INVESTIGATING THE RELATIONSHIP BETWEEN RECEPTIVE VOCABULARY SIZE AND LISTENING SKILL: A STUDY OF IELTS TEST-TAKERS IN PAKISTAN

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ABSTRACT:

This correlational research study aimed at exploring the association between vocabulary size and listening of Pakistani IELTS test takers. For this purpose, it manipulated two instruments (Beglar & Nations model of vocabulary size test for the independent variable and IELTS band of listening for the dependent variables) for collecting the required data. It involved 125 (39 female and 86 male) Pakistani IELTS test takers as its population. The sample comprised 39 female and 86 male participants. Later, the data were analyzed using T-test analysis, Spearman rank-order correlation, and simple linear regression analysis. The findings of this study revealed that there was no significant difference in the listening skill performance of male and female test-takers. The female average mean was (listening M=5.846) and male average mean (listening M=5.488). The results also suggested that there was no significant difference in the mean of male and female participants in the listening skill. Hence, it came forth that, in the VST score, there was a significant difference based on gender (female VST, M=58.31 and male VST, M=49.78). There was a significant difference in the average male and female mean, indicating that females possessed more extensive vocabulary than males. Likewise, the Spearman rank-order correlation analysis exhibited the strongest correlation between VST and listening, (listening R=.625). The simple linear regression analysis depicted that the VST model explained 38.5% variance of listening skills. The study concluded that there was a significant correlation between VST and listening skills of IELTS test-takers. Resultantly, the study would have certain pedagogical implications in language teaching and learning, language testing, and the English language centres like IELTS preparation centres.

Keywords: listening, VST, correlation, IELTS, analysis, T-test, Spearman rank-order, linear regression analysis.

1. INTRODUCTION

Vocabulary is the fundamental component of language learning and teaching; therefore, it plays an essential role in the comprehension of literary and receptive language skills, i.e., listening and reading. The production and understanding of language skills rely heavily on vocabulary knowledge, and many components of language processing are determined by mastering vocabulary. Therefore, a learner of a particular language has to recognize, understand and apprehend the new vocabulary knowledge to improve his four edifying skills. As it is necessary for second language learning, L2 learners must have sufficient vocabulary size to perform better in their essential skills because it is multidimensional and complex construct. Hence, it is considered that the language learning is established by the knowledge of vocabulary for analytical and investigative purposes in educational excursion. Vocabulary is not only used for improving language proficiency but is valid predicator of listening skill and is used for placing learners at certain levels of language courses (Harsh, 2015 p.2). For hundred years ago, vocabulary's understanding has been studied extensively. Researchers that studied vocabulary developed a variety of vocabulary models decades ago to help people understand and learn vocabulary and its various aspects. Grammar predominated vocabulary in the arena of teaching and learning in early 1980's as numerous authors describe it as "Lexicon in spoken discourse" which has logical and adequate significance in language. Now, vocabulary has a prestigious reputation in language classroom instruction and it is positively correlated with the four skills of language (reading, writing, listening and speaking). Keeping in view, this study focused on the relationship between listening skill and vocabulary size. Vocabulary size and receptive skills have had a strong association for a long time (Munoz & Miralpeix, 2018). Numerous researchers concluded that vocabulary size had some relationship with listening skills (Goh et al., 2017; Yang, 2020).

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1.1 Purpose of the study

This main purpose of this study is to examine the correlation between receptive vocabulary size and the IELTS band score of listening skill of the Pakistani students at the undergraduate level. This study also investigated the difference between the performance of moderator variables (male & female) in listening.

1.2 Research Questions

Investigating the relationship between receptive vocabulary size and receptive skills, these research questions were developed:

Question 1: Do the male and female IELTS test takers differ in their IELTS listening skill test scores?

Question 2: How far does the receptive vocabulary size correlate with the listening band scores of IELTS test-takers from Pakistan?

1.3 Research Hypotheses

Research hypotheses of the current study are:

H_o: There is no significant difference in the IELTS listening band of male and female IELTS test-takers.

H_1: There is no correlation between the vocabulary size test and IELTS listening band of IELTS test-takers.

2. LITERATURE REVIEW

Listening is a receptive language skill. Its comprehension is complex because it is based on linguistic features that include vocabulary, grammar, speech rate, pronunciation, intonation and stress pattern and non-linguistic information, environmental factors and context (Vandergrift, & Baker, 2015). Furthermore, Goh and Tan (2018) stated that listening is the ability to identify the words phonologically; therefore, the learners are required to associate the lexicon they identify with the intended meaning. Listening also plays an essential role in comprehending the spoken discourse of a second language and learning a second language. In the last two decades, numerous researchers concluded that vocabulary is associated with receptive skills, which means that adequate stock of vocabulary increases reading and listening performance. Vocabulary tests are administered for developing a coherent and comprehensive link between vocabulary measures and` listening skills ins the context of vocabulary debate. VST tests are a construct-related principal, based on the objective, reliable and economical conjectures that a proficient learner can solve by exploiting their automated productive and receptive skills. Moreover, they are helpful for gaining information about sounds and words which exploit sustained efforts to involve in reciprocal interaction with others.

2.1 Vocabulary size

The term vocabulary size is replaced with the vocabulary depth in the literature of study (Meara, 1996). Both vocabulary breadth and size are used interchangeably to express similar concepts in literature. Similarly, in the current study, the term size denotes the vocabulary breadth of the learners. Read (2000) stated, "Vocabulary size determines the students' vocabulary size using a sample of words that expresses multiple levels of frequency" (p.126). Simple vocabulary size means several lexicons that a learner knows (Kinarti, 2016). Vocabulary size aimed to estimate how many common numbers of lexicons are known to the learner based on a test of their knowledge of an item of sample from a word frequency list (Nation, 2002).

2.2 Vocabulary size in L1 and l2

The most critical query in vocabulary research studies is the size vocabulary, required for communication. Various studies with distinct research designs were conducted on this inquiry by eclectic research scholars. In the past Karickpatrick (1891) estimated that in the US, at school level students had vocabulary stock of approximately 10000 lexicons, while at the college level, students had 20000 to 100000 words size. Zechmister et al. (1995) estimated 16000-word families, which university student know. According to the American oxford dictionary (1981), at the high school level, students know an average of 11836, while adults know 21252-word families.

Furthermore, it includes all derivational and inflectional forms of words. Nation and Waring (1997) stated that the English of the native speakers' children added 1000 words in their stock. It means that a native speaker's child, who is five-year-old, has around 4000 to 5000-word families when he/she begins his/her school;

this child has about twenty-thousand-word families when he/she will have done graduation. Schmitt (2010) posited that an educated native speaker's vocabulary size ranges from 1600 to 2000 thousand families. While exploring the number of words, known by an undergraduate native speaker, Milton (2009) mentioned that smaller estimation of vocabulary around 9000 lexicon families. On the other hand, Milton and Daller (2013) proposed that monolingual English speaker at undergraduate vocabulary size appears smaller around 10,000 English lexicon families. Previously it had been assumed that vocabulary size grows slowly while studying at the university level by 400 to 500 lexicons each year. The variation in vocabulary size of the native speaker depends upon how much and how they had used their language.

2.3 Vocabulary size test (VST)

VST is a renowned reliable and widely used test for measuring the learner's vocabulary size (VS). It is used by the teacher and the researcher as the VS measuring tool. VST was developed by Nation and Beglar (2007) in the form of multiple-choice items. In this format, each targeted lexicon contains a short non-defining context with three distracters and correct answers. VST consists of 14 frequency levels. Each level is 1k word families of British National corpus BNC. Beglar (2010) asserted that word family could be suitable for receptive vocabulary test because second language students are beyond the beginning level of proficiency, they can manage word building items and divide both form and meaning constructed on the relationship between affixes of word families like write, writing, wrote, and written. Nation (2004) stated that it could be suitable for English and second language learners (ESL) to utilize the information based on the BNC list because it has better coverage than AWL and GSL list tests. Nation (2012) stated that VST provides a straighter estimation of the total vocabulary size.

The VST comprised 140 items with 14 frequency bands, each item represents the 100-word families, and ten items represent the 1k frequency level.

Beglar (2010) presented five reasons for the format of the multiple-choice items of VST

1- This design was chosen to authorize the content to be introduced completely
2- To confirm the test is appropriate for distinct learners who share a different linguistic background, the number of students is known with the multiple-choice format.
3- To manage the level of difficulty of individual items
4- To assist in making the scoring procedure reliable and effective
5- To motivate the students to express their knowledge for individual items

The VST had been employed by many researchers in different studies in which its reliability and validity were found (Beglar, 2010; Gllystad, 2012; Gyllstad, Vilkaite & Schmitt, 2015). Therefore, in the current study researcher employed the VST. Sample of VST is mentioned below:

This sample was extracted from the Nation and Beglar designed to test (2007).

1. *Time: They have a lot of time*

A: Money   B: Friends C: hours D: Food

2   Authentic: It is authentic

A: old   B: very noisy C: like desert D: Real

2.3 Validity and reliability of test

It was hard to answer the query of what makes a better vocabulary test (VT). The assessment is a critically important issue because the exactness and the outcome of the project entirely depend on the selected test for evaluation. Reliability and validity are essential features for the assessment of a test. Reliability of test means measuring a test with accuracy and consistency (Alkhudiry, 2018). Validity is an assessment instrument that may be valid if the tool correctly assesses what is intended to measure.

2.4 Vocabulary learning strategy through self-efficacy theory

Vocabulary learning has an association with self-efficacy. According to Bandura (1977), self-efficacy is a student's belief in self-capabilities to organize the performance required to achieve their goals. Schunk

(1981) defined it as a judgment about the individuals' abilities to offer a given model of behaviour. It means self-efficacy is students' capability to complete the task successfully. Bandura (1994) said self-efficacy is a theory that explains that generally, people attempt those tasks they believe they can accomplish and would not attempt tasks and believe they will fail. It simply tells us about the belief and capabilities of the individuals to accomplish any task.

It could be said a belief of individuals on their capacities to array and implement the courses in the prospective situation. Various researchers recognize self-efficacy in education, which critically contributes to the study of academic motivation achievement and learning. This theory assists in the classroom practice and development of educational policies (Artino, 2012). It helps the student improve his/her mindset, and the teacher assists in enhancing their learning behaviour, performance, and academic success. Hamda (2014) pointed out outperforming qualitative data that some students had a poor mindset having negative enthusiasm for learning English. He had explored five strategies for improving the mindset and motivation: sensitivity, respect for the student's individuality, support for the effort, active engagement, and activities. These factors play an important role in vocabulary learning because when learners have positive efficacy, they learn and grow their vocabulary.

Furthermore, numerous researchers had conducted studies on vocabulary learning strategies used for learning second language vocabulary among second language learners in recent two decades. Soureshjani (2011), in his empirical investigation, , investigated linking the words with their synonym and antonym, using the physical action, pictorial representation of words, imaging the word forms, imaging the words meaning, reading aloud the words, linking the words with personal experience are the common strategies for the second language learners to learn the vocabulary. In support of this study, Kominato (2014) conducted an investigation and explored these strategies, saying words aloud, writing words, using the sentences example, and looking into the text are the strategies used by college-level learners to learn vocabulary. Moreover, researchers had explored the use of vocabulary strategies based on gender in the past. They claimed that females use strategies better than males to learn the second language vocabulary. However, the female learners had large vocabulary size than the male learners because the female learners used different vocabulary strategies than the male students as Mukhtar and Bhatti (2020) had investigated according to their findings that female participants used these strategies differently than males (semantic mapping, imaging, and pictures, visual and auditory, group association and word contact). However, the female learners perform better than the male students in terms of learning vocabulary do. In support of this view, Afzal (2019) findings of his investigation concluded that females use the vocabulary learning strategies more distinctly than males, which is why they perform better than male learners do.

2.5 Vocabulary acquisition cognitive process

The acquisition of vocabulary through the cognitive process critically plays an important function. Zhao et al. (2016) had conducted quantitative study and they explored the internal factors such as cognitive and affective features in acquiring vocabulary through incidental reading. Acquisition of vocabulary is based on processing a new lexicon, and the study investigates a few factors that affect the choices of ways in the learning process.

The researcher explored the following aspects among Chinese EFL, anxiety, fluency of the second language (L2), and skills of strategies and motivation. Student's fluency level data was collected by administering the test for English major and other factors accumulated with the assistance of a questionnaire. The result indicated that L2 fluency anxiety, skill, and strategies correlated with each other, whereas motivation was not correlated. The result of the L2 fluency level expressed those students with high fluency levels require more words than those with low levels. Thus, the connection between students decoding skills and the skill of strategies correlates (Zaho et al., 2016).

The anxiety occurs when students cope with the new lexicon and cannot interpret and comprehend. Hence, anxiety does not affect vocabulary acquisition because it constrains learner attention. However, the researcher focused that through anxiety, the chances of retention of words depend upon the learner's strategy of retaining the lexicon. It is connected with systems having various strategies skills that positively affect vocabulary learning from different tasks and procedures. They did not find influence in vocabulary learning, which were unexpected results. Students are motivated in various ways and on their motivation for learning the vocabulary and retaining the lexicon (Zaho et al., 2016). Study measurement became failed because motivation could not affect the learning of vocabulary. To conclude the entire discussion, it has been expressed that the internal feature, including linguistic, affective, and cognitive skills and strategies, enhance vocabulary acquisition.

Moreover, regarding gender-based differences, the social cognitive theory has attracted more psycholinguistics. Studies on gender cognitive abilities asserted that females are more verbal and male spatial (Halpern & LaMay, 2000). Males tend to surpass verbal mathematical word problems, and activities involve memorizing geometric arrangement, analogy tasks, and the mental rotation of two or three-dimensional objects. Whereas females tend to surpass spelling, writing, arithmetic calculation, reading comprehension, the spatial location of objects, verbal memory tasks, and language use (Hyde, 2005; Halpern, 2000). These gender-based differences perform the task differently. According to Gurian (2002), the brains of males and females are different with culture and sex hormones, which influence performing the essential role in bringing out these dissimilarities. Nonetheless, cognitive similarities between males and females override the differences. The empirical studies also suggested cognitive skills based on gender that males and females use the different solutions and strategies for the complex cognitive activities (Yazdanpanh, 2007).

2.6 Factors effects on the vocabulary learning

Vocabulary is considered a sub-skill of language, and it plays a significant role in the learning and competence of receptive skills. Multiple factors affect the learning of second language vocabulary. In the recent two decades, numerous researchers have explored the factors through the empirical investigations, which influence as a barrier in the learning of vocabulary to the second language learners. Afzal (2019) in his research investigation he, explored that, use of new vocabulary, pronouncing the new vocabulary, spelling of the new vocabulary, memorizing the new vocabulary, issues in the memorization prefix and suffixes of the new vocabulary, recognition of new words, learning the meaning of technical terms, and guessing the particular meaning context. Another investigation was done by Rahmitulah (2014). In his study, he found some linguistic factors that affect the learning new vocabulary, pronunciation of words, the spelling of words, grammatical forms of the words, the meaning of words, contextual use of words, and idiomatic expression of the words.

2.7 Listening comprehension

Listening means being able and competent to understand the knowledge during listening activities, it also means having comprehension, communication, and responding to what is heard (Hadijah &Shalawati, 2016). Some author defined it in different views; Deyermond (1971) said it is an ability to comprehend native speech at average speed. On the other hand, Goss (1982) stated that listening is a process of comprehension of a discourse and managing it into lexical elements and create the meaning. Various authors define the word listening comprehension. According to Yule et al. (1983), listening comprehension means that an individual comprehends whatever he/ she listens. If he/she learns text through listening, he/she will comprehend it. Hamouda (2013) defined listening comprehension as an international process in which listeners create meaning. Listeners understand oral input through linguistic and non-linguistic clues. According to Nadig (2013), listening comprehension is multiple processes of comprehending and constructing the sense of oral language. It includes speech sound knowledge, understanding the meaning of words, and the grammatical structure of sentences.

2.8 Role of cognitive strategies in listening comprehension

Cognitive strategies are linked to comprehension and accumulating input in long-term or short-term memory. Azmi et al. (2014) defined cognitive strategy as a problem-solving method that students implement to tackle learning activities and knowledge. There are two types of cognitive strategies proposed in listening Bottom-up and Top-down. Bottom-up strategies are deal word by word translation, reporting the oral text managing the role of speech, and becoming on the prosodic feature of the text. Top-down strategies include explaining, guessing, forecasting, and visualization. The advanced level learners were more focused on the top-down strategies.

2.9 Vocabulary required for receptive skills

According to multiple studies, the past and present level of skill proficiency depends on vocabulary size (Laufer & Goldisteen, 2004). The vocabulary size for receptive skills for second language learners, research proposes several ways for making the decision. The first way to determine the learning objectives of words is to set a goal as a traditional speaker. The second way to determine the intent of vocabulary is how much you need to know to use something in English, such as reading a novel, book, newspaper, essay, watching a movie, or participating in social media. a study was administered on shark movies for estimating listening vocabulary. The corpus of scripts was 10k tokens and 1100 words-families. Its analysis exposed those 7000 lexicons stocks are needed to be familiar or understand the movies.

There was another study conducted by the researcher on unscripted English spoken corpus. For this purpose, two parts of the wellington corpus of unscripted spoken English took about 20k words corpus. The results indicated that 5k to 6k vocabulary is essential to comprehend the unscripted English conversation. In conclusion, if learners want 98% coverage, learners need 8k to 9k word-families to learn the written text, and 6k to 7k word-families are required to understand the spoken discourse. It means 8k to 9k words are needed for reading, and 6k to7k words are required for listening skills.

2.10 Measuring the listening skill

In recent decades, IELTS exam has been internationally known as a testing system for English language proficiency. It is conducted in the second and foreign language contexts where English has non-native speakers. The United Kingdom performs this test. The IELTS exam assesses four English language components: speaking, writing, reading, and listening. IELTS listening is based on four sections; dialogue, a monologue on social contexts, the conversation of four participants, and lecture on an academic subject and each section consists of 10 questions. Listening skills measured by various tests based on a variety of question types. It includes matching, MCQs, note completion, summary completion, map, diagram labeling, sentence completion, and short answer. Another listening skill-measuring test is the Test of English as a foreign language (TOEFL), a language proficiency test, which resembles IELTS that is administered by America.

TOEFL listening test composed of two separate times passed each section consisting of one conversation and two lectures. It is based on 30 to 32 questions. Four types of questions were asked to measure the listening. It includes MCQs with one correct answer MCQs with more than one right answer. Questions in which students are asked order the events and match the object. One more test for measuring listening skill is the Test of English for international communication (TOEIC). It is an English proficiency test for non-natives. This test assesses four English skills: reading, writing, speaking and listening. The listening test is composed of a hundred items, which are constructed from conversation and talks. The questions are in the form of MCQs and sentence completion.

2.11 Relationship between vocabulary size and listening

As in the above section, it is discussed that vocabulary size correlates with reading comprehension was proved by empirical studies. The researchers also claimed that vocabulary size is a barrier to the listening comprehension of EFL and ESL students. Empirical studies did not entirely support the claim. There were some studies in support of this claim. Yang (2020) had explored the correlation between vocabulary size and listening comprehension. He collected 37 participants. This study used the vocabulary size test and paper-pencil listening to investigate the relationship between vocabulary size and listening comprehension. Pearson correlation was performed. The correlation analysis of the study showed a positive relationship between vocabulary size and listening (0.843), which is considered the strongest correlation. Miraplex (2018), in the Spanish context, had involved 42 students to investigate the relationship between receptive vocabulary, receptive and productive skills. The Pearson correlation was conducted to examine the relationship. The analysis showed a moderate correlation between receptive vocabulary and listening (0.420).

Moreover, he had used the X-Lex and Y-Lex vocabulary size tests and paper-based listening tests to explore the relationship. The problem with his study was that researcher took a small sample size test and an unreliable paper-based listening test because the reliability of the test was not measured. In Denmark, Stahr (2009) investigated the relationship between vocabulary and language skills on a sample size of (88). He had used the paper-pencil listening test and VLT test to investigate the relationship, and Spearman rank-order correlation was conducted. The result showed a positive correlation between receptive vocabulary and listening skills (0.69).

In contrast to these results, Goh et al. (2018) conducted a study on 43 Malaysian students' receptive vocabulary size and listening. They used the IELTS-based listening test and VST at 14 levels on second-year students. The results indicated that there was no relationship between listening and vocabulary. The problem with their study was that they had a small sample size, and they had not performed any correlation test such as Pearson, Spearman rank-order etc., they had found the relationship based on descriptive statistics.

In contrast, those students who had less vocabulary size appeared weak at listening. To conclude the above studies, it is explicitly represented that listening comprehension and vocabulary size have an association with vocabulary size like reading. That is why, the researcher of the present study became interested in exploring these relationships in Pakistani context.

2.12 Empirical investigations on listening

Reviewing the relevant studies carefully, the researcher explores that in the last decade, the work had been done on the current research in different contexts inadequately by using distinct methodologies, Population. In Pakistani context, the work on this issue was negligible. Numerous studies researchers Explored those were at the lower level and based on one skill was used as an independent variable. The further researcher explored that some major domains regarding this issue had been studied, including different populations and instrument and data analysis techniques. The detail of these domains is given below:

Researchers had used different population sets to investigate the relationship between (RVS) and receptive skills by integrating or separately in various contexts. Mirplplex and Mumoz (2008) investigated the association between RVS and language skills. In (2017) Wang and Daller in China explained the relationship between vocabulary breadth and listening comprehension on second-year non-English primary 152 students. In China, Yang (2020) had examined the association of vocabulary breadth and listening on 37 students at the junior level. In Denmark, Stahr (2008) examined the relationship between the VS and reading, listening, and writing on 88 EFL participants in lower secondary education. In the last decade's studies, the researcher had used various instruments to collect the data for their studies. Numerous researchers had used VST and IELTS scores of listening.

The listening IELTS test examined the association between RVS and receptive skill (Alkhudiry, 2018; Goh &Ton 2017, &2018; Liu & Chen, 2020; Dobbagh, 2016; Drummond, 2018; Teng, 2016). Few researchers had examined the similar relationship by using VST, TOFEL, and TOEIC instruments for collecting the data (Akbrain & Alvi, 2012; Chiang, 2018; Soomaro et al., 2019).

In some studies, the researchers had used the moderator variable gender to check the difference in male and females' VST and listening. The gender-based difference in listening performance had been investigated in a different context. Javed et al. (2013) conducted the study on Pakistani secondary school level students with a sample size of 440 participants. They had performed the T-test analysis to investigate the difference in the listening skill based on gender. The investigation revealed that both males and females had similar performance in listening skills.

Similarly, in China, Yang (2020) also investigated the difference in listening performance based on the gender of 37 participants at junior level students. He had run the independent T-test to examine the gender-based difference. The analysis indicated that both groups had similar performance in listening, and this fact supports the results of the current study. Rhomah & Khotimah (2020) had administered a study in the Indonesian context, and their study was based on 42 participants of TOFEL test-takers; the simple independent T-test performed to check gender-based performance in the listening, the results indicated that both males and females were statistically similar in the listening performance. In Taiwan, Chaing (2018) examined the gender-based difference on a huge sample of 973 students of TOFEL test-takers in receptive skills. He ran one-way ANOVA and T-test to check the gender-based difference in listening and reading though the analysis showed that males and females were similar in the receptive skills performance.

Reviewing the literature related to the current issue, researchers had found that in the past researchers had used different techniques of data analysis and specific statistical tests to examine the relationship between dependent and independent and moderator variables. Mraplex (2018) found a correlation between VS and receptive and productive skills by using the Spearman rank-order correlation formula and multi-variant linear regression to explain these skills.

3. RESEARCH METHODOLOGY

3.1 Research Design

Research design is a systematic way of collecting and analyzing the data to prove or reject the hypothesis in quantitative designs. The current study adopted the correlational design of research because it aimed to examine the extent of relationship between receptive vocabulary size and listening skill. This study included one major and one moderator variable, i.e., receptive vocabulary size as an independent variable and listening skill as dependent variables, gender as a moderator variable. The researcher investigated the extent of relationship between independent (RVS) and dependent variables (Listening skill) using Spearman rank-order formula. The scores obtained shown the correlation coefficients.

3.2 Population and Sample of the study

The targeted participants of this study were the undergraduate IELTS test-takers of Pakistan. The data was collected from Lahore, Faisalabad, and Sargodha. It was collected from the IELTS preparation academies of the mentioned cities of Punjab, Pakistan. The total number of participants was 125. The numbers of female participants were 39, whereas the numbers of male participants were 86. The age of both male and female participants was ranged from 18 years to 24 years. It was suitable for the researcher to collect the data from IELTS test takers because the researcher required listening skill and IELTS band score to correlate with independent variables scores (VST).

3.3 Data collection procedure

Data was collected from the IELTS preparation academies of the mentioned cities of Punjab, Pakistan included Lahore, Faisalabad, and Sargodha. The permission was sought for data collection from administers of multiple academies of the mentioned cities. The researcher went to their classes to meet the students and ask for volunteers for the research. Before starting the data collection, test-takers were informed about the objectives of the research and purpose of administering the test. The VST was administered in the IELTS preparation test centers in presence of the researcher. Test-takers had been given 50 minutes to attempt VST test at ten levels, which were 100 items. VST was distributed in two portions. For the first 50 questions, 25 minutes were given, and then there was a break of 10 minutes after the break, the remaining portion of VST was administered. After completing the process of conducting (VST), the result of IELTS mock test's bands of listening skill was collected. In the data collection duration, the researcher faced adequate troubles, the initial problem was COVID-19 situation, there was a lockdown, and the entire academies were closed. After the lockdown is lifted, the strength of students in the academies was limited as compared to the normal situation. Hence, researcher could not collect adequate data from the participants. The VST answer copy was designed by the Paul nation is available on the internet. Hence, it was decided to check VST copies of the test-takers manually, because it is in MCQs format.

3.4 Research instruments

There were two instruments, vocabulary size test (VST) developed by Beglar and Nation (2012) and the IELTS band scores of listening skill was employed in the current study. The justification for selecting these instruments was based on the study's purpose, objectives, and research questions. Further, enlighten the selection of VST, as it is widely known as the standard test of vocabulary accepted globally. In the current study, ten levels of VST 100 items were used. The study aimed to investigate the extent of correlation of receptive vocabulary size with the IELTS band score of students' listening skill at the undergraduate level. The reason for selecting ten levels was that the second language learners have a limited stock of vocabulary. The IELTS language proficiency test considered a standard test for assessing English language proficiency. Therefore, the researcher intended to use the listening skill band score of IELTS to stabilize the reliability of the current study's results.

3.5 Data analysis techniques

The current study had two sets of data for the analysis. First it was the scores of vocabulary size tests of the participants, and the second was the IELTS band scores of listening tests of the research participants. There were three statistical analyses performed to investigate the relationship between an independent variable (VST) and dependent variable (listening). The data were analyzed with the help of a statistical package for the social sciences (SPSS) version 23. The T-test, Spearman rank-order correlation, and simple linear regression were performed to answer the research questions and hypotheses of the study. The assumptions of all analysis tests were checked before performing the analysis.

3.6 Ethical consideration

The confidentiality of the students was maintained by assuring them that their personal information would not be public. They were also assured that their personal information would not be used for any other purpose. The gathered data was only used to achieve the objectives of the research study.

4. RESULTS AND DISCUSSIONS

The section deals with analysis of collected data by performing the different statistical tests to answer the research questions and detail discussion the findings

4.1.1 T-test group-wise comparison

This section presents the results of three independent samples t-test analyses of listening, reading, and vocabulary size tests of two groups based on gender.

4.1.1.1 Gender-wise comparison of listening band score performance of male and female's IELTS test takers

Table 4.1

Group statistics of male and female results for listening

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Listening	F	39	5.846	1.1707	.1875
	M	86	5.488	1.1453	.1235

The following table of independent samples t-test presents of listening skills test performance based on gender.

Table 4.2

Independent Sample T- Test analysis of listening performance

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
									Lower	Upper	
Listening	Equal variances assumed	.336	.563	1.607	123	.111	.3578	.2226	-.0829	.7984	
	Equal variances not assumed			1.594	72.074	.115	.3578	.2245	-.0897	.8053	

The purpose of conducting the independent sample T-test analysis was to test the null hypothesis that there is no significant difference in the performance of male and female participants in listening bands of IELTS. The results presented in table indicate that the female *(N 39, M=*5.846)) had a better mean score than the male (*N* 86, *M=*5.488). There was no significant difference in the mean of Female and male participants. As the equal variances of the test assumed significant value is .563. The independent sample T-test showed no statistically significant difference in the performance of males and females for the listening band of IELTS. The value of *t* (123), =1.607, *p=*.111. The t-test value is *p>*.05. Based on the analysis results, it accepted the null hypothesis and proved that females and males' performance is similar in the listening bands of IELTS. The confidence interval of 95% assured that both groups' performance is identical, and *CI* showed the similarity between both groups' performance for reading bands is between the ranges lower to the upper (0829 to .7984).

4.1.2 Spearman rank-order correlation

The Spearman rank-order correlation was used to investigate the relationship between an independent variable (VST) and dependent variables (reading and listening). The detailed correlational analysis is given below in the table.

4.1.2.1 Spearman rank-order correlation between VST and listening

This table presents the statistical detail of the spearman rank-order correlation between VST and listening.

Table 4.3

Correlations between VST and listening

			VST	Listening
Spearman's rho	VST	Correlation Coefficient	1.000	.625**
		Sig. (2-tailed)	.	.000
		N	125	125
	Listening	Correlation Coefficient	.625**	1.000
		Sig. (2-tailed)	.000	.
		N	125	125

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

Spearman rank-order correlation was conducted to examine the correlation between the scores of VST and listening skills tests. The Spearman rank-order correlation analysis' results indicate the strong significant positive association between VST and listening skill, r (125) =.625, p<.05. Based on the results of sig=.000 *p*-value, it rejects the null hypothesis. It means those students who performed better in the VST also performed better in the listening IELTS test band as well.

4.1.3 Simple linear regression analysis

The researcher had performed the simple linear regression to investigate the impact of the predictor variable VST on the predicted dependent variables listening and reading. The detail of the statistical analysis of simple regression is given below.

4.1.3.1 The simple linear regression analysis between predictor VST and predicted listening

This table presented the statistical analysis model summary of simple linear regression analysis between the predictor VST and predicted listening.

Table 4.4

Model Summary of VST and listening

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
``1	.620ª	.385	.380	.9140	.385	76.890	1	123	.000

a. Predictors: (Constant), VST

b. Dependent Variable: Listening

The below table of ANOVA analysis presents the detail of VST and listening skills test.

Table 4.5

ANOVA analysis of VST and listening

Model	Sum of Squares	Df	Mean Square	F	Sig.

1	Regression	64.238	1	64.238	76.890	.000[b]
	Residual	102.762	123	.835		
	Total	167.000	124			

a. Dependent Variable: Listening

b. Predictors: (Constant), VST

The table below presents the detail of coefficient of VST and listening of IELTS test-takers.

Table 4.6

Coefficients between VST and listening

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	3.161	.290		10.901	.000	2.587	3.735			
	VST	.047	.005	.620	8.769	.000	.036	.057	.620	.620	.620

The purpose of performing the simple linear regression analysis was to investigate the impact of predictor variable VST on the predicted variable listening. The results of simple linear regression analysis suggested the VST explained 38.5% of the variance in the predicted variable listening. R^2, .385, F (1, 123) = 76.890, p<.005. The predictor variable VST is a significant model in predicting the accurate outcome of the predicted variable listening. The VST significantly predicted the performance of listening, **β**, .62, t (125) =, 10.901, p<.05. The VST impacts listening if the VST is increased by 1 unit, then its impact increased by .62 in the outcome variable.

4.2 DISCUSSION

This section presents a detailed discussion of the results of the current study. Each research question is discussed separately.

4.2.1 The difference in the male and female listening IELTS band

The empirical investigations provided to address the RQ 1. Do the male and female IELTS test-takers differ in their IELTS listening skill test scores? T-test was conducted to check the difference in the performance of listening IELTS band to answer the RQ 1. IELTS test band scores were used to check the differences in the listening of male and female IELTS test-takers.

The investigation expressed no significant difference in the performance of Listening test by male and female IELTS test taker bands of IELTS. The female and male participants obtained the same band in the listening as the table (4.1) indicated the average mean of the female participants was (*M*= 5.846). Similarly, the same table indicated the mean of the male participants was *(M*=5.488). Both groups have a similar mean in the listening skill. In the existing literature review, researchers had used the IELTS band score in their studies to conduct the analysis (Goh et al., 2018).

The findings of the previous studies in literature support the current analysis on the difference in the listening skill based on gender. Numerous studies in the past had revealed no difference in listening performance based on gender (Chiang, 2018; Khotimah et al., 2020; Yang, 2020). Javed et al. (2013) conducted the study on Pakistani secondary school level students with a sample size of 440 participants. They had conducted T-test analysis to investigate the difference in the listening skill based on gender. The investigation revealed that both males and females had similar listening skills performance.

Similarly, in China, Yang (2020) had also investigated the difference in listening performance based on the gender of 37 participants at junior level students. He had run the independent T-test to examine the gender-based difference. The analysis indicated that both groups showed similar performance in listening and supports the current study's results. Kotimah et al. (2020) had administered a study in the Indonesian context, and their study was based on 42 participants of TOFEL test-takers. The simple independent T-test was performed to check gender-based performance in the listening. The results indicated that both males and females were statistically similar in the listening performance. In Taiwan, Chaing (2018) examined the gender-based difference on a large sample of 973 students of TOFEL test-takers in the receptive skills. He had performed one-way ANOVA and T-test to check the gender-based difference in listening and reading, though the analysis showed that males and females were similar in receptive skills performance.

The current study results reject the gender cognitive theory. According to this theory, male and female brain structure is distinct in culture and sex hormone that influences the performance of the essential role in bringing out these dissimilarities (Gurian, 2002).It might be the reason that the results of the present study do not support the gender-based cognitive theory because the researcher collected the data from the IELTS test-takers. It could be that both male and female learners were preparing themselves for a specific examination, therefore, they were following the same material and the strategies given by the IELTS instructor and might they had given equal time to practice the listening skills. It might be that both genders' samples were controlled in the classroom learning. However, the findings could not explore the difference in the listening performance based on gender. In the previous studies, the differences between male and female listening could not be explored though those studies had also used the band scores of Standard English proficiencies tests.

5. Conclusion and pedagogical implication

The aim of this was to check the correlation between receptive vocabulary size and listening of the Pakistani IELTS test-takers. The researcher manipulated two instruments for collecting the required data. The vocabulary size test and IELTS band score of listening. This study was based on the 125 samples of Pakistani IELTS test-takers. The researcher had performed the T-test, Spearman rank-order correlation, and linear regression analysis to answer the research questions. The study concluded that males and females' performance in the listening was similar. It also concluded that vocabulary has strong relation with listening which means if learners have adequate stock of the vocabulary, then their performance in listening discourse of L2 would be better.

This study's findings have pedagogical implication related to the teaching listening skill. The vocabulary should be taught to the students to enhance their understanding of listening in the ESL classroom. Then vocabulary plays an important role in language testing and assessment in assessing listening skill. The linear regression analysis suggested that the vocabulary size test is an important predictor model that estimates the performance of listening. The language evaluator should design the tests based on the vocabulary to test the listening and skill of the learners.

6. Recommendations

The relationship between vocabulary size and reading and listening had been explored in a different context. However, there is still a considerable gap in exploring this issue by using the other statistical analysis techniques in Pakistan. The large sample belongs to different groups at different levels of language learning. Furthermore, the researchers have to collect the data from all the provinces in Pakistan, and compared the differences of their students in the VST and receptive skills of all provinces students and generalized the results on the entire Pakistani students.

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