IMPLEMENTING SEMANTIC MAPPING TO IMPROVE VOCABULARY ACHIEVEMENT OF TENTH-GRADE STUDENTS AT MAN 2 BANDAR LAMPUNG

(Undergraduate Thesis)

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ABSTRACT

IMPLEMENTING SEMANTIC MAPPING TO IMPROVE VOCABULARY ACHIEVEMENT OF TENTH-GRADE STUDENTS AT MAN 2 BANDAR LAMPUNG

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This study investigates the effect of semantic mapping on improving vocabulary achievement among tenth-grade English as a Foreign Language (EFL) students at MAN 2 Bandar Lampung. A total of 30 students from class X-C participated in the study. Two treatment sessions were conducted in which students categorized content words (nouns, verbs, adjectives, and adverbs) in procedure texts using semantic maps. The results of a paired-sample t-test revealed a significant overall improvement in vocabulary achievement, with the mean score increasing from 42.84 in the pre-test to 63.34 in the post-test ($p < 0.05$). To compare the improvements across the four vocabulary aspects, a Two-Way ANOVA was conducted. The analysis showed significant differences in performance between the pre-test and post-test for each aspect, with nouns showing the highest gain (31%), followed by adverbs (25%), adjectives (22%), and verbs (21%). The interaction effect between the test (pre-test and post-test) and aspect (noun, verb, adjective, and adverb) was also significant, indicating that the improvement varied across the different aspects of vocabulary. These findings support the effectiveness of semantic mapping as a valuable tool for enhancing vocabulary achievement in EFL learners. However, challenges such as categorization errors and variability in students' initial vocabulary knowledge were noted. Overall, this study highlights the potential of semantic mapping in improving vocabulary acquisition among EFL students.

Keyword: semantic mapping, vocabulary improvement, content words

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By

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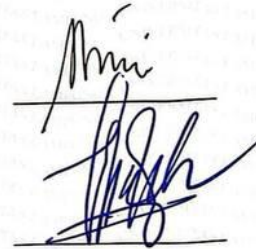
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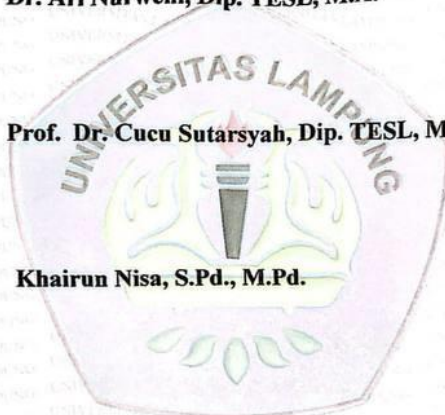
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Menyatakan bahwa skripsi ini adalah karya saya sendiri. Sepanjang pengetahuansaya, karya ini tidak berisi materi yang ditulis orang lain, kecuali bagian-bagian tertentu yang saya ambil sebagai acuan. Apabila ternyata terbukti bahwa pernyataan ini tidak benar, sepenuhnya menjadi tanggung jawab saya.

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CURRICULUM VITAE

Alisya Adilla, the first child of Anwar Yusuf and Lisa Humroh, was born on September 28th, 2002 in Bandar Lampung.

She began her education at MIN Panjang Bandar Lampung and graduated in 2014. Thereafter, she continued her studies at MTs N 1 Bandar Lampung, graduating in 2017, followed by MAN 2 Bandar Lampung, where she graduated in 2020. In the same year, she was accepted at the English Education Study Program of the Teacher Training Education Faculty of the University of Lampung. During her time at university as an English Department student, she was actively involved in student organizations, including serving as secretary of SEEDS in 2022 where she further honed her ability to develop skills in communication and organization, as well as gain valuable insight into educational administration. Her academic journey includes conducting research for her undergraduate thesis, focusing on the effectiveness of semantic mapping in improving students' vocabulary achievement.

MOTTO

"Life is like riding a bicycle. To keep your balance, you have to keep moving."

- Albert Einstein

DEDICATION

This thesis is dedicated to my family, especially my parents, whose support and encouragement have been my guiding light, and to my friends, whose belief in me made this journey enjoyable and memorable.

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Finally, the writer understands that this thesis may still have several areas that require improvement. Therefore, constructive critiques and suggestion are needed in order to improve this thesis.

Bandar Lampung, 17 October 2024
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I. INTRODUCTION

This chapter will narrow down some points regarding to the research. Those are background of the research, research question, and objective of the research, uses of the research, scope, and also definition of terms in order to provide explanation of this research.

1.1. Background

Vocabulary is a list or set of words for a particular language or a list of words that individual speaker of a language might use (Hatch and Brown, 1995). Wilkins (1972) states that without grammar a little communication is possible but without vocabulary it is impossible to communicate verbally.

According to Laufer (1997), learning vocabulary is one of the essential elements, and without vocabulary, neither comprehension nor production of language is possible. Vocabulary is a core component of language proficiency and provides much of the basis for how well learners communicate with each other (Khoii & Sharififar, 2013). Vocabulary acquisition holds immense significance as a fundamental pillar of language proficiency, as it is stated by Cameron (2001) that Vocabulary, as one of the knowledge areas in language, plays a great role for learners in acquitting a language. Based on those researchers above, it is clear that vocabulary plays such an important part in English. However, there are still some challenges in students' vocabulary acquisition.

Research by Bazo et al, (2016) stated that the issues in students' vocabulary knowledge are possibly caused by the instruction provided by the teacher, the method employed, and the students' lack of enthusiasm and interest in learning English. In line with Marcellino (2015), he claimed that many English professors

teach their students regarding terminology in a boring manner. These conditions are resulted in the continued lack of vocabulary knowledge of the students, which lead to poor English mastery in general. Moreover, according to Croll (1971), vocabulary instruction is definitely one of the most difficult tasks teachers have to achieve while teaching a language because vocabulary lessons are generally boring for the learners and it also takes time to learn.

This problem can also be seen in Indonesia, for example the research by Nurweni (1999), which stated that the students need about 3000-5000 English words to be mastered in order to excel in reading. However, the results of the research showed that on average the students only had some knowledge of 1226 English words. This is aligned with Hartini and Ardini (2024) that stated Indonesian EFL learners are still lacking in their vocabulary knowledge which can be seen from their limited vocabulary size that resulted in lower score in their English scores.

Similar problem was observed by researcher in MAN 2 Bandar Lampung where students are limited to learn vocabulary by memorization, which refers to the learning of material by repeating it over and over again until it is memorized (Richards, Platt, and Platt, 1992). Through this memorization method, students are involved in learning vocabulary without developing a deep understanding of them because students focus more on the meaning or definition of words without providing context. Therefore, despite the size of students' vocabulary knowledge, it is important to note the students' ability in using the vocabulary itself effectively in different situation or contextually.

Numerous studies have explored various approaches, methods, and techniques to vocabulary teaching in order to mitigate and aid students' difficulties in acquiring vocabulary. Some researchers suggest that semi-contextualized method, such as word lists, isolated word drills, and semantic mapping can be effective for initial vocabulary acquisition. Udaya (2022) examined the influence of semantic maps and wordlists to ESL vocabulary recall and retention which shows that both techniques positively affect vocabulary recall and retention, with semantic

mapping yields better results on recall. Similar to Udaya (2022), Al-Khasawneh & AlHawamdeh (2023) further add that semantic mapping technique helps students to revive long-term memory so that they can use the words they learned when needed. Based on the reseach, the researchers found that the use of semantic mapping on students significantly affect students' scores in vocabulary tests. Therefore, the integration of semantic mapping in EFL classroom is recommended by this study.

Based on the insights presented above regarding the crucial role of vocabulary knowledge in English language learning and the diverse methods used for teaching it, the researcher is interested to apply Semantic Mapping technique in increasing students' English vocabulary achievement.

1.2. Research Question

Based on the previous statements in the background of the study, the researcher proposed the following the research question:

1. Is there any significant difference of students' vocabulary achievement after they are taught using Semantic Mapping compared to that before they are taught using Semantic Mapping?

1.3. Objective

Considering the previous research question, the purpose of this research is to find out whether there is any significant difference of the students' vocabulary achievement after they are taught using Semantic Mapping compared to that before they are taught using Semantic Mapping.

1.4. Uses

There are some uses that can be summarized from this research:

1. Theoretically, this research can support and strengthen previous research that prove whether Semantic Mapping is effective in improving students' English vocabulary knowledge.

2. Practically, this research can be useful for English teachers by providing more options in helping students to improve their English vocabulary knowledge by using Semantic Mapping.

1.5. Scope

Based on the background of the study, the researcher limited this research to the effort of implementing Semantic Mapping technique in teaching vocabulary. The sample of this research was tenth-grade students at MAN 2 Bandar Lampung. One class, with the total of 30 students, was chosen as the sample for this research.

The material of the teaching was adjusted based on the school teaching module, which includes the lesson about understanding and responding procedure texts with a greater emphasis on content words as one of vocabulary aspects. Those were the range of this research; moreover, some terms regarding this research are discussed below.

1.6. Definition of Terms

There are some key terms that mostly appear in this study, as follow:

1. Vocabulary
   Vocabulary is the set of words that students are expected to understand, recognize, and effectively use in their language learning process. Specifically, this research focuses on content words, including nouns, verbs, adjectives, and adverbs, within the framework of procedure texts.
2. Vocabulary Achievement
   Vocabulary achievement in this study refers to the degree of success that tenth-grade students demonstrate in acquiring vocabulary related to procedure texts after the implementation of semantic mapping. It is measured through pre-test and post-test comparisons that assess the students' knowledge of content words (nouns, verbs, adjectives, and adverbs) relevant to procedure texts.

3. Semantic Mapping

   Semantic mapping is a visual technique used to display the relationships between words and concepts. It involves creating maps or webs of words to visually represent the meaning-based connections between a central word and a set of related words or concepts.

The discussion of the terms closes the first chapter in which it elaborates the background of the research, research question, objective of the research, uses of the research, scope, and definition of terms. Theories and prior research that support this study are discussed in the following chapter.

II. LITERATURE REVIEW

This chapter discusses some points related to literature review of this research. Those are concept of vocabulary, type of vocabulary, technique of teaching vocabulary, strategy in teaching vocabulary, concept of reading, concept of Semantic Mapping, Semantic Mapping in teaching vocabulary, advantages and disadvantages, theoretical assumption, and hypothesis.

2.1. Concept of Vocabulary

In general, the term "vocabulary" refers to the set of words that are used or understood by a person, a group, or a language. Vocabulary is an essential component of communication, as it allows people to express their thoughts, ideas, emotions, and information. According to Hatch and Brown (1995), vocabulary is a list or set of words for a particular language or a list of words that individual speaker of a language might use. Similar to Hatch and Brown, Lehr et. al, (2005) state that vocabulary is the set of words that an individual knows and uses in a particular language, and it is a fundamental aspect of language acquisition and literacy development. Vocabulary is a set of lexemes, including single words, compound words and idioms. It is one of the important components that have to be mastered by learners. Align with that, Murcia (2001) mentioned that vocabulary is central to language acquisition, whether the language is first, second, or foreign.

Based on the definitions above it can be concluded that vocabulary refers to the set of words that an individual knows and uses in a particular language. Vocabulary is a fundamental aspect of language acquisition and literacy development, playing a central role in expressing thoughts, ideas, emotions, and

information. Vocabulary is crucial for mastering any language, whether it is a first, second, or foreign language.

2.1.1. Aspects of Vocabulary

Paul Nation (2001) underscores three fundamental criteria for truly knowing a word: form, meaning, and use. These aspects are essential for a deep and comprehensive understanding of vocabulary, transcending mere memorization.

1. Form

The form of a word encompasses its physical characteristics, including letters, sounds, and spelling. Form refers to the outward appearance of a word and its representation in both written and spoken language. Recognizing the form of a word involves understanding its pronunciation, spelling, and any variations such as inflections or derivations. For example, knowing that "run" changes to "ran" in the past tense demonstrates an awareness of its form. This aspect also includes the ability to identify a word within different contexts and recognize its phonetic and orthographic properties.

2. Meaning

The meaning represents the core of vocabulary knowledge. It is not merely about memorizing definitions; it involves grasping the nuances, connotations, and subtleties of a word's significance. Truly knowing a word means understanding its primary definition, synonyms, and context-specific meanings. For instance, the word "run" can signify physical movement, a competitive race, or the operation of a machine, depending on the context. A deep understanding of a word's meaning also includes awareness of its emotional and cultural connotations, which can vary significantly in different contexts.

3. Use

The use of a word refers to the ability to apply it correctly in various contexts. Words are not static entities; they are dynamic tools for communication. Knowing how to use a word involves understanding where, when, and how to employ it effectively. This includes considering the context in which the word is

appropriate, such as whether "run" is suitable for a formal essay, a casual conversation, a scientific article, or a poem. Effective use of vocabulary ensures that communication is precise and appropriate for the given situation.

In summary, true word knowledge transcends mere memorization and entails a multifaceted understanding of form, meaning, and use. Recognizing the form of a word, comprehending its meaning, and knowing how to use it purposefully are skills that enhance our language abilities and empower us to express ourselves effectively. Therefore, the researcher aims to focus this study on the meaning aspect, which plays a significant role in vocabulary comprehension. Moreover, the emphasis on the meaning aspect aligns with the use of semantic mapping, a technique employed by the researcher to elucidate the relationships between words and their meanings.

2.2. Types of Vocabulary

According to Celce-Murcia and Olshtain (2000), vocabulary can be divided into two main categories: function words and content words.

1. Function Words

Function words are part of closed word classes, meaning they have a fixed set of items and rarely change by adding new words or dropping old ones. These include pronouns, auxiliary verbs, prepositions, and determiners. Their classification is based on their grammatical role, structural form, and identifiable linguistic features.

2. Content Words

Content words are part of open word classes, which readily accept new words and discard outdated ones. Content words can be further divided into four categories:

- Nouns: Represent people, places, things, or ideas.
- Verbs: Indicate actions or states of being.
- Adjectives: Modify or describe nouns or pronouns.
- Adverbs: Modify verbs, adjectives, or other adverbs.

Understanding these two fundamental categories of vocabulary is crucial for language acquisition and usage, particularly in teaching foreign language vocabulary. A solid vocabulary foundation is essential for effective communication and development of language skills, including listening, reading, speaking, and writing. Hence, teaching vocabulary is a priority in language education to ensure students build a robust vocabulary repertoire and use words correctly.

Additionally, Nurweni and Komariyah (2023) emphasized the importance of vocabulary distribution in English course books. The study found that a balanced and contextually relevant vocabulary repertoire is crucial for effective language learning. The study supports the notion that a strong vocabulary foundation, encompassing both function and content words, is essential for developing listening, reading, speaking, and writing skills. This aligns with the understanding that while content words like nouns, verbs, adjectives, and adverbs provide the core of meaningful communication, function words are equally important for constructing clear and coherent sentences.

This research primarily focuses on content words due to its pivotal role in language acquisition and usag. Content words, such as nouns, verbs, adjectives, and adverbs, form the core of meaningful communication. They provide specific information and are crucial for comprehension and expression. By emphasizing content words, the research aims to explore the essential elements of language that help students convey ideas, describe experiences, and engage in effective communication. A strong foundation in content words is also vital for developing listening, reading, speaking, and writing skills, making it a logical focus for language education and research.

2.3. Technique of Teaching Vocabulary

Teaching vocabulary is truly essential in language learning. The teacher should be able to use appropriate way for teaching vocabulary so that the students can learn vocabulary effectively. According to Harmer (1993) there are some techniques for teaching vocabulary as follows:

a. Using Realia

Realia can be defined as the real object that can be seen by the students. To convey the meaning of a word, the teacher can directly show the real thing to the students so that the students can easily understand the meaning of the word. For example, if the teacher wants to convey the meaning of the word "pen", it can be easily conveyed by showing the pen to the students. This method is really effective to make the students understand well the meaning of a word. However, this technique has limitation, because the teacher cannot show all the things in real object. It is limited just for certain single thing or a word that can be easily taken to the classroom or easy to be found by the students.

b. Showing Pictures

When the teacher wants to teach vocabulary by showing pictures, the teacher can use some media such as wall pictures, blackboard drawing, charts, flashcards, table or statistic, etc. Those Medias can be used as visual representation of the real thing that cannot be shown directly by the teacher. The using of this technique, for example can be seen when the teacher wants to teach about profession, the teacher can use flashcards which show the kinds of professions such as the picture of doctor, police, teacher etc.

c. Mime, Action and Gesture

Sometimes it is almost impossible to explain about the meaning of a word by using realia or showing pictures. In this case, the teacher can use mime, action and gesture to easily explain the meaning of a word to the students. Commonly, a teacher uses this technique when a teacher needs to convey the meaning of verb, such as walk, run, jump, cry etc.

d. Contrast

In this technique, the teacher can explain the meaning of a word by contrasting that word with its opposite. For example, the word "fast" is contrasting with the word "slow".

e. Enumeration

This technique can be used by the teacher when the teacher finds difficulties in explaining a certain word. For example, when the teacher wants to explain the meaning of the word "transportation", the teacher can enumerate a number of transportations such as bus, motorcycle, car, etc.

f. Explanation

When the teacher wants to teach a new word to the students, the teacher can use this technique by giving explanation about certain word. The teacher can use one or more sentences to explain a word. For example, when the teacher wants to introduce the word "scissors", the teacher can explain by using sentence like a tool for cutting paper, hair, cloth, etc.

g. Translation

Sometimes, when a word is really difficult to be understood by the students, the teacher can translate that word into the students' language or students' mother tongue.

In conclusion, teaching vocabulary is a complex but crucial aspect of language learning that requires careful planning and implementation. Teachers should understand the concept of vocabulary and its types, recognize the importance and goals of teaching vocabulary, and apply effective methods and strategies of teaching vocabulary. By doing so, teachers can help learners to expand their vocabulary knowledge and skills, and ultimately improve their language proficiency and performance.

2.4. Strategy in Teaching Vocabulary

Vocabulary is an essential component of language especially in learning stage, as it enables learners to communicate effectively and accurately in various contexts. However, teaching vocabulary is not a simple task, as it involves many challenges and considerations. In this research, researcher will discuss some vocabulary teaching strategies that can help teachers to overcome these challenges and achieve their goals.

According to Prodigy Education, (2022), one of the main strategies for teaching vocabulary is to select appropriate words to teach based on their frequency, relevance, difficulty, and usefulness. Frequency refers to how often a word occurs in a language, and it is related to the likelihood of encountering or needing that word. Furthermore, as Nurweni and Komariyah (2023) suggest, the vocabulary selected for classroom instruction should aid learners in understanding English texts they read and listen to. If a sentence contains many unfamiliar words, it becomes more difficult for learners to comprehend the text or infer the meanings of new words. Relevance refers to how well a word matches the learners' needs, interests, and objectives. Difficulty refers to how hard a word is to learn and remember, and it is influenced by factors such as length, spelling, pronunciation, similarity to other words, etc. Usefulness refers to how versatile a word is in different situations and domains. Teachers should prioritize words that are high-frequency, high-relevance, low-difficulty, and high-usefulness, as they are more likely to benefit the learners.

Another strategy for teaching vocabulary is to combine explicit and implicit instruction, as well as input and output activities. Explicit instruction refers to teaching words directly and intentionally, such as by explaining their meanings, forms, and usage. Implicit instruction refers to teaching words indirectly and incidentally, such as by exposing learners to rich and authentic texts. Input activities refer to providing learners with opportunities to encounter and comprehend words in context, such as by listening to or reading texts that contain target words. Output activities refer to providing learners with opportunities to produce and practice words in context, such as by speaking or writing texts that use target words. Teachers should balance these elements in their vocabulary instruction, as they complement each other and enhance the learning process (Lyon & Posey, 2023). Moreover, according Hatch and Brown (1995) there are five essential steps in vocabulary learning:

a. Encountering New Words

The first essential step in vocabulary learning is encountering new words. Thus, the students need to have sources to find new words. There are many sources to

find new words such as books, television, radio, newspaper and magazines. The students' strategies here included "learning new words by reading books," "listening to TV and radio," and reading newspaper and magazines" (Payne in Hatch and Brown, 1995:373). Therefore, reading book is not the only way to encounter new words. The students can find new words by watching television, reading newspaper or magazines and also listening to the radio.

b. Getting the Word Form

Getting the word forms here means getting a clear image, either visual or auditory or both of the form of vocabulary item. The importance of having clear image of the "form" of a word becomes apparent when the students think about what happens when they try to retrieve words. The importance of getting the form of the words also appears when learners are asked to give definition for words (Hatch and Brown, 1995:378).

c. Getting the Word Meaning

The third essential step in vocabulary learning is getting the word meaning. There are several ways to get the meaning of words. The common way of getting the word meaning is by using dictionary. Another way of getting definition is by having a bilingual friend or teacher explain. The popular way for learner to get the meaning of words is through context. Learners guess the meaning of words from the situation, discourse, and/or context in which they are used, and from the structure of the words themselves. (Hatch and Brown, 1995:384).

d. Consolidating Word Form and Meaning in Memory

In this step, the learners need to consolidate the word form and meaning in their memory. To strengthen the form-meaning connection, the teacher can use many kinds of vocabulary learning drills such as flashcards, matching exercises, crossword puzzles, etc.

e. Using the Words

The last essential step in vocabulary learning is using the words. By using the words, the students will have chance to memorize the word and its meaning deeply on their mind after they learn it. (Hatch and Brown, 1995:390).

In conclusion, effective vocabulary teaching involves selecting words based on frequency, relevance, difficulty, and usefulness, while balancing explicit and implicit instruction, as well as input and output activities. Hatch and Brown's five steps highlight the importance of varied strategies for vocabulary acquisition.

2.5. Concept of Reading

Reading is a complex and dynamic process of understanding written text. According to Nunan (2003), reading is a fluent process where readers combine information from the text with their background knowledge to construct meaning. This process engages students in an active effort to decode and comprehend the text, thereby facilitating communication with the ideas presented. Harrison (2003) further emphasizes that reading extends beyond merely increasing life skills and knowledge; it also allows readers to access a deeper understanding and gain more information about various subjects. Hasibuan and Fauzan (2007) assert that students may read to acquire new information or to verify existing knowledge, highlighting the multifaceted purposes of reading.

Harmer (2007) argues that reading is instrumental for language acquisition. It has a positive effect on students' vocabulary knowledge, spelling, and writing abilities. Reading, therefore, cannot be isolated from comprehension. Neufeld (2005) defines comprehension as the process of constructing a supportable understanding of a text. He identifies two critical features of comprehension: active engagement with the text and the use of appropriate background knowledge to interpret it. Comprehension, synonymous with understanding, involves a deeper cognitive process than mere recognition of words.

Fielding and Pearson (1994) describe comprehension as a complex process involving knowledge, experience, thinking, and teaching. They argue that

comprehension inherently involves inferential and evaluative thinking, not just the literal reproduction of the author's words. This implies that readers need to grasp the underlying meaning and intention behind the writer's ideas. Freire (1983) further elaborates that understanding achieved through critical reading involves perceiving the relationship between the text and its context and it will be explained in sub-bab below.

Reading is not just a passive activity but an interactive and critical thinking process that requires readers to engage deeply with the text. Through comprehension, readers can construct their understanding of the meaning embedded in the text. This process is crucial for effective reading, as it enables readers to not only decode words but also to interpret and integrate the information with their existing knowledge. Thus, reading comprehension is an essential component of the reading process, facilitating a deeper connection with the text and enhancing overall literacy and cognitive skills.

2.5.1. Reading Comprehension

According to Nuttall (1982), there are five key aspects of reading comprehension: identifying the main idea, finding specific information, determining references, making inferences, and understanding vocabulary.

1. Identifying the Main Idea

Identifying the main idea is a crucial comprehension skill. Suparman (2011) also defines the main idea as the central point of a paragraph, articulated in the topic sentence and elaborated upon by supporting sentences. Thus, identifying the main idea involves discerning the core concept that the author develops throughout the paragraph.

2. Finding Specific Information

Specific information supports the topic sentence through definitions, examples, facts, incidents, comparisons, analogies, cause and effect relationships, statistics, and quotations. Readers should focus on finding specific information within a text, as it is essential for locating precise details relevant to their reading

objectives. For instance, when a question pertains to a particular year, place, or time, readers should selectively read the sentences that pertain to that question to find the specific information.

3. Determining References

References in a text are significant citations or remarks that relate to specific information elsewhere in the text. Understanding these references is crucial for comprehending the interconnections within the text.

4. Making Inferences

Inference involves making assumptions or drawing conclusions that are logically based on the given facts or circumstances. This skill requires readers to use contextual clues to form reasonable guesses or opinions about the information presented.

5. Understanding Vocabulary

Vocabulary encompasses all the words used in a particular language or subject. Harmer (2004) also emphasizes that the ability to deduce the meaning of vocabulary items from context is a vital aspect of successful reading. Vocabulary is fundamental for anyone seeking to comprehend or produce text. Without understanding the meanings of words, readers cannot fully grasp the information conveyed in the text.

According to Nuttall, understanding the meaning of vocabulary is crucial in reading comprehension because it forms the foundation for grasping the information and ideas presented in a text. Without a solid understanding of vocabulary, readers cannot fully comprehend the nuances and details conveyed by the author. This understanding allows readers to decode the text effectively, facilitating a clearer and more accurate interpretation of the content. The meaning of vocabulary in context refers to the ability to determine the meaning of a word based on the surrounding words and sentences. This skill is essential because words often have multiple meanings, and their specific meaning can only be discerned by considering the context in which they are used. Contextual

understanding helps readers infer meanings, thereby enhancing their overall comprehension of the text.

The researcher will focus on understanding the meaning of vocabulary in context because it aligns with the concept of semantic mapping. Semantic mapping is a strategy that visually represents the relationships between words and concepts within a text. By focusing on contextual vocabulary understanding, researcher can effectively utilize semantic mapping to connect words with their meanings and relationships, thereby enhancing comprehension and retention of the material.

2.6. Concept of Semantic Mapping

Semantic mapping is a visual strategy that has gained significant traction in vocabulary instruction. Imagine a classroom where students are not just memorizing lists of words but are actively engaging with them, creating webs of interconnected terms that illuminate the relationships between concepts. This is the essence of semantic mapping. By placing a central word or phrase at the heart of a map and branching out to related words and ideas, learners can see how vocabulary fits together in a meaningful way.

Experts in language education have long championed the benefits of semantic mapping. Heimlich and Pittelman (1986) describe it as a technique that taps into students' prior knowledge, helping them draw connections between what they already know and new vocabulary they are learning. Joan Sedita (2020) further supports this sentiment, noting that semantic mapping not only aids in the acquisition of new words but also enhances comprehension by linking known and unknown terms. Additionally, Marzano (2004) emphasizes that semantic mapping helps students organize and categorize information, which is crucial for long-term retention and understanding. These endorsements from seasoned educators underscore the value of semantic mapping as a technique that goes beyond rote memorization to foster deeper understanding.

The effectiveness of semantic mapping lies in its key characteristics. At its core, a semantic map consists of a central concept surrounded by strands of related ideas,

each supported by additional details and inferences. This structured technique allows students to categorize and organize vocabulary visually, making it easier to grasp and remember. The process of creating these maps engages students in active learning, encouraging them to think critically about how words and concepts are related.

In practice, semantic mapping can be a versatile addition to any vocabulary instruction technique. Teachers might use it to introduce new vocabulary, reinforce existing knowledge, or help students make connections between different concepts. Whether conducted as a whole-class activity, in small groups, or individually, semantic mapping can be adapted to fit various teaching contexts. The flexibility of creating maps on paper or digitally further enhances its applicability, making it a dynamic technique for modern classrooms.

Several aspects of semantic mapping contribute to its success in vocabulary instruction. It fosters collaboration and engagement among students as they work together to brainstorm and categorize words. This technique also supports differentiated instruction, catering to the diverse needs of learners, including those with learning disabilities. Moreover, semantic mapping promotes critical thinking and problem-solving skills, as students analyze and organize information in meaningful ways. These qualities make semantic mapping a powerful technique for enhancing vocabulary knowledge and overall language proficiency.

In summary, semantic mapping is more than just a teaching technique; it's a way to transform vocabulary learning into an interactive, engaging, and deeply educational experience. By visually organizing words and their relationships, it helps students build a solid and interconnected vocabulary, paving the way for greater language mastery.

2.6.1. Advantages and Disadvantages of Semantic Mapping

Semantic mapping offers several advantages in vocabulary instruction. Firstly, it enhances memory retention by visually organizing words and their relationships, making it easier for learners to recall vocabulary. This technique also promotes

deeper cognitive processing, as it encourages learners to think about the connections between words and concepts, leading to a better understanding of word meanings and usage. Additionally, semantic mapping can increase engagement and motivation, as it involves interactive and creative activities that make learning more enjoyable. By providing a clear visual representation of vocabulary, semantic mapping helps learners see the bigger picture and understand how words fit into different contexts, which is particularly beneficial for language acquisition and literacy development.

Despite its benefits, semantic mapping also has some disadvantages. One major drawback is that it can be time-consuming to create and implement, especially for teachers who need to prepare detailed maps for various vocabulary sets. This technique may also be less effective for learners who struggle with visual learning or who prefer more traditional, text-based approaches. Additionally, semantic mapping requires a certain level of prior knowledge and cognitive ability, which might be challenging for beginners or younger learners who are still developing their language skills. Finally, without proper guidance and support, learners might find it difficult to create accurate and meaningful maps, potentially leading to confusion and frustration.

These advantages and disadvantages highlight the importance of using semantic mapping as part of a balanced and varied technique to vocabulary instruction, designed to the needs and preferences of individual learners.

2.7. Related Research Study

Several studies have demonstrated the effectiveness of semantic mapping in teaching vocabulary. Nilforoushan (2012) found that students taught with semantic mapping significantly outperformed those receiving traditional instruction in vocabulary achievement tests. Additionally, these students showed improved awareness of deep vocabulary dimensions, highlighting the method's ability to enhance both general vocabulary knowledge and a deeper understanding of word meanings. Similar to that, Udaya (2021) demonstrated that semantic mapping significantly boosts vocabulary knowledge by helping students visualize

and organize words, which improves retention and understanding. The comparison between students using semantic mapping and those following traditional methods, like rote memorization, showed that semantic mapping led to significantly better vocabulary acquisition and retention. The study underscored the advantages of semantic mapping in providing a more engaging and effective learning experience.

Furthermore, Al-Khazaali (2020) reported that semantic mapping is effective in improving vocabulary acquisition among Iraqi students compared to conventional vocabulary instruction methods. Semantic mapping provided a structured visual approach that facilitated better contextual understanding and increased student motivation and engagement.

Additionally, Darussalam (2022) highlighted the positive impact of semantic mapping on vocabulary learning within a vocational high school English club. The method enhanced vocabulary acquisition, helped students understand word relationships, and was particularly useful for practical, vocational contexts.

Al-Khasawneh and Al-Hawamdeh (2023) confirmed that semantic mapping improves vocabulary learning by aiding students in comprehending word relationships, enhancing retention and recall, and increasing engagement. The strategy was found to be versatile and effective across different learner groups.

In summary, the research collectively supports that semantic mapping is a highly effective tool for improving vocabulary achievements. It enhances vocabulary acquisition, deepens understanding of word relationships, increases retention and recall, and boosts student engagement, making it a valuable strategy in diverse educational settings.

2.8. Procedure of Semantic Mapping in Teaching Vocabulary

The use of semantic mapping in the classroom can be divided into five phases in general. These are "introducing the topic, brainstorming, categorization, personalizing the map, and post-assessment synthesis" (adapted from Zaid, 1995).

1. Introducing the topic: The teacher introduces the topic by drawing a large oval on the whiteboard and writes the topic inside of it. This topic is about the procedure text students will read. Through this, the students can guess the vocabulary related to the topic.

2. Brainstorming: The teacher wants the students to think about vocabulary which are interrelated to the topic. This fact enables the students to use their background knowledge and experiences. Brainstorming is an application of the schema theory, which is necessary for connecting known and unknown concepts. Thus, prior knowledge can be used as a stepping block to new knowledge. The brainstorming part of semantic mapping gives an opportunity to observe each of students' schemata and prior knowledge. The vocabularies offered by students are listed to the one side of the blackboard. In this phase all responses are accepted as long as they relate to the topic

3. Categorization: The teacher supports the students to make connections among the vocabulary they offered. "Category clusters" (Antonacci, 1991) are formed by the students and the teacher together according to students' ideas. Then teacher and students decide suitable headings or labels for each of the clusters or categories of words. When this clustering finishes, the teacher asks the students to make their own copies. In this phase, according to Zaid (1995) the students grow experience in practicing some valuable cognitive skills, particularly categorizing and exemplifying and they also learn comparing and contrasting, cause and effect relationships and making inference. This part also can be termed as pre-assignment.

4. Personalizing the map: After each student makes his/her own copy, a material such as a reading passage which is about the key concepts of the map, is given. This reading passage consists of more related concepts than the students have listed. As they read, students are asked to focus on highlighting the content words, which are noun, verb, adjective, adverb, they find in the passage. In this step, new information is integrated with prior knowledge.

5. Post-assignment synthesis (group discussion): The last part of this procedure is used to record the students' suggestion from their personal maps on the pre-assignment. After they read the passage, students are asked to discuss the vocabularies they add in their own map with their friends.

2.9. Theoretical Assumption

Vocabulary acquisition is a crucial aspect of language learning, as it directly affects learners' ability to communicate effectively. Many students face difficulties in expanding their vocabulary due to challenges such as insufficient exposure to new words, difficulties in understanding words in context, and ineffective memorization techniques. Traditional vocabulary instruction methods, such as rote memorization or isolated word lists, often fall short in addressing these issues, resulting in slow progress and frustration.

Semantic mapping is introduced as a practical technique to enhance vocabulary learning by addressing these challenges. By visually representing the relationships between words and concepts, semantic mapping helps learners better understand and remember new vocabulary. This method organizes vocabulary in a way that clarifies connections and contexts, making it easier for students to retain and use new words effectively.

The theoretical assumption of this research is that semantic mapping will lead to significant improvements in students' vocabulary achievement. The use of semantic maps is expected to facilitate a clearer understanding of word meanings and their relationships, thereby enhancing retention and application of new vocabulary. As students engage with semantic mapping, they are anticipated to achieve better vocabulary outcomes compared to those who use traditional learning methods.

In summary, this research hypothesizes that semantic mapping will significantly improve students' vocabulary achievement, offering a more effective alternative to

conventional teaching methods and addressing the common difficulties associated with vocabulary acquisition.

2.10. Hypothesis

Based on study above, the researcher proposes hypothesis for this research as follows:

1. Hypothesis (H_1): There is a significant difference of students' vocabulary achievement after they are taught by using Semantic Mapping compared to that before they are taught using Semantic Mapping.

This chapter already discussed about literature review of the research, including the explanation about the concept of vocabulary, teaching vocabulary, technique of teaching vocabulary, strategy of teaching vocabulary, concept of reading, concept of semantic sapping, semantic mapping in teaching vocabulary, advantages and disadvantages, theoretical assumption, and hypothesis. The next chapter will deal with methods that were used in this research.

III. METHODS

This chapter discusses about the research design, research variables, population and sample, research instrument, data collection technique, procedure of the research, validity and reliability, data analysis, and hypothesis testing of the research.

3.1. Research Design

This research is a quantitative study aimed at establishing the improvement of students' vocabulary achievement after using Semantic Mapping technique. The research design is one group pretest-posttest design. The pre-test is used to assess students' vocabulary achievement before they are exposed to the teaching technique, while the post-test measures the level of improvement in their vocabulary skills after the teaching technique is implemented. This research is designed as following:

$$\boxed{\textbf{T1 X T2}}$$

Where:

T1 = Pre-Test

X = Treatment

T2 = Post-Test

(Setiyadi, 2018)

3.2. Research Variables

1. Dependent Variable

A dependent variable is the outcome or effect of the independent variable that is measured in the research. The dependent variable in this research is the students' English vocabulary (Y).

2. Independent Variable

An Independent variable is the factor that the researcher manipulated or controls to test its effect on the dependent variable. The independent variable in this research is Semantic Mapping (X).

3.3. Population and Sample of the Research

The population of this research is tenth-grade students at MAN 2 Bandar Lampung. As for the sample, class X-C is selected due to certain considerations. The class is consisted of 30 students. The decision to select a specific class as the sample stemmed from various factors. One of these factors is the practicality of managing a single class for the research purposes. Additionally, considerations such as class availability and scheduling played a role in the decision-making process.

In addition to the main sample, a try out test was conducted with 15 students from outside the selected class. These students were not included in the sample but participated to assess the reliability and validity of the research instruments before applying them to the main study.

3.4. Research Instrument

In order to comprehensively assess and accurately quantify the improvement of students' vocabulary achievement after students are taught using semantic mapping, it is essential to utilize a thoughtfully curated set of measurement instruments. The researcher administered a vocabulary test to assess the students' vocabulary achievement. The vocabulary test, employing multiple-choice questions, served to gauge the students' proficiency in vocabulary. The test comprised 80 items for the tryout and was narrowed down into 40 items for pre-test and post-test, each presenting multiple-choice options, with only one correct answer. The specification tested was about noun, verb, adverb, and adjective in procedure text.

3.5. Data Collecting Technique

Data for this research is collected from students' vocabulary achievement tests before and after implementing semantic mapping into learning. The vocabulary test is used to find the improvement on students' vocabulary achievement after they are taught using semantic mapping. Through statistical testing procedures, a paired samples t-test is used to compare two correlated sample means. Data from this research is obtained from:

1. Try-out Test

The first step in this research involved designing and administering a try-out test. This test is vital to ensure that the items used to assess students' vocabulary proficiency were clear, unbiased, and aligned with the content of the procedures text that was taught by using semantic mapping that incorporated into the study. By administering the try-out test to a small group of students not involved in the main research group, researcher evaluated the reliability and validity of the test items and made necessary adjustments to enhance its effectiveness.

2. Pre-test

Following the try-out test, a pre-test was conducted to establish a baseline for the participating students' initial vocabulary knowledge. This pre-test includes vocabulary items relevant to the content of the procedure text that was used as a teaching material. The pre-test results serve as a point of reference to gauge the students' vocabulary growth.

3. Intervention with Semantic Mapping

The intervention phase of the research involved the utilization of semantic mapping as a teaching technique for vocabulary improvement. Throughout this period, researcher documented the semantic mapping, and the duration of the intervention. This structured approach ensures that the research was conducted under controlled conditions.

4. Post-test

After the intervention period, a post-test, identical to the pre-test, was administered to all students in the research group. This post-test aims to assess the students' vocabulary achievement following their exposure to the semantic mapping. The comparison of pre-test and post-test scores provide insights into the effectiveness of using semantic mapping in enhancing students' vocabulary.

In conclusion, this research seeks to determine whether the implementation of semantic mapping as a teaching technique can effectively improve students' vocabulary achievement. The combined use of try-out, pre-test, and post-test measures ensured a robust evaluation of the impact. The findings from this study contribute to our understanding of innovative teaching strategy and may provide valuable recommendations for language educators and researchers. Ultimately, the goal is to enhance the vocabulary acquisition of students in an engaging and effective manner.

3.6. Procedure of the Research

The research is conducted in a systematic manner to ensure the validity and reliability of the results. Each step in the research procedure is carefully designed to meet the objective of the study and address the research question. The following procedures are used to conduct the research:

1. Defining Research Design and Objectives

At the outset of the research, the researcher established the research design and defined the objectives. The study was structured as quasi-experimental research. Clear research objective, hypothesis, and research question are formulated to guide the study. By employing this design, the researcher aimed to establish a cause-and-effect relationship, thus contributing valuable insights into the effectiveness of implementing Semantic Mapping towards students' vocabulary achievement.

2. Selecting Instrument Material

In this phase, the researcher carefully chose the tools necessary to gather data for

the research. The selected instruments for this study were vocabulary tests. The vocabulary tests provide insights into students' vocabulary achievement. The decisions to employ these instruments were rooted in their ability to effectively capture and measure the variables under investigation – semantic mapping and their vocabulary achievement.

3. Determining the Sample of the Research

The researcher proceeded to identify and determine the specific group of participants from which data was collected. This selection process involved making decisions about demographic characteristics, such as age groups or grade levels that best aligned with the research objectives. The selection process aimed to choose a class that is representative of the population. The class was selected randomly to minimize selection bias, ensuring that the chosen class mirrors the characteristics of other tenth-grade classes in the population. However, practical constraints such as accessibility and administrative permissions may necessitate using convenience sampling, selecting a readily available and cooperative class.

4. Administering Try-Out Test

To explore the efficacy of using Semantic Mapping in vocabulary improvement was started with the design and administration of a try-out test. This test was serving as a critical precursor, carefully examining the clarity, reliability, and effectiveness of the vocabulary test items. A select group of students, distinct from the main research group, was participating in this try-out test. This method provided a unique opportunity to assess the reliability and validity of the test items and made necessary modifications to enhance its precision.

5. Administering Pre-Test

The beginning of the research encompassed the administration of the pre-test to all participating students within the research group. The pre-test aimed to gauge the students' initial vocabulary proficiency. This pre-test was identical to the post-test, forming a clear basis for evaluating vocabulary development.

6. Conducting the Treatments

The main treatment phase begun as the researcher initiated the implementation of semantic mapping as a teaching technique for improving vocabulary. Throughout this phase, detailed records were maintained; including details of the material used the technique of instruction employed, and the duration of the treatment. The structured approach assured the research was conducted under controlled conditions, fostering a comprehensive understanding of the teaching technique's effectiveness.

7. Administering Post-Test

Following the comprehensive implementation of the treatment, the post-test became the next focal point. Similar in structure to the pre-test, the post-test entailed the administration of a multiple-choice examination. However, the questions were thoughtfully designed to differ from those in the pre-test. This contrast enabled researchers to discern the extent to which students' vocabulary proficiency had advanced after being exposed to the semantic mapping.

8. Analyzing the Data

Once the vocabulary tests were collected, the researcher submitted the data into a systematic analysis process. Descriptive statistics, including measures like averages and standard deviations were computed to gain insights into the students' improvement of vocabulary achievement after students were taught using semantic mapping. The analysis of these scores was executed using the Statistical Package for the Social Sciences (SPSS), which facilitated a thorough statistical evaluation. This comprehensive analysis of data will not only provide insights into the impact of the teaching technique but also provided valuable insights into students' perspectives and reactions to the innovative approach.

9. Drawing Conclusion

After completing the data analysis, the researcher moved on to drawing conclusions based on the statistical findings. By interpreting the descriptive statistics and identifying trends or significant changes in vocabulary achievement, the researcher could determine the effectiveness of the semantic mapping

technique. This step involved assessing whether the students showed measurable improvement and if the teaching method had a positive impact on their vocabulary learning. These findings were then summarized to guide future teaching strategies and potential applications of semantic mapping in vocabulary instruction.

3.7. Validity and Reliability

In the context of this research, a comprehensive assessment was conducted to determine the validity and reliability of the vocabulary test, which were employed as primary instruments for gathering quantitative data.

3.7.1. Validity of Vocabulary Test

a. Content Validity

The researcher measured the validity of the vocabulary test by aligning it with the syllabus and Merdeka curriculum. If the content table corresponds to the material intended for assessment, content validity is present. The content validity of the skills test in this study was assessed using the expert judgment method. This procedure included consultations with the research supervisor and a graduate from English Department who graduated as "Best Graduate" to evaluate the strength and relevance of each item within the instrument. By integrating input from the experts, this study ensured the appropriateness of the comprehension test for data collection in the research context (See appendix 16).

Table 3.1 Specification Used to Judge Content Validity

No.	Types of Content Vocabulary	Item Number	Total
1.	Verb	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18, 19,20	20
2.	Adjective	21,22,23,24,25,26,27,28,29,30,31,32,33,34, 35,36,37,38,39,40	20
3.	Noun	41,42,43,44,45,46,47,48,49,50,51,52,53,54, 55,56,57,58,59,60	20
4.	Adverb	61,62,63,64,65,66,67,68,69,70,71,72,73,74, 75,76,77,78,79,80	20

b. Construct Validity

Shohamy (1985) stated that construct validity is concerned with whether the test is actually in line with the theory of what it means to know the language. It means the test items should test the students' vocabulary knowledge. If all items measure the vocabulary knowledge, the instrument has fulfilled the aspect of construct validity. In this research, the researcher measured the vocabulary in the test based on content words, such noun, verb, adjective, adverb. The construct validity can be measured by evaluating all the items that are related to the vocabulary. Expert judgment was done to make sure the test items are able measure students' content word vocabulary knowledge. Therefore, it has fulfilled the construct validity.

3.7.2. Reliability of Vocabulary Test

According to Shohamy (1985), reliability pertains to the consistency in test scoring and serves as an indicator of the accuracy of test scores. In this study, to establish reliability for the vocabulary pre-test and post-test, the split-half reliability method was employed. The researcher divided the 80 vocabulary test items into two groups, distinguishing them by odd and even numbers. A similar random division applied to the student groups. Subsequently, a comparison of the outcomes was conducted. In line with that, Setiadi (2006) says, "If both sets of tests produce relatively comparable results, it can be inferred that the test exhibit reliability." The assessment of the reliability of the vocabulary test involved the use of the split-half method to examine the consistency between the two versions and their individualcomponents with the formula as follow:

$$r_1 = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Where:

r_1 = coefficient of reliability between odd and even number

x^2 = total square of x (total score of odd number)

y^2 = total square of y (total score of even number)

xy = total score of odd and even number

With the standard of reliability:

0.00 to 0.19   : very low reliability

0.20 to 0.39   : low reliability

0.40 to 0.59   : average reliability

0.60 to 0.79   : high reliability

0.80 to 0.100 : very high reliability

(Arikunto, 1998:260)

Based on the reliability standards set by Arikunto (1998:260), the correlation between form calculated in this study was approximately 0.729. This value indicated that the test instrument used in this research had a substantial level of internal consistency. The method works by dividing the test into two equal halves (even and odd) and correlating their results. A coefficient of 0.729 suggests that the test items consistently measure the same construct, which highlights the dependability and stability of the instrument in capturing the intended data (Data in Appendix 4).

Following the establishment of this method of measuring reliability, the researcher conducted an overall evaluation of the test's reliability by analyzing all items together. This broader analysis is crucial for ensuring that the test instrument maintained its reliability across the entire set of items, not just when divided into halves. By confirming high reliability in this manner, the research is better supported by consistent and reliable data, enhancing the credibility of the findings. Moreover, researcher also used Spearman Brown's prophecy to make sure the reliability of the test using formula as follows:

$$r_k = \frac{2 \times r_1}{1 + r_1}$$

Where:

r_k : reliability of the whole test

r_1 : coefficient of reliability between odd and even number

The results of the reliability analysis for the vocabulary test items reveal a high

level of reliability, with a coefficient of 0.843. This result is consistent with previous calculations, affirming the strong consistency of the test items. The reliability coefficient indicates that the test items are effective in measuring vocabulary proficiency, providing a solid measure of consistency across different approaches.

Both the Spearman-Brown prophecy formula and the split-half reliability method yielded similar results, categorizing the test items as having high reliability. This consistency across different methods highlights the robustness of the test in evaluating vocabulary skills, ensuring that the measurements are reliable and dependable despite the varied calculation approaches. As we can see in Table 3.2

Table 3.2. Reliability Statistic by Using SPSS

Reliability Statistics		
Correlation Between Forms		.724
Spearman-Brown Coefficient	Equal Length	.843
	Unequal Length	.843
Guttman Split-Half Coefficient		.822

3.7.3. Level of Difficulty

The level of difficulty represents to which test questions are considered easy or difficult from the learner's perspective. Student test results were ranked from highest to lowest. The researcher used the following formula to assess the level of difficulty:

$$LD = \frac{U + L}{N}$$

Where:

LD   : Level of difficulty

U   : The number of upper group who answer correctly

L   : The number of lower group who answer correctly

N   : The total number of students in upper and lower groups

The criteria are:

< 0.3 refers to difficult question

0.3 – 0.7 refers to average question

> 0.7 refers to easy question

(Shohamy, 1985)

Table 3.3 Difficulty Level of Test Item

No	Number Item Test	Computation	Criteria
1.	2,3,4,5,6,8,12,14,15,16,17,19,20,21,22,24,26,27,31,32, 33,35,36,37,38,40,41,42,44,45,47,48,49,53,54,55,56,57, 59, 62,63,64,66,67,68,70,71,72,73,75.76,77,78,79	<0.30	Easy
2.	1,10,18, 29,30, 46,52	0.30-0.70	Average
3.	7,9,11,13,23,25,28,34,39,43,50,51,58,60,61,65,69,74, 80	>0.70	Difficult

The test was categorized into three levels of difficulty based on the computation criteria. The first category, labelled "Easy," consisted of 54 questions where the computation was less than 0.30. The second category, termed "Average," included 7 questions with computations ranging from 0.30 to 0.70. Finally, the "Difficult" category encompassed 19 questions, each with a computation greater than 0.70. The distribution of the questions ensured that a range of difficulty levels was represented in the test.

In the next phase, the test was adjusted from 80 to 40 questions based on the discrimination power, to maintain reliability and make the test more accessible for students. The total of 28 easy questions and 9 difficult questions were administered since the discrimination power reached satisfactory to excellent values. As for average questions, only three questions which discrimination power reached satisfactory and good value. Therefore, three average questions were administered (Data in Appendix 5).

3.7.4. Discrimination Power

Discrimination power is an important concept in test item analysis which

measures the extent to which a question is able to differentiate between participants who have different levels of ability. The level of discrimination of an item can provide information about how well the item can differentiate between participants who have high and low levels of ability. To find out the discrimination power of the test, researcher used the following formula:

$$DP = \frac{U - L}{1/2\ N}$$

Where:

DP : Discrimination Power

U : The number of upper group students who answer correctly

L : The number of lower group students who answer correctly

N : Total number of the students

The criteria are:

0.00 – 0.19	: Poor
0.20 – 0.39	: Satisfactory
0.40 – 0.69	: Good
0.70 – 1.00	: Excellent
- (negative)	: Bad items, should be omitted*

(Heaton, 1975)

Based on the results, it was determined that 26 items were categorized as poor, 20 items as satisfactory, 16 items as good, 4 items as excellent, and 14 items as bad. To enhance the reliability of the test, all poor and bad items were removed. The remaining items, categorized as satisfactory, good, and excellent, were carefully selected and revised, ultimately reducing the total number of questions from 80 to 40, consist of 20 satisfactory items, 16 good items, and 4 excellent items, with a balanced difficulty of 28 easy, 10 difficult, and two average questions, and a comprehensive coverage of vocabulary aspects, including 10 questions each on noun, adjective, verb, and adverb (Data in Appendix 5).

3.8. Data Analysis

In the analysis of the gathered data, the researcher employed specific formulas developed by Arikunto. To begin with, the researcher utilized the subsequent formula to assess the students' test scores:

$$s = \frac{R}{N} \times 1$$

Where:

S = The test score,

R = The number of correct answers, and

N = the total number of test items

(Arikunto, 1993)

Following the scoring of the pre-test and post-test, the researcher computed the mean score of both assessments using the following formula:

$$x = \frac{\sum X}{N}$$

Where:

X = Mean (average score)

$\sum$ = The total score of all the students

N = The total of students

Additionally, the data underwent analysis employing the Repeated Measures T-Test to determine the significance of the treatment's effect and to evaluate the acceptability of the hypothesis and it was explained in the next chapter.

3.9. Hypothesis Testing

Hypothesis testing employed to evaluate the acceptance of the proposed hypotheses in this research. The hypothesis was examined using statistical analysis, specifically, the Pearson Product Moment Correlation through the Statistical Package for Social Science (SPSS). Additionally, Hypothesis Testing with Repeated Measures T-Test serves as one of the statistical methods utilized in

this research to assess variations in measurements conducted on the same subjects at different time points. The researcher used the following formula:

$$H_1 = \text{Sig.} < 0.05$$

Where:

- If the Sig. two-tailed is lower than 0.05, therefore H_0 is rejected and H_1 is accepted.
- If the Sig. two-tailed is higher than 0.05, therefore H_0 is accepted and H_1 is rejected.

H_0 : There is no significant improvement of students' vocabulary achievement after they are taught by using Semantic Mapping.

H_1 : There is a significant improvement students' vocabulary achievement after they are taught by using Semantic Mapping.

In short, those are the explanation of this chapter which are concerned with research design, population and sample, data collecting technique, research procedures, research instruments, validity and reliability, data analysis, and hypothesis testing.

V. CONCLUSION AND SUGGESTION

This chapter describes the conclusions of the data found during the research and suggestions for future researchers and teachers who want to apply semantic mapping to the learning process, especially in teaching vocabulary.

5.1 Conclusion

Based on the findings and discussion, the researcher drew the following conclusions from this research:

1. The study reveals a significant improvement in vocabulary achievement among tenth grade students at MAN 2 Bandar Lampung after implementing semantic mapping as a treatment, which highlights the effectiveness of this teaching technique. The results confirm that semantic mapping serves as a valuable tool in enhancing students' vocabulary skills, making it a recommended strategy for vocabulary instruction in similar contexts.

2. Among the different aspects of vocabulary, noun shows the most significant relative improvement. The substantial improvement in noun can be attributed to the effective use of semantic mapping, which allowed students to visualize and contextualize the relation among words. This enhanced their understanding and application of noun, making them more adept at reinforcing word meaning from the other words related to them. Even though noun demonstrated the highest gain, it is important to note that other aspects of vocabulary also showed considerable improvements. Verb, adjective, and adverb all experienced significant gains, indicating that semantic mapping positively impacts all areas of vocabulary aspect.

3. Semantic mapping proves to be a highly effective technique for enhancing vocabulary knowledge across diverse student population, including EFL

and ESL learners from pre-intermediate levels to adult intermediate stages. Its ability to enhance retention, contextual understanding, engagement, and adaptability makes it a powerful technique in vocabulary teaching.

5.2 Suggestion

From the results of this research, researchers would like to provide several suggestions:

1. Based on the findings of this research, the suggestions for English teachers are as follows:

   - English teachers are strongly encouraged to incorporate semantic mapping into their instructional practices. Semantic mapping has demonstrated its effectiveness in improving vocabulary understanding and retention. Teachers can adapt semantic mapping techniques to various vocabulary aspects—such as nouns, verbs, adjectives, and adverbs—and align them with lesson content to maximize their benefits. For example, when teaching adjectives, teachers can have students create semantic maps that visually organize descriptive words and their synonyms, antonyms, and usage contexts. This approach helps students visualize and connect the meanings of adjectives, enhancing their ability to use descriptive language effectively.

   - Additionally, teachers should be mindful of the different levels of improvement across vocabulary aspects. If certain areas, such as adverbs, show less significant gains compared to others, targeted interventions are needed. For instance, if students struggle with understanding adverbs, teachers can provide focused practice sessions, use interactive activities, and offer additional support to strengthen students' grasp of this vocabulary aspect. Incorporating various engaging activities, such as role-playing or writing exercises that emphasize the use of adverbs, can help address these challenges and ensure a balanced vocabulary development.

2. Future researchers exploring the use of semantic mapping should consider its application across a broader range of English skills and topics to assess its overall effectiveness. For example, researchers could investigate how semantic mapping impacts not only vocabulary but also grammar or writing skills. This would provide a more comprehensive understanding of the technique's utility in various aspects of language learning.

Additionally, researchers should examine why certain vocabulary aspects might show less improvement. For instance, if adverbs demonstrate less gain compared to noun, further investigation is needed to understand the underlying reasons. Researchers could explore factors such as the complexity of the vocabulary, the effectiveness of specific semantic mapping strategies, or the need for additional instructional materials. This could involve refining the semantic mapping process or experimenting with different types of vocabulary materials to better meet students' needs. Furthermore, it is essential for researchers to examine methods for effectively guiding students in using semantic mapping. Studies could focus on developing best practices for teaching semantic mapping, providing clear instructions, and creating engaging examples that help students understand and apply the technique effectively. For instance, research could explore the impact of teacher-led workshops or student training sessions on the successful implementation of semantic mapping in learning routines.

By employing semantic mapping and addressing specific challenges, teachers can create a more dynamic and effective learning environment that fosters a deeper understanding of vocabulary and supports overall language development. Researchers, on the other hand, can contribute to the continuous improvement of vocabulary instruction methods and enhance the effectiveness of semantic mapping by exploring its application across different English skills, investigating varying levels of improvement, and refining strategies for better implementation.

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