

# Measuring Vocabulary Knowledge for Secondary Graduate Students

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**Abstract**—This study examines the extent of vocabulary knowledge among Saudi students who have recently graduated from secondary school, and its potential connection to their performance in English. The study involved 83 participants taking the Updated Vocabulary Levels Test by Webb et al. (2017). The findings reveal that the mean score of the test is below expectations: minimum scores suggested by Webb et al. (2017) are 29/30 for the first three word levels (1,000, 2,000, and 3,000) and 24/30 for the last two word levels (4,000 and 5,000). However, the average scores for participants in the study are 22.6/30 for the 1,000-word level, 16.4/30 for the 2,000-word level, 9.3/30 for the 3,000-word level, 8.9/30 for the 4,000-word level, and 7.7/30 for the 5,000-word level. These low scores could indicate an inadequate performance in English and imply that participants will struggle with receptive and productive skills. Therefore, a thorough evaluation of the EFL curriculum from K-12, especially for teaching vocabulary, is strongly recommended. Moreover, the adequacy of learners' vocabulary knowledge will be a crucial boost for their performance in communicative tasks.

**Index Terms**—vocabulary size, vocabulary knowledge, Vocabulary Levels Test, Updated Vocabulary Levels Test

## I. INTRODUCTION

A number of second language (L2) acquisition researchers agree that learning vocabulary is the primary means for successfully achieving L2 proficiency (e.g., Samuels, 1967; Wilkins, 1972; Gairns & Redman, 1986; Cameron, 2002; Nation, 2001, 2006, 2022; Thornbury, 2002; Webb et al., 2017; Altalhab, 2019). However, educators have given relatively little attention to vocabulary learning compared to grammar or the four skills (listening, speaking, reading and writing). This situation reminds us of the well-said quote: “Without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (Wilkins, 1972, pp. 111-112). In fact, Nation (2001) stated that vocabulary is necessary for achieving these skills successfully. Therefore, the association between vocabulary richness and the level of second language learners is inevitable (Milton, 2013; Nation, 2022). Consequently, measuring vocabulary knowledge is essential for diagnostic or placement determination. Namaziandost et al. (2020) argue that a lack of grammar ability leads to very little communication, however, without vocabulary nothing can be communicated. Therefore, the proficiency level of an individual in any language is linked to the size of the possessed receptive vocabulary.

Vocabulary size is linked to different language skills such as academic accomplishment in particular subjects. Vocabulary knowledge is a key feature in the determination of proficiency in all facets of language, for example, writing, reading, listening, and speaking (Qian & Linda, 2019). Moreover, in the process of writing, vocabulary knowledge is a key feature in characterizing the level of the writing feature (Chen et al., 2021). Asiah et al. (2020) argued that a lack of vocabulary knowledge will affect the quality of writing. Therefore, it is important to gain knowledge of vocabulary in the understanding of different features of a language, especially in the learning process of a second language and the appropriate quantity of vocabulary words is paramount (Milton, 2013). It is evident that as soon as learners of a second language develop their vocabulary, they become capable of developing greater fluency and expression.

A number of linguists divided vocabulary into receptive and productive mastery knowledge (Read, 2000; Nation, 2001; Schmitt & Schmitt, 2014). Similarly, Dana (2022, p. 1) has categorized the vocabulary into active (learners can use and utter) and passive vocabulary (limited to recognition, cannot utter). Receptive vocabulary knowledge concerns reading and listening activities of learners. According to Webb (2013), receptive vocabulary only impacts meaning, and particular words are identified and understood but cannot be used in spoken and written language. Research on vocabulary in a foreign or second language is a multifaceted and perplexing phenomenon. The findings of different studies affirm the numerous challenges faced by the researchers in coping with the exact nature of vocabulary: how vocabulary develops in the learning process, and the effects of contextual and individual disparity. The notable patterns that emerge in the process of acquiring a second language vocabulary are educational and social (Lou & Noels, 2019). Teachers mainly record the volume of vocabulary receptivity or productivity of a student when he or she joins the school and at the end of the session or course to show an increased pattern of what the student can easily achieve (Rezai et al., 2022). Also, it is necessary to evaluate the lexical extent of students before the commencement of a particular course to set language levels, organize language activities, and design and implement the appropriate syllabus for encouraging results (Çetin, 2019). In this regard, the Vocabulary Levels Test (VLT), which is a tool to measure the

written receptive vocabulary knowledge of an individual, and the Yes/No vocabulary test, which is a simple test format that is used to measure learners' receptive vocabulary size, have a significant effect on vocabulary studies (Read, 2019). Researchers have attempted to rectify issues such as what is a word, what it means to identify a word, what is the least vocabulary size for academic programs to adopt in a specific second language as a medium of teaching, and what is the least amount needed to comprehend a specific language text (Read, 1988; Hunt & Beglar, 2005; Nagy & Townsend, 2012).

## II. VOCABULARY TESTING

Two prominent tests commonly used in English as a second language research are the VLT and the VST (Vocabulary Size Test). The VLT was designed with a pedagogical goal to enable teachers to highlight second language learners' receptive vocabulary gaps (Nation & Webb, 2011; Webb & Nation, 2017). It encompasses sampled words from the Academic Word List, including 2,000, 3,000, and 5,000, as well as the 10,000 common words in English. Each of its three sections contains five frequency levels, requiring the examinee to match definitions to six words. This test initially, the focuses on frequently occurring words and progressively increases in vocabulary difficulty. However, the VLT was later updated by Webb et al. (2017) and is employed as an instrument in this study.

The Yes/No vocabulary test, inspired by Meara's (1992) work, serves as an alternative to the manifold choice in vocabulary testing and develops the Eurocentres VST. This test employs a simpler format compared to the VLT with the same objectives. Academic words are also a focus of the VLT Yes/No test. In this test, examinees receive a checklist and are instructed to recognize given words within the list. This test is used at various levels, encompassing 2,000, 3,000, 4,000, and 5,000-word levels, each with 60 words. Both tests use distinct materials to evaluate the receptive vocabulary of learners, avoiding inaccurate scores that can result from examinees misjudging word knowledge, including imaginary words. However, the VLT uses graded frequency lists for word selection and word knowledge. Nevertheless, both tests have advantages and drawbacks, but they are generally acknowledged as reliable measures of receptive vocabulary.

## III. LANGUAGE PROFICIENCY AND VOCABULARY SIZE

Vocabulary plays a crucial role in language proficiency and academic performance (Roche et al., 2014). It is evident that vocabulary knowledge increases with proficiency. Qian and Lin (2019) affirmed that the size and proficiency of L2 lexical capabilities develop in tandem with L2 skills, with other factors such as metacognitive awareness being less proficiency-dependent. They employed a yes/no checklist test and found that vocabulary size is a dominant factor in determining language proficiency. Sadullaev (2021) identified vocabulary as the most influential component for text comprehension. He attempted to identify the adequate vocabulary size for reading comprehension and noted that this is a complex phenomenon, with different contexts yielding diverse results. Nonetheless, there is consensus that a congenial reading level requires a minimum acquaintance with 5,000 words (Liu, 2020). In fact, Hsu (2020) recommended that a richer vocabulary of 8,000-9,000 words is needed to comprehend written texts such as newspapers and novels.

In a similar context to the current study, Altalhab (2019) investigated the vocabulary knowledge of Saudi EFL Tertiary Students at King Saud University. These students shared similarities in terms of their mother language, locality, age, and educational level. The researcher employed a vocabulary knowledge test comprising 140 items, each with four options to select the correct meaning of the target word, based on Nation and Beglar's (2011) design. The findings revealed that the vocabulary size of the students was approximately 3,000 words. Moreover, the study showed that students could communicate at a basic level, capable of reading simple texts and understanding listening materials. However, comprehending more complex texts, understanding English TV programs and films, and writing high-quality compositions remained challenging for them. Thus, the study recommends a greater focus on vocabulary learning in schools and universities. Similar findings were observed in comparable contexts (Milton & Al-Masrai, 2012; Alqarni, 2019).

Stoeckel et al. (2021) examined the vocabulary size test designed to measure the vocabulary required for reading skills, suggesting that the existing test formats might miscalculate receptive vocabulary knowledge. They recommended shifting from a recognition format to a recall format, employing word families instead of lemmas, and increasing the size of items to improve test accuracy. Amenta et al. (2021) developed LexITA assessment tool to objectively measure the Italian receptive vocabulary knowledge of learners. Their study aimed to fill the gap in objectively assessing Italian L2 lexical knowledge. Group 1 was comprised of 58 university students and Group 2 consisted of 141 students at different universities in Belgium and the Netherlands. The findings of the study showed that LexITA was authenticated to measure and assess the vocabulary knowledge of L2 speakers of Italian spanning different levels of proficiency. Furthermore, it was revealed that L1 speakers scored higher than L2 speakers.

Miralpeix and Munoz (2018) explored the relationship between receptive vocabulary size and EFL language skills for advanced learners. The population of the study was 42 learners of advanced and EFL students who were fluent in all language skills. The findings of the study affirmed that the vocabulary plays a crucial role in language proficiency. Learners with smaller vocabularies exhibited lower proficiency in receptive and productive skills, with the most significant impact on writing skills. Cameron (2002) studied the memory size of English as an additional language

(EAL). The researcher employed the VLT and the Yes/No test to measure the size of the possessed vocabulary amongst UK secondary-level students. The first stage findings show that VLT is useful compared to a Yes/No test because non-words in it cause variable results. In the second stage of the study, the researcher included 63 students who were studying English as an additional language and 84 students who spoke exclusively in English. The outcomes of the results show a distinct pattern between both contexts. EAL students illustrate shortcomings in frequently used words of English and these gaps were extended for the less used words. Moreover, mean scores of EAL and t-tests show a significant difference (at the 3,000- and 5,000-word levels) for both participants of the study. Thus, it is concluded that VLT is a viable research and pedagogical tool in EAL and provides a compliant image of the receptive vocabulary test.

Ha (2021) examined the correlation between different aspects of receptive vocabulary knowledge and second language listening and reading comprehension. He adopted the IELTS, UVLT (Updated Vocabulary Levels Test), and LVL (Listening Vocabulary Levels Test) testing techniques for different listening and reading exercises to assess the capabilities of Vietnamese language learners (EFL). The findings of the study entailed that orthographic and receptive vocabulary knowledge were powerfully correlated and of significance to second language listening and reading knowledge. Receptive vocabulary was a great aspect of the fluency of receptive language skills. Moreover, academic listening and reading performance is highly linked with academic vocabulary knowledge. The findings of different studies highlight the significance of vocabulary knowledge to gain the appropriate listening and reading capabilities of any language. Furthermore, different researchers agree that the acquaintance of 95% to 98% of frequently employed words in the text is mandatory for an adequate understanding of the text (Laufer, 2003; Schmitt et al., 2011). Moreover, Cheng and Matthews (2018) distinguished between reading and listening skills based on perceived vocabulary and characterized reading text as a temporary permanent, which can be accessed by the readers repeatedly, whereas listening activities provide a short period of time to the learners. Therefore, listening is perceived as a comparatively challenging activity when compared to reading in subjects to provision common lexical items. Albashtawi et al. (2016) examined the performance of Jordanian students in different English language skills and revealed they performed poorly due to inadequate capabilities of acquired vocabulary. Atas (2018) investigated the role of vocabulary knowledge in the listening skills of English as a second language. The Vocabulary Levels Test (Schmitt et al., 2001), which was a revised version of Nation's (1983) VLT, was employed for assessing the vocabulary proficiency of participants while a standardized listening test, the Cambridge Certificate of Proficiency in English, was utilized for the evaluation of listening levels. The results of the study showed that vocabulary knowledge had a significant correlation with listening capabilities. Furthermore, the 5,000-word frequency emerged as the most effective predictor of the variance in listening comprehension, and both of these findings carried significant implications for enhancing listening comprehension in EFL contexts.

In summary, various studies highlight the significance of vocabulary knowledge in language proficiency and academic performance. A robust vocabulary is essential for comprehension and proficiency in reading, listening, and writing. Different researchers emphasize the importance of vocabulary knowledge in reaching a satisfactory level of language understanding. These findings underline the critical role of vocabulary in language learning and proficiency. This study attempts to seek the vocabulary level of students in their transitional phase (graduated from high school, but still have not joined university). This study employed Webb et al.'s (2017) UVLT as it is considered to have the largest vocabulary knowledge besides its size.

#### IV. METHODOLOGY

Participants in this study were 83 Saudi students. All were male native speakers of Arabic who started learning English in the upper levels of primary school at the age of 9, taking part in two 45-minute classes per week. However, when they moved to intermediate, and also secondary school, English was taught for four classes per week, with each class being 45 minutes in length. Their age group is 19-21 years old and they finished secondary school yet did not join university (at the time of writing). The transition from schools to universities (post-secondary education) is a crucial stage for most students (Parker et al., 2006; Wilson et al., 2022). Therefore, this age group was chosen, in addition, to see an indication of students' English progress after completing general education. English textbooks used in the Kingdom "follows the Common European Framework of Reference (CEFR), which is divided into the basic, intermediate, and advanced levels. Basic is A1-A2, intermediate is B1-B2, and advanced is C1-C2" (Aljouei & Alsuhaibani, 2018, p. 143). Students, according to the Ministry of Education (2013), should achieve a B2+ (upper intermediate) level.

UVLT<sup>1</sup> utilized in this study was designed or perhaps modified and updated by Webb et al. (2017). The uniqueness of this test is that it measures knowledge rather than size, which is considered more authentic and reliable. Hence, frequently used words were chosen. These words were selected from Nation's (2012) British National Corpus/Corpus of Contemporary American English (BNC/COCA) word lists. The chosen words were seen as more appropriate and useful for EFL learners when compared to other lists (Dang & Webb, 2016). Unlike the previous VLT, UVLT checks the most frequently used vocabulary of the 1,000-, 2,000-, 3,000-, 4,000-, and 5,000-word levels. According to Webb et

<sup>1</sup> The test can be found on Webb's university webpage <https://www.edu.uwo.ca/faculty-profiles/stuart-webb.html>.

al. (2017), the test was validated with around 1,500 participants from more than 20 countries, one of them being Saudi Arabi although a relatively small portion, namely 74 participants.

*A. Procedure*

Participants were given 150 items with each level consisting of 30 items. They needed to match each meaning with its word by placing a tick (see Table 1). Test-takers should score a minimum of 29/30 (96.7%) for mastery of the 1,000-, 2,000-, and 3000-word levels; however, for the 4,000- and 5,000-word levels, the cut-off point of mastery would be 24/30 (80%) (Webb et al., 2017). Participants were given 60 minutes to complete the test.

*B. Data Analysis*

Each student from the 83 students had his actual score awarded according to his answers. For each word level, the mean for students' scores and percentages were calculated in order to identify the cut-off point for each word level according to Webb et al.'s (2017) suggestions (see Table 2).

TABLE 1  
EXAMPLE OF ITEMS IN THE UPDATED VOCABULARY LEVELS TEST (WEBB ET AL., 2017)

	check	fight	return	tell	work	write
do things to get money						
go back again						
make sure						

V. FINDINGS AND DISCUSSION

To ascertain the receptive vocabulary knowledge of participants at specific frequency levels (1,000-5,000) based on the UVLT employed, the mean and percentages were calculated for each word level (see Table 2). For the first 1,000-word level, the mean and percentages were 22.63/30 (75.30%), 16.39/30 (54.70%) for the 2000-word level, and 9.31/30 (31%) for the 3,000-word level. These scores were below the suggested cut-off point for the mastery of the 1,000-, 2,000-, and 3,000-word levels, as it was 29/30 (96.67%) (Webb et al., 2017). However, there were a number of students who achieved the minimum recommended scores for these levels, namely 24 students for the 1,000-word level, 7 students for the 2,000-word level, and one student for the 3,000-word level. For the 4,000-word level, the mean and percentages were 8.90/30 (29.70%), and 7.68/30 (25.60%) for the 5,000-word level (see Table 2). Again, these results were below the suggested cut-off point for each level, as it should equal or exceed 24/30 (80%) (Webb et al., 2017). However, 6 and 4 students, respectively, managed to achieve the threshold. The findings of this study indicate poor outcomes of mainly public schools in English, even after the reforms in 2004 when English was introduced at the primary stage in public schools. Therefore, introducing English from the primary stage has not shown any significant effect. In similar contexts, a number of studies corroborate this conclusion, as the English level of students, unfortunately, is far from meeting expectations (Al-Hazemi, 1993; Al-Nujaidai, 2003; Al-Johani, 2009; Alnasser, 2013; Al-Tamimi, 2019). The Ministry of Education asserted that students are expected to possess a vocabulary of approximately 3,000 words upon secondary graduation, yet this claim has been subject to doubt and does not consistently align with reality (Alqarni, 2019). Therefore, Alsuhaibani et al. (2023) have reported that there is a gap between the official objectives for English levels and the actual level that students ascertain. These findings, along with the current one, suggest that there should be a reconciliation between the objectives and outcomes and what is happening in the field. In addition, the results of even English major undergraduate students were also below expectations, although a different test was conducted (Alqarni, 2019; Altalhab, 2019). This gives us a clear picture of the level of most public school graduate students, especially in vocabulary acquisition.

Despite strict standards in the current test – with 29/30 required to master the first three (1,000-3,000) word families – the average score is far from the desired goal. However, participants presumably could have known some of these words, especially in the 1,000- and 2,000-word levels, perhaps in simple contexts (sentences). The current test reviews vocabulary knowledge more than the vocabulary size for each participant. Even though UVLT is considered stricter than similar tests, it is highly recommended to have familiarity with 95% to 98% of frequently used words in a text for a comprehensive understanding of the text (Laufer, 2003; Schmitt et al., 2011). The empirical evidence presented in this study and other studies offers important insights into pedagogical considerations related to enhancing ELT, particularly in terms of vocabulary knowledge. These findings underscore the significance of incorporating or enhancing both the breadth and depth of vocabulary knowledge to boost overall EFL proficiency. Therefore, Enayat and Derakhshan's (2021) suggested guidance for developing assessment rubrics that specifically address the lexical aspect of L2 speaking is important to note.

TABLE 2  
THE MEAN AND PERCENTAGE SCORES IN UVLT

Word Level	Mean	Percentage
1,000	22.62651	75.30%
2,000	16.38554	54.70%
3,000	9.313253	31.00%
4,000	8.903614	29.70%
5,000	7.674699	25.60%
Total	65.08434	43.39%

## VI. CONCLUSION

This study has examined the vocabulary knowledge of Saudi students who have recently graduated from secondary school. The results of UVLT indicate that the participants' vocabulary knowledge is below the expected levels for each vocabulary category. The low performance of participants in the realm of low-frequency vocabulary offers valuable insights into students' English language abilities and their capacity to handle various language skills, hence insufficient performance at perhaps a basic communication level. Although scores obtained from vocabulary tests can be interpreted in various ways such as assessing learners' receptive vocabulary knowledge, it can also be seen as a potent indicator for educational institutions' programmes. The current study sheds light on the vocabulary proficiency of Saudi graduate students who have been studying the same textbooks and attending the same number of classes in mostly public schools. Hence, a comprehensive evaluation of the English curriculum, number of classes, and teaching techniques is urgently recommended. This study has arrived at similar conclusions to other studies conducted since 1993. For example, Al-Hazemi (1993) indicated that post-high school military cadets had a vocabulary ranging from 800 to 2,000 words, with an average mean score hovering around 1,000 words. Al-Nujaidi's (2003) study reported that first-year Saudi university students performed inadequately in vocabulary size assessments. His results demonstrated an average vocabulary size of roughly 500 to 700 words at the 2,000- and 3,000-word levels and approximately 75 words in the realm of academic vocabulary. Despite the insights offered by this study into the vocabulary competency of Saudi secondary graduate students, it is crucial to recognize a potential limitation for future studies. This would include other factors that could lead to better understanding, such as scores in general and in English in particular, other types of schools (such as private school students), female students, and different demographic backgrounds. These factors have the potential to impact the overall outcomes in similar research endeavours. Future research should encompass a wider array of assessments aimed at evaluating academic vocabulary and gauging academic listening and reading comprehension to substantiate these findings such as TOEFL, IELTS, or STEP. In addition, it is worth noting that the relatively limited sample size may constrain the applicability of the findings to a broader population. Therefore, subsequent studies should readdress this matter with more extensive participant cohorts to arrive at more dependable and comprehensive conclusions.

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