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The Correlation between Receptive Vocabulary Size and Listening Comprehension at English Department Universitas Negeri Padang

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Abstract

Recognizing spoken words is a component of listening comprehension in English as a foreign language (EFL). This study examined the relationship between aural receptive vocabulary size and listening comprehension among undergraduates in the English Department at Universitas Negeri Padang. Using a quantitative correlational design, the study involved 27 students purposively selected from one section of the Basic Listening course. Data were collected using an audio-based receptive vocabulary test adapted from the Word Review sections of *Barron's Essential Words for the TOEIC* (6th ed.) and a listening comprehension test adapted from the TOEIC Listening Model Test. Scores were analyzed using descriptive statistics and Spearman's rank correlation. The mean scores were 65.45 for receptive vocabulary and 79.61 for listening comprehension. The association was positive and statistically significant (r_s = .623, p = .001), providing evidence that students who recognized more spoken words tended to achieve higher listening comprehension scores in this Indonesian undergraduate EFL setting.

Keywords: Receptive Vocabulary Size; Listening Comprehension; Spoken Word Recognition; Correlational Study; EFL Undergraduates

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INTRODUCTION

One of the basic skills in learning English is listening because it gives learners important language input (Annisa & Hanifa, 2026; Rost, 1994). Oral skills are especially important for English Department undergraduates, as much academic content is delivered orally such as lectures, discussions, explanations of teaching methods (Al-harbi & Mirza, 2024; Kuteeva & Siegel, 2025). Listening is difficult because learners have to recognize and process spoken information in real time.

Vocabulary knowledge is the base of vocabulary size, because vocabulary size a dimension of vocabulary knowledge. A restricted vocabulary hinders learners' effective decoding of spoken input (Nation, 2001). Learners who are unable to recognize key words quickly will struggle to keep the pace of speech (Suite et al., 2023). By contrast, when meanings of words are recognized without conscious analysis, more cognitive resources are left to understand the overall message (Teng, 2016).

Among the dimensions of vocabulary knowledge, receptive vocabulary size is especially relevant. Vocabulary size or breadth is the number of words families a student knows, while depth is about how well a student understand the word (Nation, 2001; Schmitt, 2014). A word family consists of a base word and all its derived and inflected forms that can be understood by a learner without having to learn each form separately (Bauer & Nation, 1993). Passive vocabulary refers to learners' ability to recognize and understand words through listening or reading, although they may not be able to use them productively yet (Mohammadi et al., 2024). The concept of lexical benchmark focus on the role of vocabulary; need about 6000 - 7000 word families to reach understanding 98% spoken English (Cuccio et al., 2022; Nation, 2006). The suffice of vocabulary also provide word recognition automatically and reduce cognitive overload in word recognition individually (Newton & Nation, 2021).

A preliminary survey conducted on June 9, 2026 with 32 students of the Intermediate Listening class at Universitas Negeri Padang, showed that 81.2% felt that the lack of vocabulary is the main reason for their difficulties in understanding listening materials, As these students were not subjects of the present study, this survey is used only as background information about perceived difficulties and not as evidence about how the Basic Listening students performed. Anggreini & Fatimah (2026) also explained that lack of vocabulary knowledge may affect the learners' comprehension of the messages and expressing their

ideas. This points to the significance of vocabulary knowledge in helping students understand language as a whole, including their listening comprehension.

Several previous studies in the EFL context and others report that there is a relationship between vocabulary and listening comprehension, such as that found in students in Arab Saudi (Alshehri, 2023), English undergraduate students in Vietnam (Nguyen, 2024), also junior high school students in Maroko (Hamdanat, 2024). But these findings are not fully consistent. Such as Quines (2023) report that there is no significant correlation between vocabulary and listening comprehension and speaking performance in EFL undergraduate students in Arab Saudi, mean while du et al 2021 report that there was a significant and moderate correlation between aural vocabulary and listening comprehension in EFL students in China ($r = 0{,}38$; $p < 0{,}01$). These differences show that the correlation may depends on the context and the measurement method used.

Hanifa & Yusra (2024) found that in local stages, undergraduate students in Universitas Negeri Padang faced obstacles in analyze unfamiliar words and understand spoken text when they do the listening practice in website situs, but they not investigate the correlation between vocabulary and listening comprehension statistically.

Another issue is the modality of measurement. (Du et al., 2021) point out that listening-related vocabulary is assessed only through written tests and that this may lead to a modality mismatch since listening involves recognition of spoken word forms, while written tests visually present the words. The present study therefore assessed receptive vocabulary through auditory presentation; it means items and their answer options were presented as audio recordings.

The aim of this study was to find out whether there is a significant correlation between receptive vocabulary size and listening comprehension of the students of Basic Listening at Universitas Negeri Padang. The null hypothesis (H_0) stated that there was no significant relationship between the two variables, while the alternative hypothesis (H_1) stated that there was.

METHODS

This study used a quantitative correlation design that utilizes statistical analysis for decide the direction and the strength of the relationship between two or more variables

without manipulate the variables (Creswell & Guetterman, 2021). The participants were the undergraduate students who enrolled in the Basic Listening course at the English Department Faculty of Languages and Arts of Universitas Negeri Padang in the academic year of 2026/2027. The main group of study was composed of students of Friday class in periods 9-10 (JM 9-10) selected through purposive sampling. Only 27 students had complete data for both variables and were included in the analysis. Students from the Friday class (periods 7-8, JM 7-8) participated in the instrument try-out and were excluded from the main study.

The data were collected using two research instruments: a receptive vocabulary test and a listening comprehension test. the audio of the test was adapted from a book tittled Barron's Essential Words for the TOEIC 6th edition especially Word review part to measure student ability to recognize, and to understand English vocabulary trough auditory input. Every items and the multiple choice changed into audio use ElevenLabs, this is a platform that text AI based (Al-harahsheh, 2026). And with that, the modality in line with listening comprehension. The second instrument was a listening comprehension test, the test was adapted from TOEIC Listening Model Test 4 and measures the ability to understand spoken English through picture-based questions, question-and-response items, conversations, and short talks. Both tests used multiple-choice items.

Before the main data collection, both instruments were tried out with JM 7-8 class separate from the main participants. The item validity was measured by the Pearson product moment correlation of item scores with total scores and items that did not meet the validity criterion were deleted. Cronbach's alpha was used to assess reliability. The results are presented in Table 1.

Table 1. Item validity and reliability of the instruments

Instrument	Initial Items	Valid Items	Invalid Items	Cronbach's Alpha
Receptive Vocabulary	100	94	6	0,901
Listening Comprehension	100	79	21	0,967

Both coefficients indicate high internal consistency.

Permission was granted and the researcher gave the instruments to the JM 9–10 class. The vocabulary test was administered in audio and the listening test was conducted with the prepared listening materials. Responses were scored objectively, 1 point for a correct answer and 0 points for an incorrect or unanswered item. Raw scores were converted to percentage

scores (correct answers divided by number of valid items multiplied by 100) which were used for all subsequent analyze.

The data were analyze using SPSS and Exel. Descriptive statistics (mean, standard deviation, minimum and maximum) were used to present performance on both variables. The Shapiro–Wilk test was used for checking normality since the sample size was less than 50. Spearman's rank correlation was used to check the direction, strength and significance of the relationship when the data were not normally distributed at a significance level of 0.05.

$$\text{Score (\%)} = \frac{\text{Number of correct answers}}{\text{Number of valid items}} \times 100 \qquad (1)$$

RESULTS

This section presents the results of the analysis of the students' receptive vocabulary size and listening comprehension tests. The data were gathered from 27 undergraduate students of Basic Listening course in Department of English Language and Literature, Universitas Negeri Padang. Descriptive statistics, normality test and Spearman's Rank Correlation were employed to examine the relationship between the two variables.

1. Students' Receptive Vocabulary Performance

The receptive vocabulary test has been implemented to students to measure their ability in recognizing and understanding the English vocabulary through listening stimulation. Following the evaluation of the responses, a descriptive statistical analysis was performed to provide an overview of the performance of the students.

Table 2. Descriptive Statistics of Aural Receptive Vocabulary Size

Statistics	Aural Vocabulary Size
N	27
Mean	65.45
Standard deviation	26.91
Minimum	17.02
Maximum	98.94

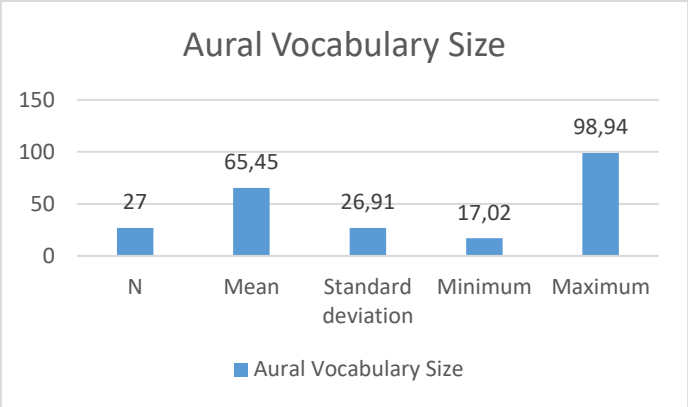


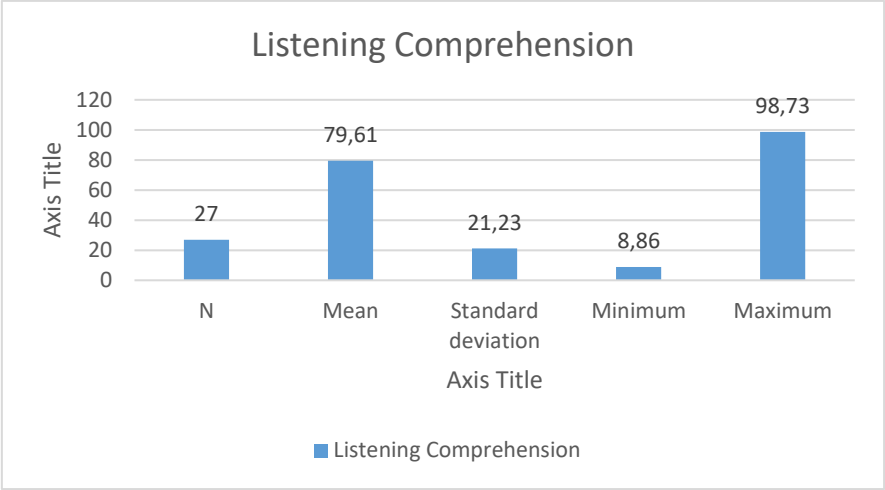
Table 2 shows the descriptive statistics for the students' reseptive vocabulary size. The mean was 65.45 and the standard deviation was 26.91. The students' scores varied from 17.02 to 98.94. So, the lowest score is 17.02 which means that the least successful student answered a very low percentage of the questions correctly. The highest score among the participants is 98.94, which is the maximum score. Also, the standard deviation of 26.91 shows that there is high variation in the students' auditory vocabulary scores. It can be concluded that the mastery of the participants in vocabulary recognition by auditory stimulus is different.

2. Students' Listening Comprehension Performance

The listening test was held with the same participants to find out their listening ability in English. The students' answers were scored objectively, giving one point for each correct answer and zero points for each incorrect or unanswered question. Descriptive statistical techniques were used to analyze the resulting scores.

Table 3. Descriptive Statistics of Listening Comprehension

Statistics	Listening Comprehension
N	27
Mean	79.61
Standard deviation	21.23
Minimum	8.86
Maximum	98.73



The average score of the students on listening comprehension was 79.61 with a standard deviation of 21.23 as shown in Table 3. Scores ranged from 8.86 to 98.73. The findings revealed that the participants had varying levels of listening comprehension ability. The average score shows that participants performed better in listening comprehension than in their receptive vocabulary size.

3. Normality Test

In table 4, the Shapiro–Wilk test showed the significance values of 0.006 for receptive vocabulary and less than 0.000 for listening comprehension. Both were less than 0.05 so the null hypothesis of normality was rejected and the data were treated as non-normally distributed(Shapiro et al., 1965). Spearman's rank correlation was therefore employed. The results are presented in Table 4.

Table 4. Tests of Normality

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Aural_Vocabulary_Size_Test	.174	27	.035	.885	27	.006
Listening_Comprehension	.184	27	.020	.823	27	.000

4. Correlation Analysis

Table 5 presents the result of the Spearman's rank correlation test.

Table 5. Correlation Between Aural Vocabulary Size and Listening Comprehension

			Aural_Vocabulary_Size_Test	Listening_Comprehension
Spearman's rho	Aural_Vocabulary_Size_Test	Correlation Coefficient	1.000	.623**
		Sig. (2-tailed)	.	.001
		N	27	27
	Listening_Comprehension	Correlation Coefficient	.623**	1.000
		Sig. (2-tailed)	.001	.
		N	27	27

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

Table 5 presents the result of the Spearman's rank correlation test. The analysis produced a coefficient of $r_s = .623$ with $p = .001$ (two-tailed, $N = 27$). Because p was below .05 (and the correlation was significant at the .01 level), H_0 was rejected and H_1 was accepted. The positive coefficient indicates that students with higher receptive vocabulary scores tended to obtain higher listening comprehension scores, and based on Cohen's (1988) benchmark, the strength of this relationship is strong.

DISCUSSION

1. Interpretation of the Findings Based on Theory

The results in table 4 show a positive and statistically significant correlation between receptive vocabulary size and listening comprehension among English Department students at Universitas Negeri Padang ($r_s = .623$, $p = .001$). Students with stronger aural vocabulary tended to understand spoken English better. According to Cohen (1988) benchmark for correlation coefficients, in which values of approximately .10, .30, and .50 represent small, medium, and large relationships, respectively. Although these benchmarks were originally proposed for Pearson's r, they are also commonly applied to Spearman's coefficient. Because of the coefficient in this study is ($r_s = .623$) more then .50, the relationship of the variables

classified as strong, which is indicates a substantial relationship between measures of vocabulary size and listening comprehension.

According to the lexical threshold by (I. S. P. Nation, 2006) argued that about 98% coverage of a spoken text, which corresponds to roughly 6,000–7,000 word families, is needed to follow it without assistance, and that learners below this threshold find their processing capacity overloaded by unfamiliar words. Because listening happened in real time, the vocabulary which recognize automatically be the Privilege. It because of the word recognition automatically support by a large vocabulary size (Newton & Nation, 2021). Students with larger aural vocabularies therefore face fewer unrecognized words while listening, which is consistent with the positive correlation found here. The wide variation in aural vocabulary scores (SD = 26.91; range 17.02–98.94) suggests that the class contained students at very different distances from such a threshold, and this variation makes a relationship with listening scores easier to detect. However, the vocabulary test in this study was based on TOEIC-related words and not on word families as in the Vocabulary Size Test (P. Nation & Beglar, 2007), so the 6,000–7,000 figure cannot be applied directly to these scores and is used only as an interpretive reference.

The finding also fits the view of listening as an interaction between bottom-up and top-down processing. Bottom-up processing starts with decoding sounds into words before meaning can be built (Newton & Nation, 2021; Rost, 2025), so the size of the listener's vocabulary matters most at this early stage. When words are automatically recognized, the working memory is freed to make inferences (top-down) based on context and background knowledge. If words are not quickly recognized, a reliance on bottom-up decoding leads to an increased burden on working memory. This is particularly the case when dealing with longer pieces of audio (Newton & Nation, 2021). Listening is an active process as an individual word has to be recognized before the meaning of the passage as a whole information can be understood (Brown, 2001). Comprehension is described by Adnan et al. (2020) as the breaking down of perceived sounds into phonemes and further understanding of the meanings of words, and finally interpreting these in the context of the whole passage. Efficient word recognition allows cognitive resources to be available to understand the overall meaning of the message (Teng, 2016), while lack vocabulary affect the processing of key words (Suite et al., 2023). Students who recognized more words from audio alone would therefore be expected to process spoken passages more efficiently, which helps explain why aural vocabulary scores and listening scores rose together.

The result also supports the value of assessing vocabulary aurally. The recognition of a spoken word is not the same as the recognition of a written word, and Du et al. (2021) noted that the modality of assessment needs to be matched to the skill under investigation. In the present study test items and response options were presented in an audio format, requiring students to demonstrate their recognition ability through auditory input. This finding corresponds to the findings of Du et al. (2021) who found a positive relationship between auditory (aural) vocabulary mastery and second language (L2) listening skills and Ha (2021) who emphasises the importance of vocabulary knowledge for receptive skills. correlation found here (r_s = 0.623) is stronger than that reported by Du et al. (2021) (r = .38). One possible reason is that both instruments in the present study were drawn from the TOEIC domain, so the words tested may overlap with the words and topics in the listening items, while Du et al. (2021) studied Chinese EFL learners with different instruments. Differences in samples, instruments, and statistics mean that the two values should be compared with caution.

2. Comparison with Previous Studies

The positive relationship found here agrees with several studies in other EFL contexts. (Alshehri, 2023) reported that vocabulary proficiency enhanced the TOEFL listening test of 38 undergraduate students in Saudi Arabia. In this study we extend these findings to the context of English major students in Indonesia with an auditory-based vocabulary assessment instrument. Nguyen (2024) showed that a significant relationship existed between vocabulary and listening comprehension with 103 students in Vietnam majoring in English. There was also a significant positive relationship among 90 high school students in Morocco Hamdanat (2024). these studies in line with previous research that has considered various educational and environmental contexts. The finding of the research adding evidence about the relationship is unlimited in one context

This result is different from (Quines, 2023) who found no significant relationship between vocabulary coverage and listening and speaking performance of Saudi Arabian learners of English as a foreign language (EFL). The difference may be partly methodological, Quines (2023) measured vocabulary range with the Vocabulary Levels Test and used course grades in listening and speaking as the performance measure, whereas the present study used an audio-based vocabulary test and a listening-only test, so both variables were measured through listening. Quines also suggested that students with an average

vocabulary range can still follow spoken language by using alternative listening strategies. The explanation in line with perspectives on interactive listening, where unrecognised words can be partially compensated for by top-down inferences based on context and prior knowledge (Newton & Nation, 2021; Richards, 2008). It may also help explain why the mean listening score (79.61) was higher than the mean aural vocabulary score (65.45) and why the correlation, although significant, was not perfect: several TOEIC listening item types, such as picture-based questions and short conversations, can partly be answered from context. The two tests contain different items and are not on a common scale, so this difference should be read as suggestive and not as proof that listening was easier than vocabulary.

3. Other Factors Related to Listening Comprehension and the Local Context

The correlation does not mean that a large vocabulary directly causes better listening. Listening is a complex cognitive process, which involves phonetic interpretation, grammatical understanding, contextual knowledge and vocabulary (Brown, 2001; Richards, 2008; Rost, 2025). More than fifty percent of the variation in listening proficiency scores in this research is not explained by vocabulary learned by auditory means (aural vocabulary) Receptive vocabulary should therefore be seen as an important factor, but not the only one.

Studies conducted at UNP point to some of these other factors. Adnan et al. (2020) examined listening anxiety among Basic Listening students. Reported a weak negative coefficient between anxiety and listening comprehension ($r = -.245$) that did not reach statistical significance ($p = .059$). This suggests that affective factors may be related to listening, although they did not fully explain it in that sample. this study suggest that vocabulary, and instructional factors may jointly relate to the listening performance of UNP students, whereas the present study examined vocabulary only.

The present finding also adds statistical evidence to the local picture. Hanifa & Yusra (2024) reported that UNP students had difficulties in decoding unknown words and understanding spoken utterances when practicing listening on websites, but their qualitative study did not test the relationship between vocabulary and listening. The significant correlation found here suggests that the lexical difficulties described by those students are related to measurable differences in listening performance This is also consistent with the preliminary survey in which 81.2% of the Intermediate Listening students felt that a lack of

vocabulary hampered their listening, although those students were not participants in the present study.

4. Pedagogical Implications

Pedagogically, lecturers may include activities that develop vocabulary recognition through auditory input, such as listening to contextualized vocabulary, identifying familiar words in spoken passages, and practicing word recognition with varied listening materials (Siyanova, 2026).

CONCLUSION

The aim of this study is to find out the correlation between receptive vocabulary size and listening comprehension of 27 Basic Listening students of Universitas Negeri Padang. Vocabulary mean scores were 65.45 and listening mean scores were 79.61. Spearman's correlation revealed a positive and statistically significant correlation ($r_s = 0.623$, $p = 0.001$), thus rejecting the null hypothesis: students with higher aural vocabulary scores tended to have better listening comprehension. Therefore, English teachers may consider auditory vocabulary recognition activities in listening instruction. Several limitations should be noted. The sample was small (27 students) and from one class in one university. The correlational design cannot establish causality. The vocabulary test was based on TOEIC-related vocabulary and therefore reflects knowledge of that set of words rather than total vocabulary size as measured by standardized size tests. The wide score ranges also reflect large individual differences. Other factors such as previous knowledge, recognition of pronunciation and listening strategies were not explored. Future research should use larger samples from different contexts, a standardized measure of aural vocabulary size, and investigate other factors related to listening comprehension.

This finding suggests that students with higher receptive vocabulary scores achieved higher listening comprehension. This proved the alternate hypothesis which suggested that there is a significant relationship between the two variables. The findings show the importance of receptive vocabulary knowledge for comprehension of spoken English. In particular, identifying words with auditory stimuli can assist learners in word recognition and in better understanding of spoken information. Therefore, English language teachers may be interested to apply auditory vocabulary recognition tasks in listening teaching to facilitate

students' vocabulary learning and listening performance. The study was conducted with only 27 students who took the Basic Listening course in Universitas Negeri Padang. Furthermore, the correlational research design does not allow for determining a causal relationship between receptive vocabulary size and listening comprehension. Other factors that may affect students' listening efficacy include prior knowledge, pronunciation discernment, and auditory strategies. Therefore, future researchers are encouraged to include participants from different educational contexts, to explore other factors related to listening comprehension, and to use larger sample sizes for broader empirical validation.

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