Boosting Students' Vocabulary Mastery: How Effective Is the Frayer Model?

Nur Hawalia Angrah[1], Ardiana[2], Ika Sastrawati[3]

[1,2,3]*Universitas Muhammadiyah Makassar, Indonesia*

ARTICLE INFO	ABSTRACT
	Vocabulary mastery remains a persistent challenge for Indonesian senior high school students, necessitating effective instructional strategies. This study investigates the effectiveness of the Frayer Model in improving students' vocabulary mastery at SMAN 14 Gowa. Employing a pre-experimental quantitative design, the study involved 36 tenth-grade students selected through purposive sampling. Data were collected using a 20-item vocabulary test administered as pre-test and post-test, covering nouns, verbs, adjectives, and adverbs. Over six instructional meetings, the Frayer Model was implemented to facilitate concept definition, example analysis, and contextual application. Statistical analysis using SPSS 24 revealed a significant improvement in students' vocabulary scores, with the mean increasing from 67.22 to 82.22. The t-test results confirmed the model's effectiveness (t-count = −9.065 > t-table = 2.030). This study contributes empirical evidence supporting the Frayer Model as a practical and effective approach to vocabulary instruction in EFL classrooms. *This is an open access article under the <u>CC BY-SA</u> license.*

Corresponding Author:
Nur Hawalia Anugrah
English Education Department,
Universitas Muhammadiyah Makassar,
259 Sultan Alauddin Road, Makassar City, Rappocini 90221, Indonesia.
Email: <u>105351101518@unismuhmakassar.ac.id</u>

INTRODUCTION

People from all over the world can communicate with each other in English. In many countries around the world, English is considered the main or first language, which means that most people use it every day. In some countries, English is taught as a second language. This shows that even though the national language is spoken in the country, English is often used. Well, many countries in the world use English as a second language, namely Indonesian. It turns out that English is taught from elementary school to university, and one of the subjects in the examinations from elementary school to high school leaving is English.

In this global era, English takes an important role as a language of communication used in many sectors of life, such as trade, bilateral relations, politics, science, technology, and many others. People use English to connect and share. Therefore, everyone must understand and

master the English language to gain broader knowledge, information, and technology by Oktaviani & Dewi (2019).

Teaching English has developed dramatically in recent years. because globalization has an impact and everyone should understand English as their International language. The development of English education can also be seen in Indonesia, in which English starts to be taught earlier to young learners. Four skills should be mastered by students in learning English. They are speaking, listening, reading, and writing. Besides the four English skills, to support the mastery of the four language skills the students should have a good understanding of English components such as vocabulary, pronunciation, and grammar. vocabulary is the core component of listening, speaking, reading, and writing. Vocabulary is very important to be learned by students who want to master a language.

The teaching of foreign language especially English is the goal to develop students' ability to communicate to the world. (Panjaitan & Sihotang, 2020) stated that "In communication, students need vocabulary which can support them to produce and use meaningful sentences. That is why vocabulary is very important to be mastered. Students sometimes experience difficulties in using vocabulary which have been studied for some reasons.

Vocabulary is therefore one of the inseparable elements of language learning. In this situation, vocabulary is one of the most important factors for students to learn English as a foreign language Nalendra (2020). Due to their limited vocabulary, they cannot communicate their thoughts to answer questions or statements. We must learn the words that are necessary to succeed in learning a foreign language. If someone has a lot of vocabulary, they can speak English better. All student to must have a lot of practice to make learning a foreign language easier. By mastering vocabulary, students will be able to understand and use the English language effectively. This will make them able to communicate more effectively with others.

However, Schmitt (2008) highlights that students require the use of structured and engaging strategies to learn new words, which include graphic organizers and contextual learning, so they can retain and effectively apply these words. One instructional strategy that has received a good amount of attention for vocabulary development is the Frayer Model. Students can expand vocabulary and help their required word memorization by thinking about word meanings, definitions, and examples using a structured framework.

Linguists and educators widely acknowledge the critical role of vocabulary in language acquisition. Nation (2020) emphasizes that vocabulary forms the foundation of language competence, directly influencing learners' ability to comprehend and produce language in both spoken and written forms. Students with a strong vocabulary base can better understand texts and communicate effectively, both of which are essential for academic achievement and real-world interactions. Effective learning depends on the ability to grasp complex texts, which is only possible when learners have a well-developed vocabulary. Without sufficient vocabulary knowledge, students struggle to articulate their thoughts clearly and make sense of what they read. Research also confirms that explicit vocabulary instruction significantly enhances students' language acquisition, leading to better overall proficiency.

Developed by Dorothy Frayer and her colleagues at the University of Wisconsin, the Frayer Model is widely used in classrooms as an effective vocabulary-building strategy. Frayer, Federick, and Klausmeier (1969) emphasized that the graphic organizer aids students in distinguishing key concepts and clarifying their understanding. By incorporating the Frayer Model into language learning, students can systematically analyze vocabulary, leading to improved retention and application in different contexts.

The problems above could result from many factors. They could derive from the teaching strategy, the students' intellectual competence themselves, or the students' socio and economic condition which force them to lack school facilities and eventually cause low interest in studying and low scores in English. To provide a solution to these problems, the writer proposes what is called the Frayer Model strategy. The teacher must train our students on the use of strategies to enhance understanding of word meaning.

Through classroom observations in a senior high school, as well as teaching experience during a teaching practicum (PLP), the researcher identified significant vocabulary learning challenges. Many students struggle with word recognition, meaning comprehension, and listening comprehension, leading to a lack of motivation to study English. To address these issues, the researcher explored various teaching strategies and selected the Frayer Model as a promising approach for improving students' vocabulary acquisition.

Searched for various strategies and selected the one that is suitable for improving students' vocabulary mastery. One alternative to such a strategy is the Frayer Model. Researchers try to conduct research to find solutions and use these strategies in the learning process. In this study, researchers chose the Frayer Model strategy. In this research, the researcher chooses the Frayer Model strategy.

The reason for choosing Frayer Model is to teach the students vocabulary. This strategy is to identify and define unfamiliar concepts and vocabulary. Frayer model strategy is one of the ways that can help the student understand their English vocabulary. One alternative learning model for teaching students' English skills, especially for developing students' vocabulary skills, is the Frayer Model. Learning activities using the Frayer model begin with the students, with the help of the teacher, choosing difficult words that are contained in the reading. Then words that were difficult to write on the board. then the students together with the teacher help determine the meaning of the words that have been registered on the blackboard. Then the students and the teacher conclude the meaning of the vocabulary that is discussed in learning activities. Next, carry out learning in small groups to re-apply the Frayer Model which includes making definitions, describing features, and making examples and not examples of a vocabulary by following The Shell Frayer Model Graph Applications.

The Frayer Model is a strategy that uses a visual graphic organizer to help the students with vocabulary building This strategy requires students to define the target vocabulary words and concepts and apply this information by generating examples and non-example. In addition, According to Wanjiru (2015) Frayer Model is a graphic organizer that is used by students to organize their thinking about a term in four ways; definition, characteristics, examples or synonyms and non-examples or antonyms.

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Based on the problem above, the researcher assumes that some teaching strategies have been implemented for students' mastery of vocabulary. For this assumption, the researcher is interested to do experiment research. By doing this research from the researcher is interested in conducting research with the title "The Effectiveness of the Frayer Model to Improve Student Vocabulary at Senior High School".

RESEARCH METHOD

This study use applied a pre-experimental research design using a quantitative approach to analyze the data. This research utilized the One-Group Pretest-Posttest Design. In this design, a pre-test was administered to assess certain attributes or characteristics of the participants before the treatment was introduced. After the treatment in this case, the use of the Frayer Model for vocabulary instructional post-test was conducted to evaluate changes in the same attributes or characteristics.

There are two variables studied, namely the independent variable is the effectiveness of the Frayer model and the dependent variable is vocabulary mastery.

The population was the tenth grade students of SMAN 14 Gowa and the sample was X.9 class that was selected by purposive sampling technique. Sugiyono (2013), purposive sampling was used when researchers intentionally selected participants based on specific criteria relevant to the study. The instrument used by researcher in this study was a vocabulary test. The vocabulary test give to the students is multiple-choice. This test is divided into two parts, namely the pre-test and post-test.

There were three steps that researchers took to collect data. Before starting the treatment, the researcher was asked to give a pretest at the initial meeting to determine the students' basic vocabulary mastery. After the pretest, students received treatment four times on different days from the researcher. The treatment consists of researchers introduced using the "Frayer model" diagram and guided students in identifying there words from different categories (noun, verb, adjective and adverb). students completed the Frayer model diagram with the teacher guidance, filling in definition, attributes, examples and non-examples. The final data collection technique is the post test. Researchers gave post-tests to students to measure their vocabulary after treatment.

The data description was used to analyze the students vocabulary score. The description consisted of the mean, median, mode, and standard deviation. The researcher applied SPSS 24 software to analyze the students data description.

Scoring the students correct answers the students scores were calculated using the following formula:

$$Score = \frac{Students\ Correct\ Answer\ Score}{The\ Total\ Number\ Of\ Items} \text{X } 100$$

After collecting the data, the researcher classified the students scores into the following criteria:

Measurement scale

Score	Classifications
96 – 100	Excellent
86 – 95	Very Good
76 – 85	Good
66 – 75	Fairly good
56 – 65	Fair
36 – 55	Poor
0 – 35	Very Poor

(Depdikbud 2010)

RESULT AND DISCUSSION

A. RESULT

The classification of student scores using the vocabulary test instrument which consists of the students' pre- and post-tests based on research findings is the subject of this study's findings. In this instance, the researcher sought to address the research questions from the preceding chapter by conducting two tests at the start and conclusion of the study.

Based on the result of the research, it can be concluded that researcher found the effect of using Frayer model in learning English vocabulary as follows;

a. **Scoring Classification and Rate Percentage of Students Score in Pre Test and Post Test.**

The Rate Percentage of Students Score in Pre test

Classification	Scores	Frequency	Percentages
Excellent	96 – 100	0	0
Very Good	86 – 95	0	0
Good	76 – 85	1	2,8%
Fairly good	66 – 75	22	61.1%
Fair	56 – 65	10	27.8%
Poor	36 – 55	3	8.3%
Very Poor	0 – 35	0	0
TOTAL		36	100%

above shows the percentage rate of student pre-test scores. Based on the table, it was observed that the students obtained varying scores. Only 1 of the students, 2.8%, obtained a good score; 22 students, 61.1%, obtained a fairly good score; 10 students, 27.8%, obtained a fair score; and 3 students, 8.3%, obtained a poor score.

The Rate Percentage of Students Score in Post test

Classification	Scores	Frequency	Percentages
Excellent	96 – 100	1	2,8%
Very Good	86 – 95	7	19,4%
Good	76 – 85	17	47,2%
Fairly good	66 – 75	10	27,8%
Fair	56 – 65	1	2.8%
Poor	36 – 55	0	0
Very Poor	0 – 35	0	0
TOTAL		36	100

above shows the rate percentage of students' post-test scores. The table shows that there was 1 student, 2.8%, who obtained the score in the item of the excellent category; there were 7 students, 19.4%, who obtained the score in the item of the very good category; there were 10 students, 27.8%, who obtained the fairly good category; there was 1 student, 2.8%, who obtained fair; there was no student who obtained poor and very poor.

b. **The Mean Score and Standard Deviation of Pre Test and Post-Test**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
pre test vocabulary	36	40	80	67.22	7.116
post test vocabulary	36	65	100	82.22	7.878
Valid N (listwise)	36				

above shows the mean score and standard deviation of the students in the pretest and posttest. The mean score of the students in the pretest was 67.22. Which was categorized as fairly good, while the mean score in the posttest was 82.22, categorized as good. Furthermore, it revealed that the difference between the pretest and posttest mean scores was significant, with the posttest mean score being substantially higher than the pretest mean score. This difference indicated a shift from a poor to a good classification.

The standard deviation of the students in the pretest was 7.1, while in the posttest it was 7.8. Standard deviation was a measure of the dispersion of a set of data from its mean. The greater the standard deviation, the greater the magnitude of deviation of the values from their mean. The results showed that the deviation in the post-test was lower than in the pre-test, suggesting improved consistency in the student scores after the treatment.

c. The Analisis of Data Using SPSS

a) The significant differences of T-Test and T-table

Distribution the velue of t-test and t-table

Indicators	t-test velue	t-tabel value
Vocabulary Improvement	-9.065	2.030

Based on the data, the researcher determined that students' mastery significantly improved. The mean scores of the pre-test and post-test clearly indicated an increase.

b) Normality Test

Test Normality using SPSS

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
Tests of Normality	Statistic	df	Sig.	Statistic	df	Sig.
Pre test vocabulary	.266	36	.000	.824	36	.000
Post test vocabulary	.167	36	.013	.946	36	.076
a. Lilliefors Significance Correction						

The Shapiro-Wilk test results showed that the significance value for the pre-test was 0.000, while the post-test had a significance value of 0.076, indicating that the post-test data were normally distributed (*p-value* > 0.05).

d. Test of Hypothesis

Based on the results of the normality test, the researcher applied parametric statistics using the Paired Sample T-Test. The hypotheses were formulated as follows:

1. H_0 : Frayer model was Not effective in improving the English vocabulary mastery of students SMAN 14 Gowa

2. H_1 : Frayer Model was Effective in improving the English vocabulary mastery of students SMAN 14 Gowa

Santoso (2014) provided the following suggestions for making judgments in paired sample *t*-tests based on the significances value (Sig.) derived from SPSS:

1). If the *t*-value has Sig. (2-tailed) < 0.05, then H_0 is rejected and H_1 is accepted

2). If the *t*-value has Sig. (2-tailed) > 0.05, then H_0 is accepted and H_1 is rejected

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Paired Samples Test

		Paired Differences						
			Std. Deviatio n	Std. Error Mean	95% Confidence Interval of the Difference				Sig. (2-tailed)
		Mean			Lower	Upper	t	df	
Pa ir 1	Pre-test - post test vocabulary	-15.000	9.928	1.655	-18.359	-11.641	-9.065	35	.000

The researcher conducted a significance test to determine whether or not the null hypothesis could be rejected. The significance level used was α = 5% with a degree of freedom (df) = N-1 (36-1) = 35, where N referred to the total number of the student's. The following table shows the result of the paired sample test.

Table 4.6 shows that the Sig. (2-tailed) value was 0.000, which was lower than 0.05. This indicated that there was a significant result after using the Frayer model. Therefore, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted. The researcher concluded that the Frayer model was effective in improving the students' English vocabulary mastery.

B. Discussion

The results from both the pre-test and post-test suggest that the Frayer Model had a significant impact on students' vocabulary mastery. Prior to the treatment, students' scores were mostly concentrated in the "Fairly Good" and "Fair" categories, indicating that while they had some knowledge of vocabulary, they struggled with comprehension and application. However, after the treatment, there was a marked improvement in their scores, with a higher percentage of students falling into the "Good" and "Very Good" categories.

The findings of this study support the theory that visual and structured learning methods, such as the Frayer Model, are effective in enhancing students' vocabulary skills. According to Brummer and Clark (2014), the Frayer Model provides a graphical framework that helps students organize information related to new vocabulary in a more structured and meaningful way. This aligns with the results of the study, where the average student score increased from the "Fairly Good" category to the "Good" category.

The Frayer Model is a vocabulary development tool that helps learners to understand new words by providing a framework for analyzing their meanings and contexts. It involves creating a visual representation of the word and breaking it down into its various components, such as its definition, examples of how it can be used, and its relationship to other words. The Frayer Model is often used in educational settings to expand students' vocabulary and deepen their understanding of language. Aggreing with the statement by Alashry (2019: 15) that Frayer Model is a technique for teaching vocabulary, essentially a type of graphic organizer that allowed the students to separate the various aspect of a word or concept.

This improvement can be attributed to the effectiveness of the Frayer Model in promoting deeper engagement with vocabulary. The model encourages students to analyze the meaning, characteristics, examples, and non-examples of vocabulary words, thereby solidifying their understanding and ability to apply the words in various contexts.

During the learning sessions, students first identified the target vocabulary words and attempted to define them based on their prior knowledge or guided explanations. To stimulate critical thinking, the teacher facilitated discussions where students identified key attributes that defined each concept. They then provided examples and non-examples of the word, which helped refine their understanding and distinguish between similar terms. Identifying non-examples, in particular, required students to challenge misconceptions and clarify subtle differences between interrelated words. This iterative process of analysis and discussion contributed to their conceptual clarity and critical thinking skills.

Group discussions played a key role in the teaching process, as students collaborated to complete the Frayer diagram. This interaction fostered active participation, with students asking questions, exchanging ideas, and justifying their reasoning. The teacher's role was crucial in scaffolding the learning process by guiding discussions and addressing any misconceptions. Additionally, the structured nature of the Frayer Model allowed students to visualize their learning, making abstract vocabulary concepts more concrete and easier to remember. The visual aspect not only aided in word retention but also enhanced students' understanding of the practical application of vocabulary in context.

The Frayer Model helped students transition from passive recipients of information to active participants in knowledge construction. This shift was evident in their ability to analyze and apply vocabulary concepts independently during assessments. The learning process with the Frayer Model emphasized active engagement, critical thinking, and collaboration. By integrating both visual and analytical components, the model provided a comprehensive and effective framework for improving students' vocabulary mastery and overall learning experience.

The researcher found that students who were more engaged and able to visualize their understanding through logical thinking strategies, such as the Frayer Model, demonstrated better retention and academic performance. The study showed that using the Frayer Model to acquire English vocabulary led to significant improvements. This was evidenced by data collected from 36 students who completed both the pre-test and post-test. Furthermore, the findings align with research conducted by Umi (2020), which concluded that the Frayer Model had a significant impact on students' vocabulary mastery. The t-test calculation in the present study showed a t-value of 4.217, while the t-table value was 2.003 (to > tt = 4.217 > 2.003). Since the t-value was higher than the t-table value, the alternative hypothesis (Ha) was accepted, and the null hypothesis (Ho) was rejected.

Based on this data, the researcher determined that the Frayer Model had a substantial impact on students' vocabulary learning, as evidenced by the significant increase in test scores after the treatment. In other words, the use of the Frayer Model to enhance students' English learning, particularly among Grade 10 students at SMAN 14 Gowa, proved to be effective.

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CONCLUSION

Based on the results and discussion presented in the preceding chapter, it was concluded that the Frayer Model improved students' English vocabulary during the learning process. This was evident from the mean scores attained by students in the two tests administered: the pre-test mean score was 67.22, and the post-test mean score increased to 82.22. In the table, the significance value for the data analysis was 0.000 before the test and 0.076 after. Normality was observed when the post-test significance value surpassed = 0.05. In addition, Sig. (2-tailed) was reported to be less than 0.01 in the "Paired Sample Test " table mentioned earlier, with the result being as low as 0.000. Thus, H0 was rejected, and H1 was accepted.' This led to the conclusion that the Frayer Model was effective in enhancing students' vocabulary skills.

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