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Examining the Relationship between Vocabulary and Listening and Reading Comprehension Skills of Middle School Students

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This study aimed to determine the relationship between middle school students' oral and written vocabulary and their listening and reading comprehension skills. A quantitative research design, employing survey and correlational methods, was utilized. The sample comprised 343 middle school students from the central district of Kırşehir and the Akpınar districts of Türkiye. Participants completed a personal information form and listening and reading comprehension tests. To assess their oral and written vocabulary, students were provided with a pool of topics and asked to speak and write on a topic of their choice. Students delivered their speeches in suitable areas outside the classroom, during which researchers recorded their voices. These recordings were transcribed into Word and processed using a program adapted to calculate vocabulary size. Additionally, the essays written by the students on their selected topics were analyzed using a word count website. A second-level structural equation model was then constructed to illustrate the relationships between all variables and comprehension. The data collection took place during the spring semester of the 2024-2025 academic year. The findings indicated that middle school students' written vocabulary was more developed than their oral vocabulary. A significant correlation was found between vocabulary size (both oral and written) and reading and listening comprehension. Furthermore, gender, grade level, place of residence, and income level were found to be significantly associated with comprehension skills. Finally, a model explaining comprehension skills based on the examined variables was established.

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Introduction

Humans possess an innate language faculty. As they learn to use this language, they decipher societal codes, foster personal development, and can thereby enrich their cultural heritage. Every thought is fundamentally based on words. Therefore, the act of thinking takes place through concepts and the words that correspond to these concepts (Sever, 2004). Within this multifaceted framework, “language is a system for both thinking and conveying thoughts” (Aksan, 2016, p. 17).

Transmitting language across generations, understanding its nuances, and continually enriching it are crucial for comprehending life and ensuring cultural continuity. For this reason, we harness the power of words to share our emotions, organize our thoughts systematically, strengthen communication, and expand our aspirations for the future. Words are thus profoundly important, integral to human existence. The significant mental capacity dedicated to words, which enables the formation and transmission of thoughts, underscores the rationality and richness of our intellectual activities (Budak, 2000; Özbay & Melanlıoğlu, 2008). Indeed, a rich vocabulary broadens an individual's world of thought, fostering a deeper, more creative, and multifaceted perspective, while also enhancing critical thinking and analytical skills.

Current research has identified several interrelated dimensions that indicate a word is fully understood: 1. Knowing the basic concept that a word represents and the things it can refer to in the real world. For example, knowing the word “dog” means understanding the concept of animals of the dog species and being able to identify various breeds (Nation & Webb, 2011). 2. Accepting that many words have multiple meanings and being able to use them appropriately in context. For example, the word “trunk” can refer to the trunk of a tree, an elephant's trunk, or the trunk of a car (Schmitt, 2010). Other experts, such as Beck, McKeown, and Kucan (2002, p. 10), argue that there are several levels of vocabulary knowledge: Not knowing the word, having a general feeling about the word, knowing the meaning of a word in a limited context, having information about a word but not being able to recall it easily enough to use, knowing the meaning of a word.

These levels vary from person to person, and as vocabulary increases, a person can become more proficient in terms of their word stock, also influenced by their education. Vocabulary is defined as the total of all the words in a language and the words in the repertoire of individuals or communities (Korkmaz, 1992). In another definition, word stock refers to the total of words that an individual accumulates in their memory throughout their learning process (Güleryüz, 2002). While many definitions have been made regarding word stock, in general, this concept is defined as the total of words that an individual or a certain group can use and understand. Harris and Hodges (1995, p. 274) in *The Literacy Dictionary* explain vocabulary as “The words a person knows or uses.” Based on these definitions, word stock can be seen as the main source of the fundamental elements that guide a person's individual and academic journey, shaping communication and learning. The most suitable environment for expanding and using word stock most effectively is Turkish lessons. Vocabulary development activities carried out in these lessons ensure that students use the language correctly and effectively while also enriching their intellectual capacity (Karatay, 2007). “A rich vocabulary is needed for a person to understand what they hear and read; to express what they see, think, dream, and feel completely and accurately” (Karakuş, 2000, p. 127). This can only be achieved through quality Turkish education and instruction.

Today, the increasingly prevalent use of non-linguistic elements like emojis in social media communication risks relegating language and words -the very foundation of thought- to a secondary role. When this visual or symbolic shorthand takes precedence over nuanced language, the depth of thought may diminish; consequently, a mind less engaged with words risks becoming less profound over time. An individual's vocabulary knowledge is of paramount importance for self-expression and for understanding others in communication (Özbay & Melanlıoğlu, 2008, p. 33). Consequently, vocabulary proficiency is intrinsically linked to reading and listening skills, which are vital for making sense of life and deriving intellectual pleasure. Essentially, describing situations with greater accuracy and impact involves expanding the associative network of active and passive vocabulary within one's mental lexicon, allowing for more nuanced combinations. To this end, developing students' vocabulary and their capacity to use words effectively is crucial (Güneş, 2021, p. 270).

The domain of language teaching encompasses four basic skills: listening, speaking, reading, and writing. The first skill to emerge in the language development process is listening, with individuals beginning to perceive sounds from approximately the seventh month in the womb (Karadağ, 2005). Through listening skills, which develop naturally during the preschool period, children begin to build their internal framework of knowledge, emotions, and thoughts (Sever, 2004). As children acquire speaking skills and become more active communicators, they begin to develop further comprehension and expression skills -reading and writing- typically upon starting school. As these abilities mature, individuals increasingly utilize their mother tongue for both comprehension and self-expression. Thus, individuals, initially cultivating their emotions, thoughts, and dreams through listening and reading, learn to articulate their inner world through speaking and writing (Özbay, 2016). Therefore, each of the four basic language skills plays a distinct and crucial role in developing both receptive (understanding) and productive (creating) language abilities (Razı, 2007). The significance of this developmental trajectory for enhancing overall receptive and productive language proficiency is undeniable.

There is a close relationship between an individual's success in their mother tongue and their school success and adaptation to the environment. Mother tongue instruction forms the basis of all subjects (Ünalın, 2006). For this reason, recognizing words, using them appropriately and correctly, and grasping the semantic connections of words are extremely important in shaping an individual's life. According to figures that may also be valid for Turkey; it is stated that today, a person uses between 1,000 and 3,000 words in their daily conversations, a cultured individual should know an average of 20,000 - 25,000 words; and at least 40,000 words need to be known to work and write comfortably (Aytaş, 2021). In this context, it can be said that vocabulary knowledge is a richness that permeates every aspect of life and increases an individual's quality of life.

Vocabulary is divided into two basic categories: active (productive) and passive (receptive). Active vocabulary consists of the words an individual uses in their daily life, while passive vocabulary includes the words an individual knows the meaning of but does not actively use (Güleryüz, 2002). Therefore, the words a person can use in language activities based on speaking form their active vocabulary, while the words whose meanings they know but do not use in communication constitute their passive vocabulary (Schmitt, 2008). For a person to understand what they hear and read; and to fully express their emotions and thoughts, their active and passive vocabulary must be rich (Karatay, 2007). The vocabulary that begins to form with the interaction a child establishes with their family and close environment and continues to develop throughout their life also affects academic success, communication, and

the development of other language skills (Anderson & Freebody, 1981; Baumann, 2005; Nagy & Scott, 2000). For this reason, significant emphasis should be placed on vocabulary development in formal education (Karadağ, 2024). The most important lessons to be utilized in achieving the goal are mother tongue lessons.

Karakuş (2000) is of the opinion that the vocabulary levels determined in the English and German education systems are also valid for Turkey. In this context, the estimated number of words children should have is stated as 2,000 - 3,000 in the 0 - 6 age range, 5,000 in the 7 - 12 age range, 20,000 in the 13 - 18 age range, and 35,000 for those aged 19 and over. Gürtürk (1986), on the other hand, stated that according to world standards, students' vocabulary should reach 2,000 words in primary school, 4,000 in middle school, and 5,000 in high school. Although the numbers vary according to countries or languages, the studies conducted are important in showing that vocabulary can be developed within the school setting.

There are studies conducted on students at different levels of education that aim to determine the vocabulary they use in their speech (Emiroğlu, 2015; Obuz, 2012; Ünsal, 2005; Tosunoğlu, 1998). There are also studies investigating the active vocabulary students use in their writing. Kurudayıoğlu (2005) examined the writings of 1,726 middle school students and revealed that their vocabulary was 8,775 words. Karadağ (2005) identified the words used in the written expression of 3,135 students to determine the relationship between the words students use most frequently in their writings and the words used most frequently in textbooks. According to this, it is understood that primary school students have an average vocabulary of 3,377 words. Tülü (2012), in her study examining the words used in the written expression of 5th grade students, found that female students used more and more diverse words than male students. Türkyılmaz (2013), in his study aiming to determine the vocabulary used by fifth-grade students in their writings, stated that female students were more successful than male students in terms of word usage and that fifth-grade students used a total of 12,593 words, with 1,653 different words in their writings.

In addition, there are studies examining the relationship between active vocabulary and comprehension skills. Hogan et al. (2014) stated that vocabulary is one of the important factors affecting listening comprehension and that students' vocabulary should be evaluated and monitored at regular intervals. Stæhr (2008), in his research, revealed that vocabulary size is significantly related to reading and writing skills to a large extent, and partially related to listening skills. Joshi (2005), in his research, stated that there is a strong relationship between vocabulary knowledge and comprehension. The research conducted by Yıldırım and his colleagues (2011) examined the extent to which students' vocabulary knowledge levels predicted their reading comprehension skills in different text types. The findings revealed a moderate relationship between vocabulary knowledge and understanding narrative texts, and a high level of relationship between vocabulary knowledge and understanding informative texts. Gökmen and Ulusoy (2022), in their study with primary school students, examined the effect of comprehension skills on expression skills in relation to vocabulary knowledge. In the research, vocabulary knowledge was evaluated in terms of both quantity (number of known words) and depth (the level at which the meanings of words are known and used), and positive and moderate significant relationships were found between vocabulary knowledge and comprehension and expression skills. Research has shown that there is a strong relationship between vocabulary knowledge and reading comprehension, that vocabulary is a factor that predicts reading comprehension, and that results may vary depending on the type of text (Ayana, Mereba & Alemu, 2024; Lawrence et al., 2022; Masrai, 2019). A parallel relationship between reading and vocabulary has also been established between listening and

vocabulary. The size of one's vocabulary also affects comprehension (Yang, 2020; Luo et al., 2021; Zhang & Zhang, 2022).

Unlike other studies, this research was conducted to determine the relationship between middle school students' productive vocabulary and their comprehension of what they listen to and read. In addition, the relationship between participants' active vocabulary and comprehension skills was revealed using a structural equation model. In this context, answers were sought to the following questions:

- (1) What is the written vocabulary size of middle school students according to their grade level?
- (2) What is the oral vocabulary size of middle school students according to their grade level?
- (3) What is the level of the relationship between the listening and reading comprehension levels of middle school students and their oral and written vocabulary?
- (4) Do the listening and reading comprehension levels and oral and written vocabulary of middle school students differ according to gender?
- (5) Do the listening and reading comprehension levels and oral and written vocabulary of middle school students differ according to grade level?
- (6) Do the listening and reading comprehension levels and oral and written vocabulary of middle school students differ according to income group?
- (7) Do the listening and reading comprehension levels and oral and written vocabulary of middle school students differ according to the place of residence?
- (8) How do listening and reading comprehension, oral and written vocabulary, and individual characteristics model comprehension?

Method

This research aimed to determine the relationship between the vocabulary of middle school students and their listening and reading comprehension skills, and to reveal this relationship with a “SEM”. In line with this, relational survey methods, which are among the quantitative research methods, were used in the study. Relational survey models are research models that aim to determine the existence and/or degree of co-variation between two or more variables (Karasar, 2008, p. 81).

Sample

Each teacher in the research group was able to easily access students at their school, so appropriate sampling was used in the research. A total of 343 students were included in the study, consisting of 193 students from the central district of Kırşehir, 110 students from the Akpınar district, and 40 students transported from villages connected to the district. Of these students, 185 were female and 158 were male. The sample included 83 fifth-grade students, 109 sixth-grade students, 76 seventh-grade students, and 75 eighth-grade students.

Data Collection Tools

According to Read (2000), some experts oppose multiple-choice vocabulary tests because these tests fail to measure productive language skills (speaking and writing) as they only test receptive knowledge. Taking all these reasons into consideration, writing and unprepared speaking activities were conducted with the students to determine their individual vocabulary. Different topics were given to the students so that they could express themselves comfortably both orally and in writing. These topics were: 1. If you were to redesign your school, what changes would you make? Explain with reasons. 2. If you were the mayor,

district governor, school principal, village head, and alike, in your locality, what would you do? Explain. 3. Introduce someone you love very much. 4. Where do you see yourself in twenty years? What job are you doing, where are you living, what kind of changes have occurred in the world? Explain. 5. Write a letter to a historical hero. The speech of the student who chose one of these topics was recorded, and the paper they wrote was transferred to a Word document.

In the measurement of children's listening comprehension skills, a listening text titled "The Green-Eyed Snowman" and questions related to this text were used. The draft form created based on the listening text and considering this text consisted of 20 questions, to ensure the validity of the scales, the questions were prepared by a group of teachers who are experts in the field, and the data obtained from the pilot application were subjected to item analysis. As a result, a 10-item listening comprehension test remained, with item difficulty ranging from .452 to .688 and item discrimination ranging from .430 to .661. The average difficulty of this test is .58, and the KR 20 test value is .74. Therefore, it can be said that the listening comprehension test is an easy and very good discriminating measurement tool (Özçelik, 1989, p. 113-114; Tekin, 1996; Hasançebi, Terzi, & Küçük, 2020).

The reading comprehension test consisted of a total of 14 items. The data obtained after the pilot application were subjected to item analysis, and finally, a nine-item achievement test remained, with item difficulty ranging from .535 to .663 and item discrimination ranging from .507 to .663. Therefore, it can be said that the reading comprehension test is a test of medium difficulty with an average difficulty of .52 and a KR 20 value of .75, and it is a very good discriminating test (Özçelik, 1989, p. 113-114; Tekin, 1996; Hasançebi, Terzi, & Küçük, 2020).

Data Collection

This research, which aimed to examine the relationship between the vocabulary of middle school students and their listening and reading comprehension skills, was conducted with 5th, 6th, 7th, and 8th grade students studying in middle schools affiliated with the Ministry of National Education in the province of Kırşehir. The data obtained from the participants were collected at different lesson times through the Personal Information Form and measurement tools for speaking, writing, reading, and listening, and no time limit was imposed on the students. In order to determine the vocabulary used by the students in their oral expressions, the participants were asked to make unprepared speeches. These speeches were recorded using devices capable of audio recording in an environment where the student's attention would not be distracted and suitable conditions for sound recording were provided. In order to determine the students' active vocabulary, they were asked to speak and write on topics where they could comfortably express themselves in writing and orally. No restrictions were placed on the type of text the students would choose for their writing. For the application of the Listening Comprehension Scale, a listening text lasting 5 minutes and 20 seconds was played to the students via the MPC program on interactive whiteboards. In order to ensure the integrity of the data obtained at different times and with various measurement tools on a student basis, each scale was identified with student-specific codes, and through these codes, the data were prepared for the analysis process. The audio recordings were transferred to Word using Google Docs. The texts written by the students were also transferred to Word. To ensure that the data was transferred correctly, the researchers checked each other's work in pairs.

Findings

Table 1. Middle School Students' Written Vocabulary

Grades	Tokien	Type	Type-Tokien Ratio (%)
5 th	4936	1257	25
6 th	8437	1722	20
7 th	4566	1192	26
8 th	5199	1398	27

The total written vocabulary of the students ranges from 4,566 to 8,437 words, while their unique word stock varies between 1,192 and 1,722 words. Sixth-grade students possess the largest unique word stock, whereas seventh-grade students have the smallest. However, when considering the ratio of unique words to the total vocabulary, this ratio is lowest in the 6th grade and highest in the 8th grade.

Table 2. Middle School Students' Verbal Vocabulary

Grades	Tokien	Type	Type-Tokien Ratio (%)
5 th	5159	1172	22
6 th	5280	1132	21
7 th	3626	927	25
8 th	4540	1021	22

According to the table 2, the total number of words in the students' oral vocabulary is highest in the 5th grade and lowest in the 7th grade. A similar trend is observed in the number of unique words. On the other hand, the ratio of unique words to the total number of words is highest in the 7th grade and lowest in the 6th grade.

Table 3. Table on the Relationship Between Reading and Listening Comprehension Achievement Scores and Written and Oral Vocabulary

		Reading Comprehension	Listening Comprehension	Written Tokien	Written Types	Verbal Tokien	Verbal Types
Reading Comprehension	r	1	,523**	,144**	,108*	,225**	,211**
	p		,000	,007	,046	,000	,000
	N	343	343	343	343	343	343
Listening Comprehension	r		1	-,022	-,051	,114*	,103
	p			,683	,348	,036	,057
	N		343	343	343	343	343
Written Tokien	r			1	,970**	,480**	,440**
	p				,000	,000	,000
	N			343	343	343	343
Written Types	r				1	,469**	,436**
	p					,000	,000
	N				343	343	343
Verbal Tokien	r					1	,974**
	p						,000
	N					343	343
Verbal Types	r						1
	p						
	N						343

There is a moderate, significant, and positive correlation between the reading comprehension test and the listening comprehension test. A positive and significant relationship is also

observed between the reading comprehension test and both oral and written vocabulary. While there is almost no relationship between the listening comprehension test and written vocabulary, a positive correlation exists between the listening comprehension test and oral vocabulary. Furthermore, a positive and moderate correlation is found between written and oral vocabulary.

Table 4. T Test Table on the Relationship Between Independent Variables and Gender

	Gender	N	Mean	SD	p
Reading Comprehension	Girl	185	6,32	2,07	,000
	Boy	158	5,10	2,30	
Listening Comprehension	Girl	185	6,88	2,18	,000
	Boy	158	5,87	2,43	
Written Tokien	Girl	185	75,94	47,38	,000
	Boy	158	50,81	39,19	
Written Types	Girl	185	49,32	26,21	,000
	Boy	158	34,68	22,02	
Verbal Tokien	Girl	185	57,44	40,45	,001
	Boy	158	44,23	31,57	
Verbal Types	Girl	185	37,89	22,24	,001
	Boy	158	30,39	17,88	

The table indicates that female students achieved statistically significantly more positive results in listening and reading comprehension test scores, as well as in oral and written vocabulary, compared to male students.

Table 5. Anova Test Results for the Relationship Between Listening Comprehension Scores and Grade Levels

Variable	Grades	n	Mean	SD			
Listening Comprehension	5 th A	83	5,65	2,19			
	6 th B	109	5,80	2,27			
	7 th C	76	7,28	1,98			
	8 th D	75	7,28	2,44			
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	202,972	3	67,657	13,583	,000	(A-C); (A-D)
	Within Groups	1688,573	339	4,981			(B-C) (B-D)
	Total	1891,545	342				

According to the table, listening comprehension achievement scores increase from the fifth to the eighth grade, and the differences between the groups' scores are statistically significant. The significance indicates that the seventh and eighth grades performed better than the fifth and sixth grades. In other words, it can be stated that the seventh and eighth graders are in a better position than the fifth and sixth graders in terms of listening comprehension test scores.

Table 6. Anova Test Results for the Relationship Between Reading Comprehension Scores and Grade Levels

Variable	Grades		n	Mean	SD		
Reading Comprehension	5 th	A	83	5,39	2,37		
	6 th	B	109	5,33	2,25		
	7 th	C	76	6,06	2,09		
	8 th	D	75	6,46	2,13		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	74,739	3	24,913	5,034	,000	(A-D)
	Within Groups	1677,658	339	4,949			(B-D)
	Total	1752,397	342				

Similarly, reading comprehension scores show an increase from the fifth to the eighth grade. Moreover, the differences in scores between the groups are statistically significant between the scores of the fifth and sixth grades and the scores of the eighth grade, in favor of the eighth grade. In other words, it can be said that the reading comprehension levels of eighth graders are better than those of fifth and sixth graders.

Table 7. Anova Test Results for the Relationship between the Number of Types in Written Expression and Grade Levels

Variable	Grade		n	Mean	SD		
Types Number in Written Expression	5 th	A	83	38,85	23,83		
	6 th	B	109	44,34	24,93		
	7 th	C	76	42,59	26,34		
	8 th	D	75	44,13	26,86		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	1673,343	3	557,781	,863	,461	No
	Within Groups	219198,039	339	646,602			Significant
	Total	220871,382	342				

According to the table, the number of unique words in written expression is lowest in the fifth grade and highest in the eighth grade. However, the differences in score means between the groups are not statistically significant.

Table 8. Anova Test Results for the Relationship between the Number of Types in Verbal Expression and Grade Levels

Variable	Grade		n	Mean	SD		
Types Number in Verbal Expression	5 th	A	83	34,66	18,92		
	6 th	B	109	32,27	20,73		
	7 th	C	76	32,02	17,45		
	8 th	D	75	39,77	24,48		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	3091,011	3	1030,337	2,442	,064	No
	Within Groups	143023,391	339	421,898			Significant
	Total	146114,402	342				

Accordingly, the lowest number of words in oral expression is observed in the seventh grade, while the highest number is in the eighth grade. On the other hand, there is no statistically significant difference between the number of words across the grade levels.

Table 9. Anova Test Results for the Relationship Between Listening Comprehension and Income Levels

Variable	Income Levels	n	Mean	SD			
Listening Comprehension	Lower Level	A	14	5,14	2,50		
	Middle Levels	B	299	6,43	2,34		
	Upper Level	C	30	6,90	2,23		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	29,786	2	14,893	2,720	,067	
	Within Groups	1861,759	340	5,476			No
	Total	1891,545	342				Significant

It is observed that listening comprehension achievement scores increase as income level rises. However, the difference in scores between the income groups is not statistically significant.

Table 10. Anova Test Results for the Relationship Between Reading Comprehension and Income Levels

Variable	Income Levels	n	Mean	SD			
Reading Comprehension	Lower Level	A	14	5,57	2,06		
	Middle Levels	B	299	5,80	2,27		
	Upper Level	C	30	5,43	2,26		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	4,243	2	2,122	,413	,662	
	Within Groups	1748,153	340	5,142			No
	Total	1752,397	342				Significant

Although reading comprehension achievement scores vary according to income level, these score differences are not statistically significant.

Table 11. Anova Test Results for the Relationship Between the Number of Types Words in Written Expression and Income Levels

Variable	Income Levels	n	Mean	SD			
Types Number in Written Expression	Lower Level	A	14	45,07	22,54		
	Middle Levels	B	299	43,12	25,49		
	Upper Level	C	30	36,00	25,69		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	1475,283	2	737,641	1,143	,320	
	Within Groups	219396,099	340	645,283			No
	Total	220871,382	342				Significant

According to the table 11, as income level increases, the number of words students use in their written expressions decreases. However, despite this trend, there is no statistically significant relationship between students' income level and their written expressions.

Table 12. Anova Test Results for the Relationship Between the Number of Types Words in Verbal Expression and Income Levels

Variable	Income Levels	n	Mean	SD			
Types Number in Verbal Expression	Lower Level	A	14	29,50			
	Middle Levels	B	299	34,58			
	Upper Level	C	30	35,26			
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	368,460	2	184,230	,430	,651	
	Within Groups	145745,942	340	428,665			No
	Total	146114,402	342				Significant

It is understood that as income level increases, the number of unique words students use in their speech also increases. However, the differences in the number of words possessed by the groups are not statistically significant.

Table 13. Anova Test Results for the Relationship between Listening Comprehension Achievement Score and Place Residence

Variable	Place Residence	n	Mean	SD			
Listening Comprehe nsion	Village	A	40	5,32			
	District	B	110	5,59			
	City	C	193	7,11			
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	217,920	2	108,960	22,135	,000	
	Within Groups	1673,625	340	4,922			(1-3) (2-3)
	Total	1891,545	342				

It is observed that as the size of the place of residence increases, listening comprehension scores also increase. Moreover, the difference between the scores is statistically significant. This significance is in favor of those living in the city, when compared to those living in villages and towns, in terms of the listening comprehension scores they achieved.

Table 14. Anova Test Results for the Relationship between Reading Comprehension Achievement Score and Place Residence

Variable	Place Residence	n	Mean	SD			
Reading Comprehe nsion	Village	A	40	5,20			
	District	B	110	5,49			
	City	C	193	6,03			
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	34,692	2	17,346	3,433	,033	
	Within Groups	1717,404	340	5,052			(1-3)
	Total	1752,397	342				

It is observed that as the size of the place of residence increases, reading comprehension scores also increase. Moreover, the difference between the scores is statistically significant. This significance is in favor of those living in the city, when compared to those living in villages, in terms of the reading comprehension scores they achieved.

Table 15. Anova Test Results for the Relationship Between the Number of Types Words in Written Expression and Place Residence

Variable	Place Residence		n	Mean	SD		
Types Number in Written Expression	Village	A	40	61,52	24,16		
	District	B	110	60,39	24,83		
	City	C	193	28,50	15,03		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	87470,978	2	43735,489	111,469	,000	(A-C)
	Within Groups	13340,404	340	392,354			(B-C)
	Total	220871,382	342				

It is observed that as the size of the place of residence increases the number of words used in written expression decreases. Moreover, the difference between the scores is statistically significant. This significance is against those living in the city, when compared to those living in villages and towns, in terms of the number of written words they used.

Table 16. Anova Test Results for the Relationship Between the Number of Types Words in Verbal Expression and Place Residence

Variable	Place Residence		n	Mean	SD		
Types Number in Verbal Expression	Village	A	40	37,80	22,03		
	District	B	110	42,20	22,78		
	City	C	193	29,31	17,43		
	Origin of Varians	Sum of Squares	df	Mean Square	F	p	Significant Difference
	Between Groups	12168,464	2	6084,232	15,444	,000	(A-C)
	Within Groups	133945,938	340	393,959			(B-C)
	Total	146114,402	342				

The number of words used while speaking varies as the place of residence differs. Moreover, the difference between the scores is statistically significant. This significance is in favor of those living in villages and towns, when compared to those living in the city, in terms of the number of words they used while speaking.

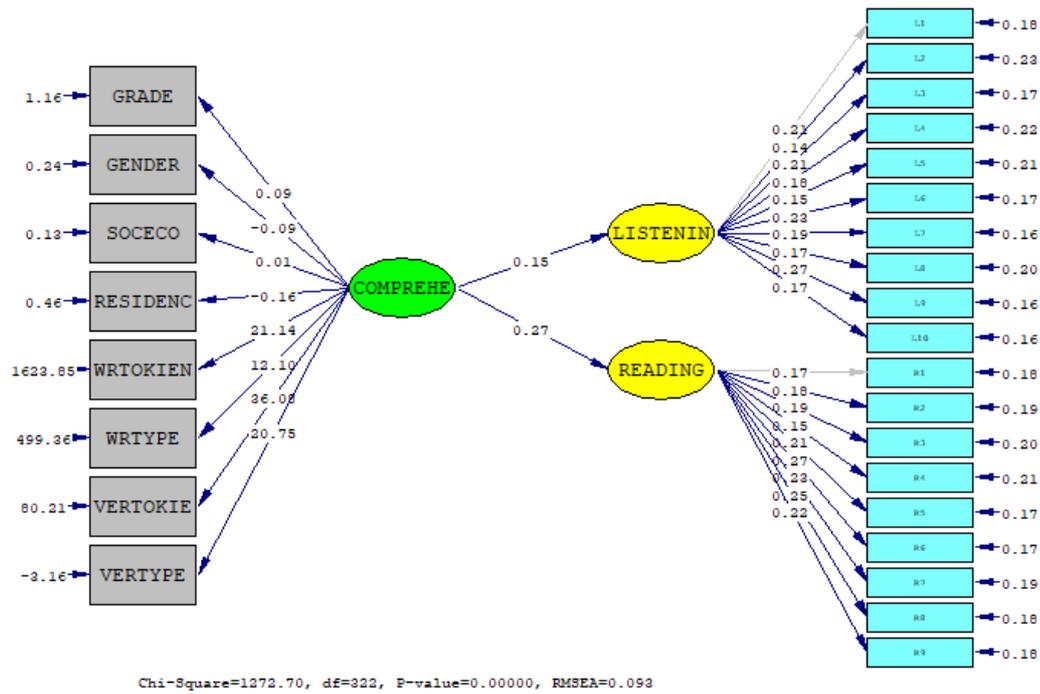


Figure 1. Model Path Diagram of the Relationship between Listening and Reading Comprehension and Vocabulary

Listening and reading comprehension, along with vocabulary, are significant components of the established model. However, it can be stated that the number of words used while speaking explains comprehension skills more than the number of words used while writing. Nevertheless, the chi-square (χ^2) value, which is related to the sample size, was determined to be 1272.7, and the degrees of freedom (df) were 322. The χ^2/df ratio is 3.95. It can be said that this value indicates a reasonable fit (adapted from Bollen, 1989, cited in Kline, 2005, p. 137). The RMSEA value (Browne & Cudeck, 1993, p. 144), which indicates a good fit when below .05, is observed to be 0.093. Furthermore, the GFI value was determined to be 0.78, and the AGFI value was 0.75, while the GFI value should be above 0.90 in case of model suitability (Kline, 2005: 145). GFI and AGFI values can take a value between 0 and 1 in case of model fit, should be closer to the value of 1, and cannot be negative (Jöreskog & Sörbom, 1993, p. 123; Raykov & Marcoulides, 2006, p. 43). With these values, it should be stated that the model is a weak model.

Conclusion, Discussion, and Recommendations

In this study, it was generally revealed that students' rich vocabulary has a positive effect on their reading and listening comprehension skills. Words are the basic building blocks of meaning, and the more words one knows, the higher the probability of understanding texts and conversations.

The research showed that the total number of words students used while writing varied according to grade level. The highest number of words in written expression was used in the sixth grade, and the lowest number was used in the seventh grade. However, when looking at the ratio of unique words, the highest ratio was found in the eighth grade, and the lowest ratio was in the sixth grade. The fact that the overall unique word ratio is around 20% parallels

Kurudayıoğlu's (2005) finding of a 24-26% unique word ratio within the total word count for similar grade levels. This suggests that while the number of words students use in their written expressions can increase, word diversity develops more significantly with age and education level.

It was determined that the highest total number of words students used while speaking was in the sixth grade, and the lowest was in the seventh grade. Interestingly, the lowest number of unique words was in the seventh grade, and the highest was in the fifth grade. Furthermore, it was concluded that the number of unique words used while speaking was less than the number of unique words used while writing. According to research on lexical sophistication, as learners become more proficient, they tend to focus on using a wider variety of more complex and nuanced words, even if it means their overall output is smaller. Instead of using a large number of common words, they may be taking more time to select the most precise and effective word, which can slow down their speech and reduce the overall word count (Laufer & Nation, 1995). This situation can be attributed to the more spontaneous and repetition-focused nature of spoken language compared to written language too. In daily communication, it is common to repeat fewer words more frequently. As students progress through school, the number of words they use when speaking decreases, which may be due to the effects of adolescence as well as their preparation for central exams (LGS). In addition, exposure to technology as they get older may also have an impact on this finding. Chafe and Danielewicz (1987) examined the fundamental differences between speech and writing in their research reports, indicating that written language is more integrated and information-dense, while spoken language is more fragmented and contextual. This finding may support the use of more diverse vocabulary in written texts.

The research revealed a positive and significant relationship between the possessed written and oral vocabulary and the scores obtained from the reading comprehension test. Rahmasari et al. (2023) also reached results supporting this finding in their study. It is an expected outcome that students with a rich vocabulary have higher reading comprehension levels. It is noteworthy that this relationship is stronger in the vocabulary used while speaking. The study by Zhang and Anual (2005) on the effect of frequently used words on the level of understanding shows that basic vocabulary knowledge is critical for comprehension. Zhang and Zhang's (2020) meta-analysis also supports a strong correlation (31% - 45% explained variance) between vocabulary and both reading and listening comprehension. Stæhr's (2009) study with advanced learners also emphasizes the important role of vocabulary in listening comprehension. Robinson's (2005) finding of a positive correlation between reading comprehension and vocabulary also aligns with the research.

On the other hand, it is an interesting finding that the relationship between vocabulary and listening comprehension was very low in this study. However, the inference that listening comprehension skills may increase as the number of unique words used while speaking increases is important. This suggests that listening skills may be related not only to vocabulary knowledge but also to factors such as the ability to understand and process different words within context and the speed of processing. As a result, it can be said that reading develops vocabulary, and the developed vocabulary positively affects comprehension skills.

In the research, it was found that female participants had statistically significantly higher listening and reading comprehension scores and written and oral vocabulary compared to males. The fact that girls use more words both in writing and speaking and have a richer



vocabulary aligns with the findings of Akaydın (2018). This indicates gender differences in language development and suggests that educational strategies should be shaped by considering these differences. Furthermore, this finding may indicate that the differences between females and males may also stem from psychosocial factors.

It is observed that listening and reading comprehension generally increase as grade level increases. This is an expected result because students' vocabulary expands, and their language skills develop as they receive education. However, it is noteworthy that written vocabulary is high in the eighth and sixth grades and low in the seventh and fifth grades. The reasons for this situation can be interpreted as differences in course content, exam preparation periods, and teachers' teaching method preferences. On the other hand, the lack of a general relationship between the grade variable and possessed vocabulary suggests that vocabulary development may not be a linear process. Anglin et al. (1993) examined how children's vocabulary expands with age and the role of morphological awareness in this process in their research. According to the researchers, students at different grade levels may have different word learning strategies and vocabulary sizes. This finding may suggest that vocabulary acquisition is more of an individual process than a linear one.

In the research, while a tendency was observed for listening comprehension skills to increase with increasing income level, no clear direction was found in reading comprehension. However, these differences were determined to be statistically insignificant. Interestingly, it was observed that written vocabulary decreased and oral vocabulary increased as income level increased, but this was also not found to be statistically significant. Hoff (2003) argues that mothers' speech style is influenced by socioeconomic status, which in turn affects children's vocabulary. Therefore, it can be said that socioeconomic status affects the amount of vocabulary one is exposed to. There is a difference between this finding and Akaydın's (2018) finding that vocabulary knowledge and reading comprehension scores increase with increasing income level. Duncan et al. (1994) reported that economic deprivation has negative effects on children's cognitive and linguistic development. Considering that economic deprivation may show regional differences, it can be stated that this situation may also lead to differences in vocabulary development. It can be said that the effect of socioeconomic factors on language skills can be complex and context-specific.

It is observed that comprehension achievement scores increase significantly as the place of residence transforms from a village to a city. This situation can be attributed to richer linguistic stimuli, educational opportunities, and sociocultural factors in the urban environment. However, interestingly, it was found that students' written and oral vocabulary decreased as their place of residence changed from a village to a city. This unexpected finding may be related to the characteristics of the sample or the methods used to measure vocabulary and may require further investigation. In addition, technological capabilities between large and small settlements may also play a role in this outcome. As technological capabilities increase, visual communication becomes more prominent, while in small settlements, primary communication is more commonly used. A study found that for every minute of screen time a toddler was exposed to at home, they heard fewer adult words and had fewer back-and-forth conversations with their parents. The study estimated that a three-year-old with average screen time could miss out on thousands of words and hundreds of conversations daily (Brushe et al., 2024). A systematic review confirmed that prolonged screen time and early exposure to screens negatively affect a child's language development, including their comprehension and vocabulary range (Massaroni et al., 2024). Hart and Risley (1995) point out that socioeconomic status significantly affects the number of words children are exposed

to. Although the place of residence was not directly examined in this study, considering that socioeconomic status may differ according to the place of residence, it can be said that the researchers' claims are also valid for the place of residence.

In addition to the above findings, a model consisting of listening comprehension, reading comprehension, receptive (passive) vocabulary, and personal information has been established. According to this model, the greater the number of different words one possesses, the better one's comprehension skills. In other words, as vocabulary increases, comprehension skills also increase. It can be said that an increase in active vocabulary further clarifies the results of reading comprehension. In addition, the level of explanation of comprehension by grade, gender, socioeconomic status, and place of residence is low. On the other hand, the model formed with all this data set is a rather weak model. What weakens the model is the presence of other factors that explain comprehension skills.

In light of the findings of this study, the following recommendations can be made:

Conducting Vocabulary Development-Focused Training: School-based programs and activities aimed at enriching students' written and oral vocabulary should be developed. These programs should include teaching vocabulary in context, word games, encouraging reading habits, and interaction with different text types.

Promoting Reading Habits: Considering the positive effect of reading on vocabulary and comprehension skills, students should be encouraged to read various texts regularly. School libraries should be strengthened, and students should be guided in choosing appropriate books. All stakeholders actively involved in the education process should be positive role models in instilling reading habits in students.

Supporting Listening Skills: Special activities and materials should be designed to develop listening skills. Skills such as understanding texts with different speeds and pronunciation characteristics, note-taking, and summarizing should be emphasized. Furthermore, educators should not forget that listening is the most important step in the learning process.

Considering Gender Differences: Learning environments and teaching materials should be made sensitive to the differences in language skills between female and male students, taking these differences into account. While implementing this, a sense of gender bias should not be felt by the students, and actions should be taken in line with pedagogical knowledge.

Implementing Grade-Specific Approaches: Teaching methods and materials should be adapted according to grade level, considering the differences in the development of vocabulary and comprehension skills of students at different grade levels. In particular, the reasons for the observed fluctuations in written vocabulary depending on grade levels should be investigated, and strategies should be developed accordingly.

Investigating the Impact of Socioeconomic Factors: More comprehensive studies with broader participation should be conducted to examine the impact of socioeconomic factors such as income level and place of residence on language skills in more depth. The results of these studies can contribute to the development of supportive education policies for disadvantaged students. The cultural environment or socioeconomic level should be transformed into a social richness through the implementation of correct education policies.

Diversifying Measurement Methods: In future research, different and more comprehensive



vocabulary tests, different speaking tasks, and other methods can be used to measure vocabulary and comprehension skills. Inclusive and up-to-date measurement tools suitable for the needs should be developed.

Increasing Sample Size and Diversity: To increase the generalizability of the results, future research should work with larger groups of students with diverse sociocultural backgrounds.

Investigating Vocabulary Teaching Strategies: Experimental studies should be conducted on the most effective teaching strategies and educational programs to support vocabulary development. These studies can comparatively examine the effects of different teaching methods on students' word learning and comprehension skills. Studies revealing the importance of vocabulary should be conducted more frequently.

Declarations

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Ethics Statements: We declare that this study complies with the rules set forth in the Higher Education Council's Scientific Research and Publication Ethics Guidelines, that we have not engaged in any activities contrary to scientific research and publication ethics, and that permission has been obtained from the university's ethics committees. We also declare that all authors have contributed to the study, that there is no conflict of interest among the authors, and that all responsibility for ethical violations lies with the authors of the article.

Conflict of Interest: The authors declare that there is no conflict of interest.

Informed Consent: The participant families were informed about study and both the parents and students filled in a consent form.

Data availability: The data generated or analysed during this study are available from the authors upon request.

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