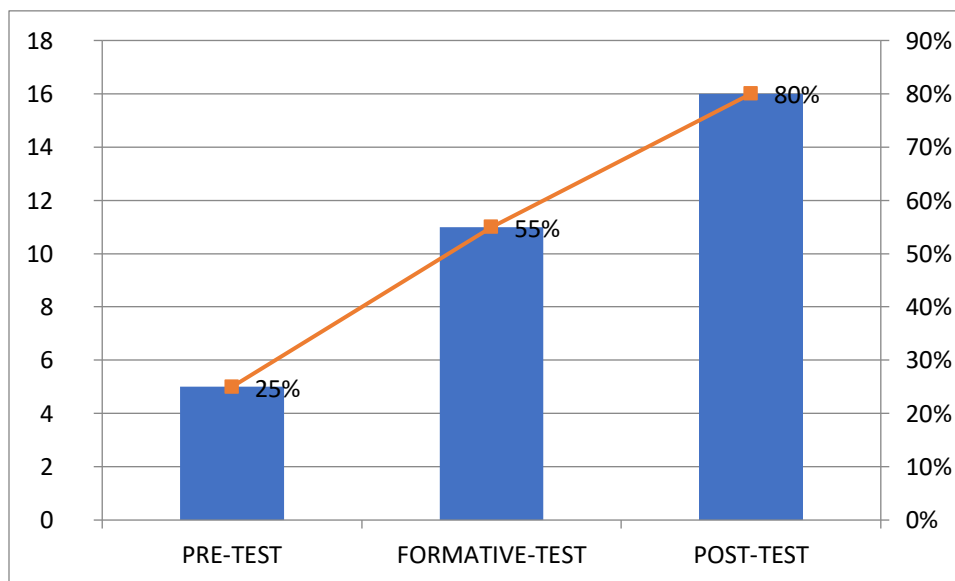
The outcomes of the instructional approach focusing on vocabulary mastery through the utilization of the Semantic Mapping Technique revealed a notable enhancement in students' vocabulary acquisition. This technique, among various pedagogical methods, proved to be highly effective in facilitating English language learning, particularly in the context of vocabulary enrichment. The empirical evidence substantiating the effectiveness of the Semantic Mapping

Technique is vividly demonstrated in Table 4.5, which presents a comprehensive overview of students' scores across the pre-test, formative-test, and post-test.

Through the implementation of the Semantic Mapping Technique, students exhibited a consistent improvement in their vocabulary mastery, as evidenced by the progression of scores from the pre-test to the post-test. The data unequivocally indicates that the mean score of students in the post-test (79) significantly exceeded their mean score in the formative-test (65) and surpassed their pre-test mean score (48). Furthermore, a thorough analysis of the post-test data reveals that the mean scores of students exceeded those of both the formative-test and pre-test, indicating a substantial improvement in vocabulary mastery. This ascent in performance is further underscored by the data presented in Table 4.4, which displays the percentage of students achieving scores above 75. It is evident that, in the formative-test, a higher percentage of students achieved this proficiency benchmark compared to the pre-test, demonstrating an overall increase in achievement across all assessments.

The tangible improvement in student participation and enthusiasm, as observed and documented through the observation sheet, field notes, and questionnaires, supports the efficacy of the Semantic Mapping Technique. These records reveal a heightened level of student engagement and enthusiasm during the teaching and learning process, especially as the technique was applied from the initial to the final cycles. In light of these compelling results, it can be confidently concluded that the Semantic Mapping Technique significantly enhances students' vocabulary mastery. The evidence corroborates the effectiveness of this technique, establishing it as a valuable resource for educators in the instruction of vocabulary, ultimately contributing to more effective language teaching practices.

CONCLUSION

Upon conducting a comprehensive examination of the gathered data, several definitive conclusions have been drawn from this research. Firstly, the application of the Semantic Mapping technique has proven to be highly effective in augmenting students' vocabulary mastery. The data unequivocally illustrates a progressive improvement in students' proficiency levels as they moved from the pre-test through the formative-test to the post-test, with each assessment revealing a noteworthy upswing in performance. Specifically, the mean scores highlight this advancement, with the pre-test yielding an average score of 48, the formative-test at 65, and the post-test at an impressive 79. Moreover, the percentage of students who met the Mastery Minimum Criteria (KKM) exhibited a consistent and upward trend, beginning at 25% in the pre-test, surging to 55% in the formative-test, and culminating at a substantial 80% in the post-test. This ascending trajectory in score percentages underscores the undeniable efficacy of the Semantic Mapping Technique in elevating students' vocabulary proficiency. Consequently, it is indisputably affirmed that the Semantic Mapping Technique effectively enhances students' vocabulary mastery.

Secondly, the qualitative analysis of data provides invaluable insights into students' perceptions and responses concerning the adoption of the Semantic Mapping Technique as a means to enrich their vocabulary. These qualitative findings reveal an overwhelmingly positive sentiment among students regarding the technique. A substantial portion of the student cohort expressed strong agreement (39%) and agreement (53%) with the notion that the Semantic Mapping Technique is both effective and suitable for enhancing their vocabulary proficiency. Furthermore, the questionnaire responses affirm that students find the Semantic Mapping Technique engaging and well-suited for improving their vocabulary acquisition. These affirmative perspectives align

harmoniously with the quantitative data, collectively affirming the positive reception and appropriateness of the Semantic Mapping Technique as a valuable tool for vocabulary improvement.

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