



# **An Investigation in Vocabulary Learning Strategies and Their Relation to Vocabulary Size among EFL Learners**

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## **Abstract**

*This study investigates vocabulary learning strategies (VLSs), and their relation to vocabulary size among Saudi female EFL learners at Taibah University. The research employs a descriptive-correlational design to explore the types of VLSs most frequently used by learners, vocabulary size levels, potential differences based on academic disciplines, and whether there is a statistically significant relation between the overall VLS and the vocabulary size. The sample consist of 186 undergraduate EFL female students from four colleges at Taibah University (Humanities and Arts, Computer Science and Engineering, Science, and Business Administration) completed a Vocabulary Learning Strategies Survey (VLSS) based on a VLS taxonomy and a shortened version of the Vocabulary Size Test (VST). Key findings revealed that EFL participants were high users of vocabulary learning strategies. Cognitive strategies were the most frequently used, followed by memory and determination strategies, while metacognitive and social strategies were less common. Also, participants exhibited a moderate vocabulary size level, with the highest scores obtained by Computer Science and Engineering students. There were no statistically significant differences in vocabulary size across disciplines, but statistically significant differences emerged in the use of social, cognitive, and metacognitive strategies. There was no statistically significant correlation between the overall vocabulary learning strategies usage and vocabulary size level. Still, a statistically significant correlation was found between discovery strategies and vocabulary size among participants from the Computer Science and Engineering College. Recommendations highlight the necessity for targeted vocabulary instruction that aligns with learners' academic backgrounds while emphasizing the importance of fostering autonomy in vocabulary learning. Additionally, it is essential to raise awareness of effective VLSs among students and educators, integrate strategy training into curricula, and design interventions tailored to meet the diverse needs of learners.*

**Keywords:** *vocabulary learning strategies, vocabulary size, EFL learners.*

## **1. INTRODUCTION**

Vocabulary is a complex element in learning a second or foreign language. Despite this complexity, vocabulary acquisition remains elusive in second language learning; Schmitt (2000) states that words are not easily acquired, particularly for adult learners. A word can be challenging for various reasons, such as irregular spelling patterns, difficult phonemic features, unfamiliarity, a lack of a clear connection between form and meaning, the necessity for conceptual knowledge, unpredictable grammatical patterns, specific collocations, or usage constraints, like being limited to a particular dialect (Webb & Nation, 2017). Consequently, communication problems arise due to the inappropriate use of lexical items (Qian & Lin, 2020). Thus, Vocabulary Learning Strategies are employed to facilitate vocabulary learning for EFL learners. These strategies, also referred to as Language Learning Strategies, are processes intentionally selected by learners that can lead to actions aimed at improving the acquisition or application of a second language (L2) by storing, recalling, and using information regarding that language (Cohen, 1998). Several researchers (e.g., Gu & Johnson, 1996; Oxford, 1990; Schmitt, 1997) have proposed various classifications of Vocabulary Learning Strategies. For instance, Schmitt (1997) built upon Oxford's (1990) framework, identifying five distinct Vocabulary Learning Strategies aimed at discovering new word meanings and solidifying knowledge of words previously encountered: determination (e.g., utilizing dictionaries or inferring from context), social (e.g., consulting with teachers or peers), memory (e.g., visualizing word meanings or employing actions), cognitive (e.g., practicing repetition or making notes), and metacognitive (e.g., engaging with English-language media). While understanding VLS categories is important, it is equally essential to consider how their usage is reflected in learners' vocabulary knowledge. Measuring vocabulary size alongside VLS is essential for assessing learners' lexical competence. Vocabulary size is a quantifiable attribute requiring a specific unit of measurement. Vocabulary size research operates on the basic premise that the total number of words a person is familiar with—the breadth of their



vocabulary stock—serves as a measure of vocabulary knowledge (Harrington, 2018). It is suggested that a strong relationship exists between text coverage (e.g., vocabulary size) and comprehension (Milton, 2009). Furthermore, Milton states that a learner needs to be familiar with at least 95% of the text to comprehend it fully. Oxford and Nyikos (1989) emphasized that the academic major can influence mental behavior preferences. Although previous research has highlighted Vocabulary Learning Strategies, few studies have examined their relationship to vocabulary size or analyzed the differences based on specialty variables. So, this study aims to investigate Vocabulary Learning Strategies used by Saudi EFL female learners at Taibah University, the level of vocabulary size of these learners, the differences in terms of specialty variable, and the relationship between the use of VLSs and vocabulary size among Saudi EFL female learners at Taibah University. Despite widespread recognition of the role of VLS in SLA, few studies have explored how these strategies vary by academic discipline or how they relate to vocabulary size in the Saudi context, especially among non-English majors. Existing research shows that there are considerable contextual limitations in examining the connection between VLS and vocabulary size. Although various studies have taken place across different ESL and EFL environments, the Saudi context remains largely unexplored, particularly at Taibah University. Moreover, current Saudi research (e.g., Alahmad, 2020; Alsharif, 2022) primarily targets English-major students, neglecting the needs and challenges of freshman year or non-English majors—a vital group frequently facing difficulties in acquiring foundational vocabulary. This limited perspective restricts the applicability of the findings to wider university settings where English is used as a medium of instruction, rather than a field of study. Therefore, it is important to investigate how VLSs vary across different colleges and their relationship to vocabulary size.

So, this research will answer the following questions:

- R. Q.1 What Vocabulary Learning Strategies do Saudi EFL female learners at Taibah University use?
- R. Q.2 What is the level of vocabulary size among Saudi EFL female learners?
- R. Q.3 What are the differences among participants in vocabulary usage and size in relation to the specialty variable?
- R. Q.4 How does the use of Vocabulary Learning Strategies by Saudi EFL female learners at Taibah University relate to their vocabulary size?

## **2. REVIEW OF LITERATURE**

### **2.1 VOCABULARY LEARNING STRATEGIES**

Gu and Johnson (1996) state that, “vocabulary is no longer thought of as acquired as separate items; it is an integral part of discourse and is developed along with reading strategies such as contextual guessing” (p. 646). Vocabulary Learning Strategies are considered a subset of LLS, which themselves fall under the umbrella of general learning strategies. Research on VLSs often echoes findings from studies on general LLSs, particularly in emphasizing learners’ active roles in the learning process as Schmitt (1997) highlights that the increased focus on learning strategies signals a shift toward learner autonomy—a key concept in second language acquisition, where learners take control over their vocabulary learning and employ strategies to regulate their own learning processes. Schmitt categorizes VLS into two main types: discovery strategies and consolidation strategies. Discovery strategies are used when learners encounter unfamiliar vocabulary, typically in incidental learning contexts, including determination and social strategies. In contrast, consolidation strategies are employed to reinforce and retain previously encountered words, aligning more with deliberate learning, including social, memory, cognitive, and metacognitive strategies.

### **2.2 VOCABULARY SIZE**

The term ‘word’ is commonly used for convenience, but it encapsulates specialized definitions, including types, tokens, lemmas, and word families (Milton, 2009). The terms ‘types’ and ‘tokens’ differentiate two kinds of counts. Tokens indicate the total number of words in a text or corpus, whereas types represent the count of distinct words regardless of how often they occur (Harrington, 2018; Lieber, 2009). A lemma, or lexeme, consists of all regularly inflected forms sharing the same stem and belongs to a single word family. As defined by Hirsh and Nation (1992), word family refers to inflected and regularly derived forms of a known base word. The concept suggests that if learners are familiar with the affixes, these variations can also be considered known words. The term “family” serves as an especially suitable framework for examining vocabulary recognition in a second language, as it primarily focuses on meaning and the potential of meaning (Nation, 2006). Harrington suggests that the fundamental premise is that if a person understands the meaning of a



base word, they will likely grasp the different inflections and derivatives in which that word appears, at least to some extent. This premise has proven valuable in connecting an individual's vocabulary size to using a second language (L2), but it is not an absolute rule. The notion that a learner familiar with the meaning of "build" will recognize the meaning of "builder" upon first encounter is based on probability rather than certainty. According to Webb and Nation (2017), vocabulary assessment acts as a diagnostic instrument to pinpoint words learners struggle with and gauge their proficiency in acquiring vocabulary, ensuring that students learn high-value words while enhancing their vocabulary acquisition skills. The Vocabulary Size Test (VST) is an effective tool for measuring receptive vocabulary breadth among various assessments. Initially created by Nation and Beglar in 2007 to evaluate knowledge of up to 14,000 words, it has been updated to include assessments of up to 20,000 words, making it appropriate for assessing advanced learners nearing native-like proficiency.

### **2.3 VOCABULARY LEARNING STRATEGIES IN RELATION TO VOCABULARY SIZE**

In EFL context, numerous studies have explored VLS and vocabulary size, yet few have established a correlation between them. Alahmadi, Shank, and Foltz (2018) investigated the differences between undergraduate and postgraduate learners regarding VLS and vocabulary size. Undergraduate learners often employ simpler strategies compared to their postgraduate counterparts. Additionally, those who utilize a greater variety of strategies typically possess a larger vocabulary. Alahmad (2020) examined the correlation between undergraduate learners and revealed a positive correlation. Alsharif (2022) conducted a study with undergraduate students that found a positive correlation between certain VLSs and vocabulary size. Notably, it emphasized metacognitive strategies as categorized by Schmitt (1997). Research consistently highlights positive relationships, often related to learner proficiency and strategy training. Alahmadi et al. (2018) observed that undergraduates employing a variety of strategies exhibited a larger vocabulary size. Alahmad (2020) and Alsharif (2022) further highlighted the significance of metacognitive strategies and the status of advanced learners (e.g., senior English majors), suggesting that contextual and proficiency-related factors play a crucial role in this context. These studies suggest a lack of generalizability due to variations in participants' characteristics and teaching contexts.

## **3. METHODOLOGY**

This study aims to investigate vocabulary learning strategies and vocabulary size, their relationship, and possible differences in academic disciplines among EFL undergraduate learners at Taibah University. The study uses a descriptive-correlational design, which is appropriate for examining existing conditions and the statistical relationship between measured variables.

### **3.1 POPULATION AND SAMPLE**

The population of this study consists of female learners at Taibah University from four colleges who are enrolled in EFL courses for the 2024/2025 academic year. Taibah University learners typically have EFL courses as a part of their program study plan, making them a relevant group to investigate vocabulary learning strategies and vocabulary size. The sample of the study consists of 186 EFL female learners from four colleges at Taibah University: College of Humanities and Arts, College of Management and Business Administration, College of Computer Science and Engineering, and College of Science. The study employs a convenience sampling method, a type of non-probability sampling. This sampling method was chosen due to the extensive nature of the survey conducted in this study and the timing of response collection, when a limited pool of students was available for selection. While this method limits the sample's representativeness and constrains generalizability (Creswell, 2014), the inclusion of participants from four distinct academic backgrounds provides a diverse basis for analyzing variation in vocabulary learning strategy use.

### **3.2 INSTRUMENTS**

This study employs two research instruments: the Vocabulary Learning Strategies Survey (VLSS) and the Vocabulary Size Test (VST). The first instrument, the VLSS, is based on Schmitt's (1997) taxonomy. The second instrument, the VST, was adapted from Nation and Beglar (2007).



### 3.2.1 VLSS

The VLSS draws from Schmitt's (1997) taxonomy. The survey consists of 58 items divided into two broad categories: discovery strategies and consolidation. There are subcategories within each of these two categories. The determination strategies fall under discovery strategies, along with some social strategies. The memory, cognitive, and metacognitive strategies belong to the consolidation category. The rating scale for the items utilizes a Likert scale from 1 to 5, where one means never, two means rarely, three means sometimes, four means usually, and five means always. The researcher translated it into Arabic and revised it with an assistant professor in translation to ensure accuracy and prevent misunderstandings. Additionally, a demographic section was added before the VLSS section to collect background information about participants' ages, year of enrollment, study levels, colleges, departments, and academic disciplines.

### 3.2.2 VST

This study adapted the Vocabulary Size Test (VST) developed by Nation and Beglar (2007), reducing the original 100-item version to 40 items. The purpose of reducing the test is to avoid making the survey lengthy and tedious for participants, which may result in their loss of interest in completing it. This test measures word families of 20 words. In the original 100-item version, every five questions assess a word family. In the reduced version, the 40-item test, every two questions assess a word family. Each word family represents 1,000 English words. The scoring method for the 100-item test involves multiplying participants' scores by 200 to determine their vocabulary size, which is equivalent to 20,000 words. In the shortened version, participants' scores should be multiplied by 500 to ascertain their vocabulary size from 20,000 words.

## 3.3 DATA ANALYSIS

The program utilized for analysis in this study is SPSS. Below are the analyses in detail:

- Descriptive Statistics: to calculate measures of central tendency (Mean Score), and measures of variability (Standard Deviation, Minimum, and Maximum Variables).
- One-way Analysis of Variance (ANOVA Test): to determine whether there are any statistically significant differences between the means of the four groups of participants regarding the use of VLSSs and VS.
- Pearson Correlation Coefficient: to measure the relationship between vocabulary learning strategies and vocabulary size.

## 4. RESULTS AND DISCUSSIONS

To answer the first research question, "What Vocabulary Learning Strategies do Saudi EFL learners at Taibah University use?" Descriptive statistics are used for data analysis. These statistics are frequencies, mean, standard deviation, and rank. The most frequently used type of vocabulary learning strategies by Taibah University EFL female students, according to the obtained mean scores, is cognitive strategies ( $M=3.6828$ ), followed by memory strategies ( $M=3.5916$ ), and determination strategies ( $M=3.5305$ ). The least frequently used type of vocabulary learning strategies by Taibah University EFL female students, according to the obtained mean scores, are metacognitive strategies ( $M=3.4484$ ) and social strategies ( $M=3.3878$ ). The results of the first question align with the findings of Oladini, Mazlum, and Dasta (2024), where the most frequent type of vocabulary learning strategies is cognitive strategies ( $M=3.7$ ), and the least used type of strategies is metacognitive strategies ( $M=2.62$ ). Other studies in different teaching contexts reported otherwise. In Huang's (2023) study, 138 EFL nursing students in Taiwan took part in completing the VLS survey and some vocabulary tests. The VLS is based on Schmitt's (1997) taxonomy, which this study adopts. The most frequent strategies were determination strategies ( $M=3.14$ ), which do not align with the overall most frequent strategies in this study.

The preference of Taibah University students for cognitive strategies over other types may stem from several factors: rigid textbooks that favor a teacher-centered approach, misconceptions about students' readiness for higher-order thinking skills, the fact that they are non-majors, and limited contact hours. These constraints reduce opportunities for language practice outside the classroom, making students hesitant to utilize more indirect strategies.

To answer the second research question, "What is the level of vocabulary size among Saudi EFL learners?" The vocabulary size test is divided into five levels according to test scores (see Table 1).



Descriptive statistics are used for data analysis. The obtained statistics are frequencies, mean, standard deviation, and vocabulary size level (see Table 2). EFL female participants at Taibah University have a moderate vocabulary size level. The largest vocabulary size level at Taibah University is obtained by EFL female students at the College of Computer Science and Engineering ( $M=19.0667$ ), followed by EFL students at the College of Business and Administration ( $M=18.0667$ ), and then by EFL students at the College of Science ( $M=17.0811$ ). The lowest vocabulary size is among learners in the College of Humanities and Arts ( $M=15.5763$ ). There are several studies that have investigated the vocabulary size of Saudi EFL learners (Alsalamah, 2011; Kader, 2018). Both studies utilized Nation and Beglar (2007) vocabulary size test which measures up to 14,000 word families. The results indicated different results ranging from very low to low vocabulary size level. However, the results of this study revealed a moderate vocabulary size level.

The difference noted when comparing the results of previous studies and this study is significant, where Taibah University EFL non-English majored participants averaged a moderate vocabulary size level compared to English majored participants in the other studies. This considerable difference may stem from various factors, including the different versions of vocabulary size tests used, generational factors, and the adaptation of a shortened 40-question test instead of the standard 100-question test.

**Table 1.** Levels of VST & Their Interpretation

| Score   | Level     | Number of Words |
|---------|-----------|-----------------|
| 0 – 7   | Very Low  | 0-3,500         |
| 8 – 15  | Low       | 4,000-7,500     |
| 16 – 24 | Moderate  | 8,000-12,000    |
| 25 – 32 | High      | 12,500-16,000   |
| 33 – 40 | Very High | 16,500-20,000   |

**Table 2.** Descriptive Statistics of Vocabulary Size Test

| College                                     | VST           | N   | Minimum | Maximum | Mean    | Std. Deviation | level    |
|---------------------------------------------|---------------|-----|---------|---------|---------|----------------|----------|
| College of Arts and Humanities              | Scores of VST | 59  | 4.00    | 36.00   | 15.5763 | 8.01336        | Moderate |
| College of Computer Science and Engineering | Scores of VST | 60  | 7.00    | 40.00   | 19.0667 | 8.53679        | Moderate |
| College of Science                          | Scores of VST | 37  | 7.00    | 40.00   | 17.0811 | 8.01865        | Moderate |
| College of Business Administration          | Scores of VST | 30  | 5.00    | 36.00   | 18.0667 | 8.51746        | Moderate |
| Total                                       | Scores of VST | 186 | 4.00    | 40.00   | 17.4032 | 8.32540        | Moderate |

To answer the third research question, “What are the differences among participants in vocabulary strategies usage and size in relation to specialty variable?”, descriptive statistics and One-way ANOVA test were run to analyze data for both variables, e.g., vocabulary learning strategies and vocabulary size. There are no statistically significant differences among EFL participants at Taibah University in the Vocabulary Size Level in relation to the specialty variable.

Oxford and Nyikos (1989) highlighted that the preferences of mental behavior can be affected by academic major. For instance, students majoring in the humanities, social sciences, and education tend to use certain strategies more than their counterparts in technical or business disciplines. This finding aligns with the results of this study, which showed that students in the college of arts and humanities were the most frequent users of VLS compared to those in other colleges, such as computer science and engineering, science, and business administration. Gu (2002) conducted a study on EFL Chinese learners and measured the differences in VLS, vocabulary size, and general proficiency test scores concerning gender and academic major. The study revealed only slight differences regarding academic major. Afshar, Moazam, and Arbabi (2014) examined the differences in VLS usage between engineering and humanities learners. Their research revealed that most strategies did not significantly differ, but six strategies did show notable differences among the participants. They employed a different data analysis approach, specifically Chi-square analysis, to pinpoint the strategies that highlighted significant differences were observed across all VLS sub-categories.



The slight differences can be attributed to several factors. For instance, Taibah University's admission criteria are nearly identical, requiring students to achieve specific local exam scores alongside their high school GPA. Additionally, since the students are in their first year, they have not explored their fields in depth, which leads to similar mindsets. Furthermore, it could be due to the size of the sample, as it is not large enough to generalize findings.

To answer the fourth research question which states "How does the use of Vocabulary Learning Strategies by Saudi EFL learners at Taibah University relate to their vocabulary size?" To investigate whether there is a statistically significant correlation between vocabulary learning strategies usage of EFL female participants at Taibah University and their vocabulary size level, the Pearson Correlation Coefficient is computed. There is no statistically significant correlation between the overall vocabulary learning strategies usage and vocabulary size level of EFL female participants at Taibah University. To further investigate the correlation between individual vocabulary learning categories and vocabulary size level, separate Pearson correlations are computed. It turned out that there is a weak positive statistically significant correlation at the level of (0.05) significance between the usage of determination strategies and vocabulary size level. Determination strategies are identified as a positive predictor of vocabulary size level. There is a negative statistically significant correlation at the level of (0.01) significance between the usage of metacognitive strategies and vocabulary size level. There is no statistically significant correlation between the usage of social, memory, and cognitive strategies and vocabulary size levels. Additionally, correlation coefficients were computed between the main categories of VLS and vocabulary size across different colleges revealing a positive statistical significant correlation at the level of (0.01) significance between the usage of discovery strategies and the level of vocabulary size among EFL participants in the College of Computer Science and Engineering, a negative statistical significant correlation at the level of (0.05) significance between the usage of Consolidation strategies and the level of vocabulary size among EFL participants in the College of Business Administration, and no statistical significant correlation between the usage of VLS categories and the level of vocabulary size among EFL participants in the colleges of Arts and Humanities and Science. There are many studies investigating the relation between VLSs and vocabulary size, yet very few address non-English major learners. In the EFL context, some studies revealed a significant positive correlation between VLSs and vocabulary size, while others did not. Nirattisai and Chiramanee (2014) highlighted significant correlations between VLS and vocabulary size across diverse undergraduate EFL learners. Abid (2019) reported no significant correlation among undergraduates; however, Tian (2020) found significant correlations when examining VLSs and vocabulary size. Several studies in the Saudi EFL context concluded that there is a positive correlation between utilizing VLSs and vocabulary size (Alahmad, 2020; Alahmadi et al., 2018; Alsharif, 2022).

Although the overall finding of the correlation between VLSs and vocabulary size is not of a statistical significance, the determination strategies showed a weak predicator of a statistical correlation among computer science and engineering participants. This may stem from the nature of their specialty, where they must develop problem-solving skills. Moreover, the rapid evolution of technology necessitates that they stay current with updates, leading to an increased need for discovery strategies.

## 5. RECOMMENDATIONS

1. Students should be aware of the VLS they utilize to align with the objectives of their learning process.
2. Students should engage with VLS more autonomously to stay aligned with the fast pace of global changes and improve their adaptability.
3. Teachers should recognize the VLS to effectively guide and support students in maximizing their learning experience.
4. Teachers should equip students with the necessary skills to foster self-learning, as it has been shown to correlate highly with a larger vocabulary size.
5. Policymakers, stakeholders, and curriculum designers should implement and promote strategies that encourage student engagement.

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