

# Measuring the effect of receptive and productive vocabulary size on foreign language skills

SELAHATTIN YILMAZ

SUZAN KAVANOZ

*Yildiz Technical University, Türkiye*

Received: 2024-11-05 / Accepted: 2025-01-20

DOI: <https://doi.org/10.30827/portalin.vi44.31870>

ISSN paper edition: 1697-7467, ISSN digital edition: 2695-8244

**ABSTRACT:** Vocabulary knowledge is crucial for developing English language skills, and assessing students' vocabulary levels offers an effective means to monitor their language development and predict their test performance. Therefore, this study examined the relationship between receptive and productive vocabulary knowledge and English language skills (reading, writing, listening, speaking, and use of English) of 306 Turkish university students enrolled in A1, A2, and B1-level EFL classes as part of a preparatory language program. Vocabulary knowledge was measured using a receptive and a productive vocabulary levels test, while language skills were assessed through an English Proficiency Exam and a speaking exam. The results revealed significant positive correlations between receptive and productive vocabulary knowledge, particularly at higher proficiency levels. Receptive vocabulary was found to be a much stronger predictor of language skills, especially for reading, listening, and use of English (UoE), than productive vocabulary which predicted performance in UoE. The impact of both vocabulary tests was more pronounced at higher proficiency levels, although their overall influence on language skills was limited. These findings suggest a nuanced relationship between vocabulary and language proficiency, while highlighting the need for systematic and balanced L2 instruction that includes different dimensions of vocabulary knowledge.

**Keywords:** english as a foreign language, receptive vocabulary, productive vocabulary, vocabulary levels tests, vocabulary instruction

## Medir el efecto del tamaño del vocabulario receptivo y productivo en las competencias en lenguas extranjeras

**RESUMEN:** El conocimiento de vocabulario es fundamental para desarrollar habilidades en inglés. Evaluar los niveles de vocabulario de los estudiantes permite seguir su progreso y predecir su rendimiento en pruebas. Este estudio investigó la relación entre el conocimiento de vocabulario receptivo y productivo y las habilidades en inglés (lectura, escritura, escucha, habla y uso del inglés) de 306 estudiantes universitarios turcos de niveles A1, A2 y B1 de EFL. El conocimiento de vocabulario se midió con el *New Vocabulary Levels Test* (NVLT) y el *Vocabulary Levels Test-Productive* (VLTP). Las habilidades lingüísticas se evaluaron mediante un Examen de Competencia en Inglés (EPE) y un examen oral. Los resultados mostraron correlaciones positivas significativas entre el conocimiento receptivo y productivo, especialmente en niveles más altos. El vocabulario receptivo fue un predictor más fuerte de las habilidades lingüísticas, particularmente en lectura, escucha y uso del inglés, en comparación con el vocabulario productivo, que se relacionó más con el uso del inglés. Sin em-

bargo, ambos tipos de conocimiento de vocabulario tuvieron mayor impacto en los niveles más avanzados. Estos hallazgos revelan una relación compleja entre el vocabulario y la competencia en el idioma, proporcionando información útil para educadores e investigadores.

**Palabras clave:** enseñanza del vocabulario, Inglés como lengua extranjera, pruebas de nivel de vocabulario, vocabulario receptivo, vocabulario productivos

## 1. INTRODUCTION

Vocabulary knowledge is essential for effective communication, making vocabulary instruction a fundamental component of foreign language education (Qian & Lin, 2019; Schmitt, et al., 2017). Learners without sufficient vocabulary may struggle to express themselves and engage in meaningful interaction confidently (Schmitt, 2000). Recognizing this need, research has increasingly examined the link between vocabulary knowledge—both in terms of the receptive and productive dimensions—and language proficiency, emphasizing its role in overall language development. The global demand for quality language education has led to an increasing need for a more thorough understanding of how vocabulary knowledge, both receptive and productive, is related to learners' language skills. Learners with larger vocabulary tend to be more proficient, as vocabulary size significantly correlates with overall language ability (e.g., Laufer & Nation, 1995; Qian & Lin, 2019; Uchihara & Clenton, 2020). This relationship provides valuable insights for enhancing language instruction and assessment.

Although previous studies have documented the significance of vocabulary knowledge for language proficiency, to the best of our knowledge, research examining the contributions of receptive and productive vocabulary to multiple individual language skills, particularly across lower proficiency levels such as A1 and A2, remains limited. To address this gap, the current study examines the extent to which receptive and productive vocabulary knowledge predicts the performance of Turkish EFL learners at varying proficiency levels in terms of language skills including reading, writing, listening, speaking, and use of English (UoE). By analyzing these links, the study intends to inform educators and testers, by contributing to the development of more targeted vocabulary instruction and assessment in EFL contexts.

## 2. LITERATURE REVIEW

### 2.1. Vocabulary knowledge

As an essential element in language learning, vocabulary impacts performance in language skills (e.g., Meara & Walter, 2004; Schmitt, 2014; Zhou & Li, 2022). Vocabulary knowledge, however, is a multidimensional construct. Anderson and Freebody (1981) proposed an early distinction between the breadth of vocabulary, or the number of words known, and the depth of vocabulary, or the extent to which these words are known, including form, meaning, and use of words (Nation, 2001). Another common distinction is between receptive and productive vocabulary. Receptive vocabulary involves “perceiving the form of a word while listening or reading and retrieving its meaning,” and productive vocabulary refers to “wanting to express a meaning through speaking or writing and retrieving and producing the appropriate spoken or written word form.” (Nation, 2013, p. 47). Learning a word typically

progresses from receptive to productive knowledge, as understanding precedes active usage in speech or writing (Laufer, 1998).

Vocabulary size is crucial for non-native speakers of English, as it directly impacts their proficiency in various language tasks. Research indicates that vocabulary size influences multiple language skills, such as reading comprehension (Biemiller, 2005), writing and grammar (Alderson, 2005), and listening (Mathews, 2018). For beginner-level English as a Foreign Language (EFL) students, a vocabulary size of 2,000 to 3,000 words is necessary to understand approximately 80% of most texts and to communicate effectively. Similarly, Schmitt et al. (2001) suggest that a vocabulary size of around 3,000 words is essential for learners to start reading authentic texts, while a larger vocabulary of 5,000-word families further improves reading comprehension. Schmitt and Schmitt (2014) state that a non-native speaker needs to know at least the most frequent 3,000-word families to hold basic conversations, while a vocabulary of 5,000-word families is required to watch movies (Webb & Rodgers, 2009). According to Nation (2006), students must have an 8,000–9,000 word-family vocabulary for dealing with authentic English texts like newspapers or novels and 6,000–7,000 families for dealing with spoken texts. As Stæhr (2009) highlights, vocabulary size can be measured through validated tools, such as vocabulary levels tests, which serve as powerful indications of learners' vocabulary level. To illustrate, determining learners' receptive vocabulary could help predict their ability to understand written or spoken discourse, while the size of their productive vocabulary can indicate how effectively they can produce such discourse (Webb, 2008).

## 2.2. Previous research on productive and receptive vocabulary

L2 vocabulary research consistently highlights the critical role of receptive and productive vocabulary for foreign language learners by focusing on the size of and the links between receptive and productive vocabulary in measuring students' vocabulary knowledge. For example, Webb (2008) found that among 83 Japanese university-level language learners, those with large receptive vocabulary had similarly large productive vocabulary. Zheng (2009) also observed that as the receptive vocabulary level of the 88 Chinese high school students in their study grew, their productive vocabulary size also expanded, with the gap between the two dimensions narrowing. Zhou (2010) reported moderate correlations between receptive and productive academic vocabulary of 72 Chinese university students, though the latter developed more slowly. Al Fraidan and Fakhli (2023) found no significant difference in the vocabulary sizes of 52 Saudi English majors and 32 preparatory English students, but their receptive vocabulary was consistently larger. Ullah et al. (2024) documented significantly higher receptive vocabulary scores among 200 Pakistani undergraduates, particularly at higher frequency levels, alongside a strong positive correlation between receptive and productive scores. Das (2023), studying 25 Indian ESL learners, identified persistent gaps between receptive and productive vocabulary, supporting the idea of a continuum in vocabulary development. Together, these studies underscore that receptive vocabulary size is generally larger, but it remains positively linked to productive vocabulary.

### 2.3. Previous research on vocabulary knowledge and language skills

Research demonstrates a strong relationship between vocabulary knowledge and language skills (Milton, 2013). Several studies explore how aspects of vocabulary knowledge link to individual language skills, particularly reading. For example, Qian's (2002) study with 217 non-native English-speaking university students in Canada found that vocabulary size and breadth were strongly related to each other, predicting reading skills by 54% and 59%, respectively. Karakoç and Durmuşoğlu-Köse (2017) reported a low but significant correlation between 175 B2.2-level Turkish university students' 2000-word level receptive and productive vocabulary, and their reading and writing scores, respectively. Similarly, Brooks et al. (2023) highlighted receptive vocabulary as the strongest predictor of reading comprehension of native and nonnative English speakers in a Japanese international school. For speaking, Uchiyara and Saito (2019) reported a moderate and significant correlation between productive vocabulary level and speech rate among 39 Japanese university-level EFL learners, while Uchiyara and Clenton (2020) identified a strong link between receptive vocabulary and the vocabulary rating of L2 speaking tasks by 46 advanced learners. Enayat and Derakhshan (2021) showed that productive vocabulary predicts fluency, and receptive vocabulary predicts overall speaking ability of 46 Iranian university students. Agram et al. (2024) found both vocabulary dimensions significantly correlated with speaking scores, explaining 60% of the variance in speaking scores among 40 Moroccan high school EFL learners. Ünalı and Yüce's (2020) study with 126 adult EFL learners enrolled in the graduate programs at a Turkish university reported significant links between receptive vocabulary size and grammar proficiency. Vocabulary knowledge also impacts listening skills. Stæhr (2009) found vocabulary size and depth significantly correlated with listening comprehension, accounting for half the variance in listening exam scores by 115 advanced Danish EFL learners. Teng (2014) revealed a strong relationship between knowledge of 5,000-word families and academic listening scores of 88 Chinese university students.

Other studies broadened the scope, examining vocabulary knowledge of learners in relation to their performance in multiple skills. For instance, Stæhr (2008) found a strong relationship between receptive vocabulary knowledge and reading, writing, and listening skills of 88 Danish high school students. Following their study with 250 Chinese university students, Cheng, and Matthews (2016) concluded that productive/phonological vocabulary knowledge predicted listening scores by 51% and productive/spelling vocabulary knowledge predicted reading scores by 33%. Similarly, Miralpeix and Muñoz (2018) demonstrated that receptive vocabulary size significantly predicted overall language ability of 42 Spanish and Catalan English Studies majors by 36%, particularly in reading and writing, though this influence diminished at higher proficiency levels. Kılıç (2019) discovered that receptive, productive and depth of vocabulary explained 26% of writing and 17% of speaking scores by 52 Turkish university students at the B2 level.

As can be seen from the studies, although vocabulary knowledge has a strong relationship with different language skills, the studies often involve small samples or focus on limited number of skills. Moreover, few studies examine the link between vocabulary knowledge and the ability to use English, which is frequently found in standardized tests. Studies with foreign language learners studying in Türkiye are also limited. Thus, a large-scale study on vocabulary and skill relationships could yield significant insights.

In response to this gap in literature, this study examines relationships between receptive and productive vocabulary levels, and the interplay vocabulary knowledge and language skill levels. The study seeks to answer four main research questions:

1. Do foreign language students' receptive and productive vocabulary levels vary across proficiency levels?
2. What is the relationship between foreign language students' receptive and productive vocabulary levels?
3. What is the relationship between foreign language students' receptive and productive vocabulary levels and their scores in language skills (reading, writing, listening, speaking, and UoE)?
4. To what extent do receptive and productive vocabulary knowledge predict language skills at different proficiency levels?

By addressing these questions, this study seeks to enhance understanding of how vocabulary knowledge is related to learners' performance in language skills and inform vocabulary teaching methods.

### 3. METHODOLOGY

#### 3.1. Data Collection Instruments

To measure vocabulary knowledge, the study used McLean and Kramer's (2015) New Vocabulary Levels Test-Receptive (RVLT) in multiple-choice format and Laufer and Nation's (1999) Vocabulary Levels Test-Productive (PVLТ) in fill-in-the-blank format (see Table 1). In addition to being a valid and reliable test of receptive vocabulary knowledge, RVLT has the advantage that, in comparison to the older receptive vocabulary tests, it is based on updated wordlists (Brooks et al., 2021; McLean & Kramer, 2015). As for PVLТ, despite being somewhat dated, it is still an established measure of productive vocabulary knowledge that was found to reliably measure differences in productive vocabulary size across proficiency levels (Laufer & Nation, 1999). The tests, transferred to Microsoft Forms, were administered online in four class hours. Following the piloting of the tests in the previous semester, the layout of the online form was improved in terms of face validity before data collection.

**Table 1.** *Sample questions from the receptive and productive levels tests*

TEST	SAMPLE QUESTION
RVLT (The 1 <sup>st</sup> question from the 2,000-word band; Answer is C)	<i><b>time:</b> They have a lot of <u>time</u>.</i> <i>a. money</i> <i>b. food</i> <i>c. hours</i> <i>d. friends</i> <i>e. I don't know the meaning of this word.</i>
PVLТ (The 1 <sup>st</sup> question from the 2,000-word band; Answer is <i>opportunity</i> )	<i>I'm glad we had this <b>op</b>_____ to talk.</i>

To determine the language skill levels, the results of the English Proficiency Exam (EPE) were used. EPE was prepared by the assessment and evaluation unit of the preparatory English program and was administered online at the end of the academic year. The unit members were all experienced EFL instructors with academic and professional expertise in language testing. This comprehensive exam consisted of a multiple-choice section that included reading, listening and note taking, and UoE cloze tests, totaling 46 items, and a writing section that required test takers to demonstrate their competence through either an argumentative or a cause-effect essay. The writing responses were rated in terms of content, organizational structure, grammatical accuracy, and lexical sophistication. In addition, speaking proficiency was measured through a speaking exam where students expressed their opinions for two to three minutes on class topics. The students' speaking performance was assessed in terms of fluency, pronunciation, coherence, lexical resource, grammatical range, and accuracy. Responses to the writing and speaking exams were independently rated by two instructors, and their scores were then averaged to determine the final scores. The students taking the vocabulary tests were asked for permission to access their EPE and speaking exam scores through the online forms.

### 3.2. Participants

The study was conducted with A1, A2, and B1 students in a preparatory English program at a major Turkish university during the spring semester of the 2022-2023 academic year. The program offers English-language courses to undergraduate students who would start their degree programs where subject courses are offered at least partially in English after successfully completing these courses. Of the 910 students who completed the vocabulary tests, only those with EPE or speaking exam scores were included. As shown in Table 2, vocabulary and written test results were collected from 306 students, with 137 at the A1 level, 118 at the A2 level, and 51 at the B1 level. Among these, 40 students did not take the speaking exam. Therefore, the analysis of speaking scores included data from 266 students, comprising 126 at the A1 level, 101 at the A2 level, and 39 at the B1 level.

**Table 2.** *Distribution of participants according to levels, completed tests, sex, and age*

GROUP	LEVEL	TOTAL	SEX (FEMALE)	SEX (MALE)	AGE (MEAN)	AGE (SD)
VOCABULARY AND WRITTEN TEST RESULTS	A1	137	72	65	19.61	0.87
	A2	118	60	58	19.89	2.55
	B1	51	30	21	19.30	0.55
	Total	306	162	144	19.67	1.71
VOCABULARY AND SPEAKING TEST RE- SULTS	A1	126	67	59	19.64	0.90
	A2	101	51	50	19.93	2.73
	B1	39	21	18	19.28	0.57
	Total	266	139	127	19.70	1.82

### 3.3. Data analysis

The language skill scores were standardized to a scale of 100 before conducting the statistical analysis. Vocabulary knowledge was analyzed up to the 5,000-word level, which was based on Hirsh & Nation's (1999) finding that one needs to know approximately 5,000 words in the language in order to understand the texts they read. In both vocabulary tests, following previous research (e.g., Laufer, 1998; Kavanoz & Ünal, 2019), the number of correct answers was multiplied by 5,000 and divided by the total number of test items (120 for RVLTL, 54 for PVLTL). For example, a student who answered 100 questions correctly on the RVLTL had a score of  $(100 \times 5,000) / 120 = 4166.67$ . This normalization process ensured comparability across the two tests with different numbers of items. Since it was determined that the variables did not show normal distribution, all of them were logarithmically transformed in base 10 and made suitable for normal distribution.

Results were analyzed in three stages using the Statistical Package for Social Sciences (SPSS) 27. In the first stage, to address the first research question, differences between the three proficiency levels were measured with one-way ANOVA tests and Bonferroni-adjusted post hoc pairwise comparison tests for each skill. Next, to address the second and third research questions, Pearson correlation tests were conducted to determine the relationship between students' RVLTL and PVLTL scores and individual language skills. In the third and final stage, to address the fourth research question, multiple linear regression analyses were conducted to determine the predictive power of receptive and productive vocabulary scores on language skills. A separate test was run for each language skill and proficiency level, totaling up to 15 tests. Regarding the method of regressions, the "enter" method was used instead of the "stepwise" method to avoid depending solely on statistical measures (Larson-Hall, 2015; Tabacknick & Fidell, 2018). Due to the higher values, RVLTL scores were entered first, and then PVLTL scores were entered in the second models.

## 4. RESULTS

The findings of the study are reported within the framework of the research objectives and questions, ensuring that the data gathered directly addresses the core aims of the research. By structuring the results in this way, we aimed to remain focused on the specific areas of inquiry established at the beginning of the study.

### 4.1. A descriptive overview of students' scores

As is shown in Table 3, the B1 level consistently demonstrated the highest mean scores across all skills, with speaking scores being the highest across all proficiency levels. Reading scores, however, revealed the most remarkable differences between proficiency levels. A2-level learners demonstrated a lower performance than A1-level students.

**Table 3.** *Descriptive statistics for exam scores*

SKILL	STATISTICS	PROFICIENCY LEVELS		
		A1	A2	B1
UoE	Mean	74.58	76.72	78.90
	SD	14.43	14.08	13.14
	Minimum	35.71	39.29	47.62
	Maximum	100.00	100.00	100.00
Reading	Mean	73.24	64.26	78.76
	SD	21.89	22.36	17.97
	Minimum	16.67	16.67	16.67
	Maximum	100.00	100.00	100.00
Listening	Mean	86.42	89.66	87.45
	SD	15.70	15.41	16.47
	Minimum	40.00	20.00	40.00
	Maximum	100.00	100.00	100.00
Speaking	Mean	83.19	87.13	93.02
	SD	14.37	12.01	9.95
	Minimum	40.00	50.00	55.00
	Maximum	100.00	100.00	100.00
Writing	Mean	75.15	75.32	80.20
	SD	14.48	17.32	14.98
	Minimum	22.00	8.00	20.00
	Maximum	100.00	100.00	100.00

B1-level students consistently outperformed A1 and A2-level students on both vocabulary tests, with the scores for A1 level showing the greatest degree of variation among. RVLT scores increased linearly across levels, while PVLt scores for A2 students were lower than those for A1 students (see Table 4).

**Table 4.** *Descriptive statistics for vocabulary levels tests*

TEST	STATISTIC	A1	A2	B1
RVLT	Mean	3717.15	3785.66	4272.88
	SD	693.26	569.07	469.21
	Minimum	1833.33	2250.00	3333.33
	Maximum	4833.33	4916.67	4875.00
PVLt	Mean	1834.28	1789.86	2643.43
	SD	1113.69	881.58	962.13
	Minimum	277.78	185.19	740.74
	Maximum	4722.22	4444.44	4259.26



#### 4.2. Differences between foreign language students' receptive and productive vocabulary levels based on proficiency levels

A one-way ANOVA revealed significant differences in RVLTL ( $F(2, 303) = 14.391, p < .001$ ) and PVLTL ( $F(2, 303) = 13.273, p < .001$ ). For both tests, post Hoc comparisons showed significant differences between A1 and B1, and A2 and B1 levels ( $p < .001$ ), while no such differences were found between A1 and A2 levels (see Fig. 1).

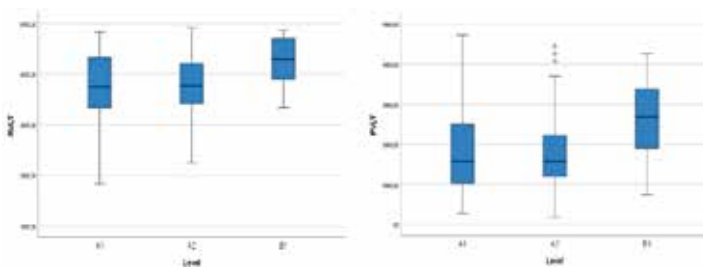


Figure 1. Boxplot for level differences in RVLTL and PVLTL scores

#### 4.3. Foreign language students' receptive and productive vocabulary and language skills

The correlation results pointed to significant relationships between vocabulary tests and language skills at all levels (see Table 4, Fig. 2-4). At level A1, PVLTL and RVLTL exhibit a moderate positive correlation ( $r = .380, p < .01$ ), with RVLTL also showing significant but weaker correlations with UoE ( $r = .196, p < .05$ ), and PVLTL with Writing ( $r = .171, p < .05$ ) and Speaking ( $r = .199, p < .05$ ). At level A2, the correlation between RVLTL and PVLTL remains strong ( $r = .620, p < .01$ ), with RVLTL also significantly correlating with UoE ( $r = .268, p < .01$ ) and Reading ( $r = .206, p < .05$ ). Similarly, PVLTL correlates significantly with UoE ( $r = .312, p < .01$ ) and Writing ( $r = .236, p < .05$ ). At level B1, RVLTL and PVLTL maintain a robust positive correlation ( $r = .635, p < .01$ ), with RVLTL also significantly correlating with UoE ( $r = .364, p < .01$ ), Reading ( $r = .332, p < .05$ ), and Listening ( $r = .314, p < .05$ ). PVLTL shows significant correlations with UoE ( $r = .494, p < .01$ ) and Reading ( $r = .331, p < .05$ ). These findings underscore the importance of vocabulary proficiency, as measured by RVLTL and PVLTL, in predicting various language skills across different proficiency levels.

Table 5. Correlation analysis results between students' vocabulary levels and their language skills

LEVEL	TEST	PVLTL	RVLTL	UoE	READING	LISTENING	WRITING	SPEAKING
A1	RVLTL	.380**	1	.196*	.147	.109	.099	.120
	PVLTL	1	.380**	.112	.113	.027	.171*	.199*
A2	RVLTL	.620**	-	.268*	.206*	.050	.080	.124
	PVLTL	1	.620**	.312*	.105	.167	.167	.236*
B1	RVLTL	.666**	1	.352*	.320*	.312*	.127	.023
	PVLTL	1	.666**	.593*	.377*	.226	.144	.071

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

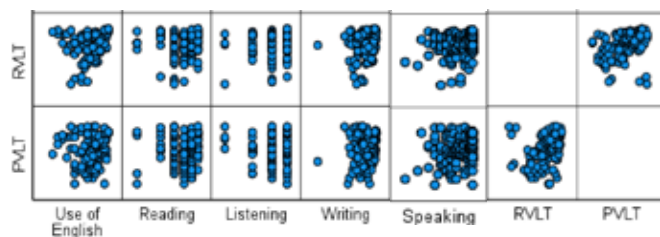


Figure 2. Scatterplots for A1-level correlations



Figure 3. Scatterplots for A2-level correlations

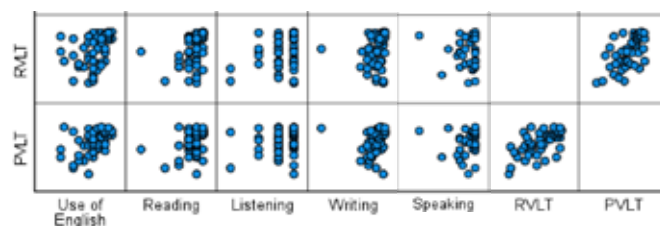


Figure 4. Scatterplots for B1-level correlations

#### 4.4. Predictive power of receptive and productive vocabulary for language skills

The regression analyses revealed varying patterns across different language skills. For UoE, the first step of the model, which included RVL as the predictor, explained a significant portion of the variance at all levels, explaining 3.8% of the variance in UoE for A1, 7.2% for A2, and 12.4% for B1. In the second step, the addition of PVL further explained significant variance at the A2 and B1 levels, indicating an additional 3.4% and 23.1% of variance explained, respectively. For Reading, RVL alone explained 4.2% and 10.3% of the variance in Reading at A2 and B1, respectively. The addition of PVL significantly improved the model for only B1, with an additional 4.8% variance explained. For listening, the model at Step 1 was only significant for B1 where 9.7% of the variance was explained by RVL only. For writing, neither step significantly explained the variance at any level. For speaking, the first step was not significant for any level, but the second step, with the addition of PVL, showed a significant improvement at A2, by explaining an additional 4.2% of the variance. No significant change was seen at other levels. (see Table 5).

**Table 5.** *Multiple linear regression results*

SKILL	STEPWISE PROCEDURE	VARIABLES	A1		A2		B1	
			R <sup>2</sup>	R <sup>2</sup> CHANGE	R <sup>2</sup>	R <sup>2</sup> CHANGE	R <sup>2</sup>	R <sup>2</sup> CHANGE
UoE	Step 1	RVLT	.038*	.038*	.072**	.072**	.124*	.124*
	Step 2	PVLT	.040	.002	.107**	.034*	.355**	.231**
Reading	Step 1	RVLT	.022	.022	.042*	.042*	.103*	.103*
	Step 2	PVLT	.025	.004	.043	.001	.151*	.048
Listening	Step 1	RVLT	.012	.012	.002	.002	.097*	.097*
	Step 2	PVLT	.012	.000	.033	.030	.098	.001
Writing	Step 1	RVLT	.010	.010	.006	.006	.016	.016
	Step 2	PVLT	.031	.021	.029	.022	.022	.006
Speaking	Step 1	RVLT	.014	.014	.015	.015	.001	.001
	Step 2	PVLT	.042	.028	.057	.042*	.007	.006

\*. Correlation is significant at 0.05 level

\*\*. Correlation is significant at 0.01 level

In summary, RVLT significantly predicted UoE and Reading scores at multiple proficiency levels, explaining between 3.8% and 12.4% of the variance. The addition of PVLT improved the predictive power, especially for UoE at higher proficiency levels, where the model explained up to 35.5% of the variance. However, for listening, writing, and speaking, the predictors were less effective in explaining the variance, with significant results mainly at the B1 level. These results show that vocabulary level tests have limited power in predicting language skill scores in the current study. While receptive vocabulary levels significantly explain a certain level of variance in UoE, Reading, and Listening, productive vocabulary levels exhibit a significant predictive power only for UoE scores. It is also clear that these two vocabulary tests explain a considerably higher degree of variance at the B1 level, which is followed by a much smaller proportion for A2 level. For the A1 level, the contribution of these two tests seems to be minimal in understanding the variance in scores for language skills.

## 5. DISCUSSION

The current study examined the relationship between receptive and productive vocabulary knowledge and English language skills (reading, writing, listening, speaking, and UoE) among 306 students enrolled in A1, A2, and B1-level EFL classes as part of a preparatory language program at a major Turkish state university. Vocabulary knowledge was measured using the RVLT (McLean & Kramer, 2015) and the PVLT (Laufer & Nation, 1999), while language skills were assessed through an EPE and a speaking exam. The findings are discussed in line with the research questions.

### **5.1. Do foreign language students' receptive and productive vocabulary levels differ based on their proficiency levels?**

Significant differences were found in RVLTL and PVLTL scores across proficiency levels, except between of A1 and A2. The incremental increase in mean RVLTL scores across proficiency levels is in line with Kavanoz and Ünal's (2019) study on middle-school Turkish students. It is also clear from the mean test scores that the students' receptive vocabulary level outpaces their productive vocabulary level. This result coincides with studies by Zheng (2008) and Zhou (2010) on Chinese students, Karakoç and Durmuşoğlu-Köse (2017) on Turkish students, Das (2023) on Indian ESL learners, Ullah et al. (2024) on Pakistani university students, and Al Fraidan and Fakhli (2024) on Saudi male EFL students, all of which found that receptive vocabulary levels are much higher than productive levels. However, when the ratio of productive to receptive vocabulary knowledge was examined (A1: 49.3 %; A2: 47.3 %; B1: 61.9 %), it was found that, unlike Webb's (2008) findings, the gap between receptive and productive vocabulary knowledge is considerably larger, expanding even further at B1 level.

While the significant difference between A1 and B1 levels supports Laufer and Nation's (1999) results, the non-significant difference between A1 and A2 levels contrasts with their finding that productive vocabulary grows with proficiency. However, the lack of a significant difference between the adjacent A1 and A2 levels in RVLTL scores resembles Kavanoz and Ünal's (2019) findings on middle school students. The significant increase between A1 and B1 supports Webb (2008) and Zhou (2010), who noted that vocabulary knowledge, particularly that of productive vocabulary, becomes more robust with proficiency.

### **5.2. What is the relationship between foreign language students' receptive and productive vocabulary levels?**

The significant and positive correlation between RVLTL and PVLTL aligns closely with Zhou's (2010) finding on the correlation between receptive and productive vocabulary in Chinese students. Additionally, as suggested by Webb (2008), the moderately significant correlation found here indicates that students with a large receptive vocabulary may also have a similarly large productive vocabulary. In particular, the strong correlations found at A2 and B1 levels ( $r = .620$  and  $r = .635$ , respectively) are rather similar to Karakoç and Durmuşoğlu-Köse's (2017) findings for B2.2-level students ( $r = .673$ ), and noticeably smaller than Kılıç's correlation results ( $r = .87$ ). Furthermore, the RVLTL-PVLTL correlational results corroborate Zheng's (2009) observation that receptive and productive vocabulary levels grow in parallel with each other, with the difference between the two diminishing as the level increases.

### **5.3. What is the relationship between foreign language students' receptive and productive vocabulary levels and their language skills (reading, writing, listening, speaking, and UoE)?**

RVLTL showed significantly positive correlations with Reading, and Listening at all levels, aligning with studies like Stæhr (2008), Teng (2014) and Brooks et al. (2023), which

indicate that receptive vocabulary size is a strong correlate of performance in skills such as reading comprehension and listening. The correlation between receptive vocabulary and reading skills, in particular, resemble Qian (2002), who found that vocabulary breadth is closely tied to reading comprehension. However, these results differ from the significant and low correlation between Turkish students' receptive and productive vocabulary and writing scores in Kılıç (2019), and the moderate correlation between Catalan and Spanish students' receptive vocabulary and their reading, writing, and listening scores in and Miralpeix and Muñoz (2016). Nonetheless, the low but significant correlations between RVLТ and reading scores at A2 and B1 levels, as well as between PVLТ and writing scores at B1 level, are similar to the Karakoç and Durmuşoğlu-Köse's (2017) study focusing on 2,000-word-level tests. Moreover, the significant correlations between RVLТ and UoE, which are slightly stronger at B1 level, support Ünalı and Yüce's (2020) finding that receptive vocabulary and grammar proficiency are moderately related among B2 learners. Lastly, the lack of strong correlations between receptive vocabulary and speaking ability are in stark contrast to the highly positive and significant correlations reported in Uchihara and Clenton (2020), Enayat and Derakhshan (2021) and Agrram et al. (2024). On the other hand, the significant and weak correlations between PVLТ and speaking scores at A1 and A2 levels, and the lack of any significant correlation at B1 level is similar to Uchihara and Saito's (2009) findings in two ways. Their study reported that Japanese EFL students' productive vocabulary level correlates in a weakly positive manner with speech rate, but not with accentedness and comprehensibility. Similarly, the role of speech constructs might have differed across proficiency levels in terms of their relation to students' vocabulary level in the current study as well.

#### **5.4. To what extent do receptive and productive vocabulary knowledge predict language skills across different proficiency levels?**

RVLТ and PVLТ predict UoE and reading more effectively, especially at higher proficiency levels, while their impact on listening, writing, and speaking is weaker and mostly limited to B1. RVLТ explained a modest amount of variance in reading at the A2 (4.2%) and B1 (10.3%) levels, with PVLТ contributing only a small additional amount at B1 (4.8%). This result contrasts largely with Qian (2002), where vocabulary depth and size explained over 50% of the variance in reading scores, and Stæhr (2008), where receptive vocabulary predicted 72% of reading scores in B2 learners. The relatively low predictive power of vocabulary tests in the current study may reflect the lower proficiency levels of participants (A1-B1), suggesting that vocabulary knowledge becomes a more significant predictor of reading performance at higher levels of proficiency (B2 and above). As for listening, the regression models showed that RVLТ only significantly explained variance at the B1 level (9.7%), while PVLТ did not add significant predictive power. This finding differs remarkably from Stæhr (2009), who found that vocabulary depth explained around 50% of listening scores for Danish EFL learners, and Teng (2014), where vocabulary size accounted for 86% of the variance in listening scores for Chinese learners. The much lower variance explained in the study suggests that vocabulary knowledge might have less predictive power for listening at lower proficiency levels (A1-B1) than at more advanced levels (B2 and above), as seen in these previous studies.

The current study found no significant predictive power of vocabulary knowledge for writing at any level, which contradicts Kılıç (2019), who showed that vocabulary depth alone explained 15.3% of the variance in writing scores, with productive vocabulary size further enhancing the model's predictive power for B2 learners. Similarly, Miralpeix and Muñoz (2008) reported that receptive vocabulary size accounted for 30.4% of the variance in writing scores. The lack of significant results in this study may reflect the lower proficiency levels of the participants, suggesting that vocabulary knowledge becomes more critical for writing at higher proficiency levels.

In speaking, the results indicate that PVLT explained a small but significant amount of variance at the A2 level (4.2%), while no significant predictive power was found at other levels. This finding is somewhat consistent with Kılıç (2019), who found that vocabulary knowledge explained a small amount (17%) of the variance in speaking for B2 learners, although the results of the current study suggest a more modest contribution of vocabulary knowledge at lower proficiency levels. In a similar vein, Miralpeix & Muñoz (2008) found that receptive vocabulary explained 22% of the variance in speaking, but again, this was in B2 learners, emphasizing the role of proficiency level in the strength of these relationships.

## 6. CONCLUSION AND IMPLICATIONS

The current study confirms that vocabulary knowledge, particularly RVLT, significantly predicts UoE and reading, especially at higher proficiency levels (A2 and B1), providing further evidence in support previous research (e.g., Kılıç, 2019; Miralpeix & Muñoz, 2008; Qian, 2002; Stæhr, 2008; Stæhr, 2009). However, compared to studies such as Stæhr (2008, 2009) and Qian (2002), our findings show more limited predictive power for vocabulary knowledge, particularly at A1 and A2 levels.

These results yield important pedagogical implications. The strong predictive power of receptive vocabulary for multiple language skills, particularly at higher proficiency levels, highlights the need to emphasize vocabulary instruction in language learning programs, particularly focusing on expanding learners' receptive vocabulary. Moreover, the limited impact of productive vocabulary, especially at lower proficiency levels, suggests that balanced vocabulary instruction—addressing both receptive and productive aspects—should be tailored to learners' proficiency levels to maximize language skill development. For instance, several studies (e.g., Brooks et al., 2023; Cheng & Matthews, 2016; Das, 2023; Miralpeix & Muñoz, 2018) highlighted the importance of targeted and systematic vocabulary instruction to expand learners' vocabulary. Activities such as extensive reading, writing tasks, pronunciation practice, and vocabulary learning strategies have been suggested as a means of bridging the receptive-productive gap and enhancing overall proficiency in different language skills. Additionally, the limited predictive power of vocabulary knowledge for writing implies that broader linguistic and cognitive factors may need to be targeted to enhance writing proficiency.

Future research should examine the role of other factors, such as grammar and cognitive skills, in skill development at lower proficiency levels. Longitudinal studies tracking vocabulary growth across proficiency levels would provide insights into the vocabulary knowledge required for success. Additionally, exploring vocabulary depth, word associations, and free production through speech and writing could help develop a more comprehensive understanding of the relationship between vocabulary knowledge and language proficiency.

## ACKNOWLEDGEMENTS

This work has been supported by Yıldız Technical University Scientific Research Projects Coordination Unit under project number SKD-2023-5467. Ethics committee approval was obtained from Yıldız Technical University with issue number 11/2022 on 09.11.2022. We would like to thank the students who participated in our study.

## 7. REFERENCES

- Agram, A., Mokhtari, N., & Laaboudi, D. (2024). Examining the concurrent contribution of receptive and productive vocabulary breadth aspects to Moroccan EFL students' speaking ability. *Arab World English Journal*, 15(2). <https://dx.doi.org/10.24093/awej/vol15no2.14>
- Alderson, J. C. (2005). *Diagnosing foreign language proficiency*. Continuum.
- Al Fraidan, A., & Fakhli, I. (2024). Vocabulary learning strategies of university students: The case of preparatory year students and English major students. *Porta Linguarum An International Journal of Foreign Language Teaching and Learning*, (41), 45–63. <https://doi.org/10.30827/portalin.vi41.24321>
- Anderson, R. C. & Freebody, P. (1981). Vocabulary knowledge. In J.T. Guthrie (Ed), *Comprehension and teaching: Research reviews* (pp.77-117). International Reading Association.
- Biemiller, A. (2005). Size and sequence in vocabulary development. In E. H. Hiebert & M. L. Kamil (Eds.), *Teaching and learning vocabulary: Bringing research into practice* (pp. 223-242). Lawrence Erlbaum Associates.
- Bozorgian, H. (2012). The relationship between listening and other language skills in international English language testing system. *Theory and Practice in Language Studies*, 2(4), 657-663. <https://doi.org/10.4304/tpls.2.4.657-663>
- Brooks, G., Clenton, J., & Fraser, S. (2021). Exploring the importance of vocabulary for English as an additional language learners' reading comprehension. *Studies in Second Language Learning and Teaching*, 11(3), 351–376. <https://doi.org/10.14746/ssllt.2021.11.3.3>
- Cheng, J., & Matthews, J. (2018). The relationship between three measures of L2 vocabulary knowledge and L2 listening and reading. *Language Testing*, 35(1), 3-25. <https://doi.org/10.1177/0265532216676851>
- Das, J. K. (2023). Investigating vocabulary knowledge among English as a Second Language (ESL) learners. *Southern African Linguistics and Applied Language Studies*, 41(2), 210-218. <https://doi.org/10.2989/16073614.2022.2117709>
- Enayat, M. J., & Derakhshan, A. (2021). Vocabulary size and depth as predictors of second language speaking ability. *System*, 99, 102521. <https://doi.org/10.1016/j.system.2021.102521>
- Hirsh, D., & Nation, I. S. P. (1992). What vocabulary size is needed to read unsimplified texts for pleasure?. *Reading in a Foreign Language*, 8, 689-696.
- Karakoç, D., & Durmuşoğlu-Köse, G. D. (2017). The impact of vocabulary knowledge on reading, writing and proficiency scores of EFL learners. *Journal of Language and Linguistic Studies*, 13(1), 352-378.
- Kavanoz, S., & Varol, B. (2019). Measuring receptive vocabulary knowledge of young learners of English. *Porta Linguarum Revista Interuniversitaria de Didáctica de las Lenguas Extranjeras*, (32), 7-22. <https://doi.org/10.30827/portalin.vi32.13677>



- Kılıç, M. (2019). Vocabulary knowledge as a predictor of performance in writing and speaking: A case of Turkish EFL learners. *PASAA: Journal of Language Teaching and Learning in Thailand*, 57, 133-164. <https://doi.org/10.58837/CHULA.PASAA.57.1.6>
- Larson-Hall, J. (2015). *A guide to doing statistics in second language research using SPSS and R*. Routledge.
- Laufer, B. (1998). The development of passive and active vocabulary in a second language: Same or different?. *Applied Linguistics*, 19(2), 255-271. <https://doi.org/10.1093/applin/19.2.255>
- Laufer, B., & Nation, P. (1995). Vocabulary size and use: Lexical richness in L2 written production. *Applied Linguistics*, 16(3), 307-322. <https://doi.org/10.1093/applin/16.3.307>
- Laufer, B. & Nation, P. (1999). A vocabulary size test of controlled productive ability. *Language Testing* 16(1), 33-51. <https://doi.org/10.1177/026553229901600103>
- Mathews, J. (2018). Vocabulary for listening: Emerging evidence for high and mid-frequency vocabulary knowledge. *System*, 72, 23-36. <https://doi.org/10.1016/j.system.2017.10.005>
- McLean, S., & Kramer, B. (2015). The creation of a new vocabulary levels test. *Shiken*, 19(2), 1-11.
- Meara, P., & Wolter, B. (2004). V\_LINKS: Beyond vocabulary depth. In D. Albrechtsen, K. Haastrup, & B. Henriksen (Eds.), *Angles on the English speaking world 4* (pp. 85-96). Museum Tusculanum Press.
- Milton, J. (2013). Measuring the contribution of vocabulary knowledge to proficiency in the four skills. In C. Bardel, C. Lindqvist, & B. Laufer (Eds.) *L2 vocabulary acquisition, knowledge and use: New perspectives on assessment and corpus analysis* (pp.57-78). Eurosla Monograph Series 2.
- Miralpeix, I., & Muñoz, C. (2018). Receptive vocabulary size and its relationship to EFL language skills. *International Review of Applied Linguistics in Language Teaching*, 56(1), 1-24. <https://doi.org/10.1515/iral-2017-0016>
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.
- Nation, I. S. P. (2006). How large a vocabulary is needed for reading and listening?. *Canadian Modern Language Review*, 63(1), 59-82. <https://doi.org/10.3138/cmlr.63.1.59>
- Nation, I. S. P. (2013). *Teaching & learning vocabulary*. Heinle Cengage Learning.
- Qian, D. D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language Learning*, 52(3), 513-536. <https://doi.org/10.1111/1467-9922.00193>
- Qian, D. D., & Lin, L. H. (2019). The relationship between vocabulary knowledge and language proficiency. In S. Webb (Ed.) *The Routledge handbook of vocabulary studies* (pp. 66-80). Routledge.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge University Press.
- Schmitt, N., Cobb, T., Horst, M., & Schmitt, D. (2017). How much vocabulary is needed to use English? Replication of van Zeeland & Schmitt (2012), Nation (2006) and Cobb (2007). *Language Teaching*, 50(2), 212-226. <https://doi.org/10.1017/S0261444815000075>
- Schmitt, N., & Schmitt, D. (2014). A reassessment of frequency and vocabulary size in L2 vocabulary teaching. *Language Teaching*, 47(4), 484-503. <https://doi.org/10.1017/S0261444812000018>
- Schmitt, N., Schmitt, D., & Clapham, C. (2001). Developing and exploring the behaviour of two new versions of the Vocabulary Levels Test. *Language Testing*, 18(1), 55-88. <https://doi.org/10.1177/026553220101800103>
- Stæhr, L. S. (2008). Vocabulary size and the skills of listening, reading and writing. *Language Learning Journal*, 36(2), 139-152. <https://doi.org/10.1080/09571730802389975>



- Stæhr, L. S. (2009). Vocabulary knowledge and advanced listening comprehension in English as a Foreign Language. *Studies in Second Language Acquisition*, 31(4), 577-607. <https://doi.org/10.1017/S0272263109990039>
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (8<sup>th</sup> Ed.). Pearson.
- Teng, F. (2014). Assessing the depth and breadth of vocabulary knowledge with listening comprehension. *PASAA: Journal of Language Teaching and Learning in Thailand*, 48, 29-56. <https://doi.org/10.58837/CHULA.PASAA.48.1.2>
- Uchihara, T., & Saito, K. (2019). Exploring the relationship between productive vocabulary knowledge and second language oral ability. *The Language Learning Journal*, 47(1), 64-75. <https://doi.org/10.1080/09571736.2016.1191527>
- Uchihara, T., & Clenton, J. (2020). Investigating the role of vocabulary size in second language speaking ability. *Language Teaching Research*, 24(4), 540-556. <https://doi.org/10.1177/1362168818799371>
- Ullah, I., Kim, S. W., & Ibtissam, A. (2024). Measuring English receptive and productive vocabulary of Pakistani university students across frequency levels. *Korean Journal of English Language and Linguistics*, 24, 708-734. <https://doi.org/10.15738/kjell.24.202407.708>
- Ünalı, İ., & Yüce, E. (2021). The relationship among vocabulary size, grammar proficiency, and critical thinking skills of adult language learners. *Adult Learning*, 32(2), 70-78 <https://doi.org/10.1177/1045159520959473>
- Webb, S. (2008). Receptive and productive vocabulary sizes of L2 learners. *Studies in Second Language Acquisition*, 30(1), 79-95. <https://doi.org/10.1017/S0272263108080042>
- Zheng, Y. (2009). Exploring Chinese EFL learners' receptive and productive vocabulary knowledge: Implications for EFL vocabulary teaching. *Journal of Asia TEFL*, 6(1), 163-188.
- Zhou, S. (2010). Comparing receptive and productive academic vocabulary knowledge of Chinese EFL learners. *Asian Social Science*, 6(10), 14.