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The Predictive Role of Vocabulary Knowledge in Listening Comprehension: Depth or Breadth?

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ABSTRACT

Depth and breadth of vocabulary have been the focus of research in language skills in the last two decades. However, the role of these two aspects of vocabulary knowledge in listening comprehension has remained an under-researched issue. Accordingly, to gain insights into the nature of such relationship, the present study aimed at investigating the predictive role of depth versus breadth of vocabulary knowledge in L2 learners' listening comprehension. To this end, Word Association Test (WAT), Vocabulary Levels Test (VLT), and IELTS listening sub-test were administered to 73 intermediate EFL learners whose level was determined by Oxford Quick Placement Test (2004). Results of linear regression analysis revealed that: a) vocabulary depth dimension, unlike vocabulary breadth, was found to be significantly correlated with listening comprehension and could predict 72% of the variance in listening scores, b) only VLT scores from the 3K level could predict, inconsiderably though, the variance in the listening comprehension test scores, c) the two dimensions of breadth and depth correlated moderately ($r = .49, p < 0.5$) and WAT scores could predict 22% of the variance within VLT scores. The findings shed lights on the necessity of considering deep aspects of vocabulary knowledge, more and above vocabulary breadth, in dealing with listening tasks and activities. More specifically material developers need to consider the reported findings in designing listening materials to assist L2 listeners apply their word knowledge while processing aural input.

Keywords: Depth of vocabulary, breadth of vocabulary, Word Association Test (WAT), Vocabulary Level Test (VLT), listening comprehension

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1. Introduction

Vocabulary knowledge has been referred to as one of the important factors which can contribute to language proficiency (Laufer, 1998; Read, 2004) and that research on second and foreign language vocabulary development has observed a surge of interest over the last decade or so. The reason behind such thrive

of studies pertains to the fundamental role of lexical knowledge in enhancing language skills including writing, reading and listening (Alderson, 2005; Zhang & Li, 2011). According to Schmitt (2010, p. 4), "one thing that all of the partners involved in learning process (students, teachers, materials writers, and researchers) can all agree upon is that learning vocabulary is an



essential part of mastering a second language".

Listening comprehension has claimed to lie at the heart of language acquisition (Vandergrift, 2007) and there is a desperate need for research in this receptive skill (Long, 1990). Moreover, language learners has perceived listening comprehension as *the* most difficult language skill (Graham, 2003; Hasan, 2000; Kim, 2002). One obstacle for language learners in acquiring this skill is vocabulary (Goh, 2000; Kelly, 1991). Existing research highlighted the reciprocal contribution of listening and vocabulary to each other in that vocabulary knowledge is necessary for listening comprehension (Stæhr, 2009; Van Zeeland & Schmitt, 2012) and listening can be regarded as a good source for vocabulary acquisition (Brown, Waring & Donkaewbua, 2008; Vidal, 2011).

The complexity of vocabulary knowledge makes it difficult for language researchers and teachers to grasp its nature (Schmitt, 2014) and, therefore, different frameworks have been suggested to deal with the perplexity and multidimensionality of vocabulary knowledge (Henrikson, 1999; Nation, 2001; Schmitt, 2010). In one mostly cited categorization, vocabulary knowledge has been divided into depth and breadth (Haastrup & Henrikson, 2000; Milton, 2009; Read, 1993, 1998, 2000). Breadth of vocabulary knowledge refers to "a general estimate of how many words the learner [of language] knows, usually by reference to a sample of words from specific frequency in a vocabulary list" (Read, 2004, p. 155). In contrast, depth of vocabulary knowledge is defined as the deeper, quality-based knowledge of words or how well the learners know about the individual words (Read, 2000, 2004). This aspect of word knowledge mainly focuses on the idea that learners "should develop a

rich and specific meaning representation as well as knowledge of the words' formal features, syntactic functioning, collocational possibilities, register characteristics and so on" (Read, 2004, p. 155).

Despite a large number of studies examining the role of breadth and depth of vocabulary knowledge in second language acquisition (e.g. Akbarian, 2010; Atai & Dabbagh, 2010; Huang, 2006; Laufer, Elder, Hill & Congdon, 2004; Schoonen & Verhallen, 2008; Schmitt, 2014 among others), the role played by these aspects of vocabulary in L2 listening comprehension has remained an under-researched area so far.

2. Literature Review

The design of different instruments to measure the aforementioned two components of vocabulary knowledge, e.g. Word Association Test (WAT) (Read, 1993, 1998, 2000) and Vocabulary Levels Test (VLT) (Nation, 1983; Schmitt, Schmitt & Clapham, 2001) for depth and breadth of vocabulary knowledge, respectively, triggered vocabulary researchers to explore the nature of this vocabulary classification interacting with different language skills. Most of such studies focused on reading comprehension in terms of three main research areas, namely breadth and reading (Alavi & Akbarian, 2012; Henriksen, Albrechtsen & Haastrup 2004; Laufer, 1992; Laufer & Ravenhorst-Kalovski, 2010; Nation, 2006; Shiotsu & Weir, 2007; Stæhr, 2008; Zhang & Anual, 2008 among others), depth and reading (Kaivanpanah & Zandi, 2009; Nassaji, 2006; Qian & Schedl, 2004), and simultaneous investigation of breadth, depth and reading comprehension (Ma & Lin, 2015; Qian, 1999, 2002; Shen, 2008). Results of these studies signified the positive role of breadth and depth of vocabulary knowledge on reading

comprehension and that depth of vocabulary is a better predictor of reading comprehension over and above breadth of vocabulary.

Bearing in mind Nation's (2001, p. 178) claim stating that "vocabulary plays a significant role in the assessment of the quality of written work", some vocabulary researchers have scrutinized the role of depth and breadth in writing performance. These studies focused on association between breadth of vocabulary and writing performance (Albrechtsen, Haastrup & Henriksen, 2008; Engber, 1995; Milton, Wade & Hopkins, 2010), predictive role of depth of vocabulary in writing performance (Batty, 2007), the association of vocabulary breadth and writing (Stæhr, 2008), interrelationship between breadth, depth and summary writing (Baba, 2009), and the role of depth of vocabulary and semantic set in making appropriate word choices in L2 writing performance (Atai & Dabbagh, 2010). All these studies, except Baba (2009), came to the conclusion that vocabulary depth and breadth significantly correlate with writing performance.

Despite the results of previous studies reporting the contributory role of depth and breadth in reading comprehension as a receptive skill, it cannot be assumed that such a role be transferred to listening comprehension. Knowledge of vocabulary, in general, has been reported to play a significant role in listening comprehension (Alderson, 2005). However, there are fewer studies on the role of vocabulary knowledge in listening in comparison to those investigated this role in reading. This dearth of research is considerable in the area of depth and breadth of vocabulary, specifically.

Like studies in reading comprehension reviewed above, some researchers focused on the contributory role of breath of

vocabulary and listening comprehension without taking into account the vocabulary depth. One seminal, large scale study was conducted by Stæhr (2008) who focused on the relationship between vocabulary breadth (measured by the improved version of VLT (Schmitt, Schmitt & Clapham, 2001)) and the three skills of reading, writing and listening. Though he found significant correlations between vocabulary breadth and all the three skills, such relationship was observed as the weakest in listening comprehension (0.69) compared with reading (0.83) and writing (0.73). This, as Stæhr discussed, was due to the demanding on-line processing nature of listening, and other factors affecting listening comprehension, such as learners' strategic competence. The predictability power of breadth of vocabulary to listening comprehension was also examined by Matthews and Cheng (2015) using a version of IELTS listening comprehension test (as the listening comprehension measure) and a partial dictation test (as the breadth of vocabulary measure) which examined the participants' knowledge of the first, second, and third thousand word frequency levels. Their results showed that knowledge of the third thousand most frequent words could predict the learners' listening comprehension score variance more than the other two levels. This suggested that the more words a learner knows, the better listening comprehension can be.

Other scholars focused only on depth of vocabulary knowledge in their analysis of the relationship between vocabulary knowledge and listening comprehension. Mohammadi Foomani (2015), for example, found depth of vocabulary as a determining factor in predicting lexical inference while listening and a positive significant correlation (0.948) between depth of vocabulary and listening proficiency.



Despite the separate analysis of depth and breadth of vocabulary knowledge interacting with listening comprehension, some studies investigated the simultaneous role of these two aspects of vocabulary knowledge in listening. Stæhr (2009) investigated the role of both depth and breadth of vocabulary in 115 Danish EFL learners' listening comprehension. His results revealed the high correlation of both of breadth and depth of vocabulary with listening comprehension (0.70 and 0.65, respectively) and that these two aspects together could contribute to half of the variance in listening comprehension scores. In a more recent study, Afshari and Tavakoli (2016) explored the determining power of depth in comparison to breadth of vocabulary in predicting TOEFL listening scores. Their results revealed that although both of these vocabulary aspects could contribute significantly to listening comprehension, breadth of vocabulary was a better contributor than depth.

3. This study

Our current research findings of the possible predicting role of breadth and depth of vocabulary knowledge in listening comprehension seem to be scant. Despite the rise of interest in exploring depth and breadth of vocabulary knowledge in different areas of language acquisition and use, specifically reading and writing skills as reviewed briefly above, their concurrent role in predicting listening comprehension has remained less-researched. Schmitt (2014) signifies studies on vocabulary depth and breadth and states "it is an interesting, but unexplored, question whether the two would *equally* predict other kinds of language use" (p. 939) [emphasis added]. This, adding to the numerous previous research findings regarding the close relationship between breadth and depth of vocabulary (Akbarian, 2010; Baba,

2009; Huang, 2006; Laufer et al., 2004; Nurwei & Read, 1998; Qian, 1999, 2000 among others) highlights this simultaneous focus on both of these two aspects of vocabulary knowledge. This was supported by Vermeer (2001) and Milton (2009) stating that learners' word knowledge will deepen as the vocabulary size increases. Ishii and Schmitt (2009, p. 7) also pointed out that "the scores in depth tests need to be interpreted in the light of whether students have a large vocabulary or not, thus vocabulary size and depth should be considered at the same time". Taking what was mentioned above into account, the current study aims at investigating the roles of both breadth and depth of vocabulary knowledge in L2 learners' listening performance. More specifically, this study tried to find which aspect of word knowledge can predict L2 learners' overall listening comprehension. To do so, the following research questions were formulated:

1. To what extent do the depth and breadth of vocabulary knowledge contribute to the prediction of L2 listening comprehension scores?
2. To what extent do the scores of L2 learners at different levels of Vocabulary Levels Test (VLT) predict their L2 listening comprehension?
3. To what extent do the scores of WAT, as a measure of depth of vocabulary knowledge, predict VLT scores, as a measure of breadth of vocabulary knowledge?

4. Methodology

4.1 The participants

Participants were a sample of 73 intermediate Iranian undergraduate EFL learners who were selected based on the results of Oxford Placement Test (2004). Their age ranged from 19 to 27 and they were both male and female learners whose

L1 was Persian. They had a background of institutional evening classes for about 5 years besides their mainstream English learning at senior and junior high school programs. The rationale for choosing this sample was the nature of the study which necessitated that participants had good mental lexicon and acceptable command of English listening comprehension.

4.2 Instruments

The following instruments were utilized to gather data and answer the research questions of this study: (1) Oxford Quick Placement Test, (2) Word Associates Test (WAT), (3) Vocabulary Levels Test (VLT), and (4) IELTS listening sub-test.

Oxford Quick Placement Test (OPT, 2004). The purpose of administering this test was to make sure about the homogeneity of the participants and to place them into one proficiency level, i.e. intermediate. Developed by Oxford University Press and University of Cambridge Local Examinations Syndicate, OPT has 60 multiple choice cloze, grammar, vocabulary and reading test items. Geranpayeh (2003) reported a high validity with the reliability close to 0.90, for the 2004 version of the test.

Word Associates Test (WAT). This test was first designed and developed by Read (1993) at Victoria University of Wellington to measure EFL/ESL learners' level of vocabulary depth based on word association and lexical network concepts. The test measures three fundamental elements of depth of vocabulary, i.e. knowledge of collocation, synonymy and polysemy (Qian, 2002). The test enjoys high reliability indices of 0.93 (N= 94; Read, 1995), 0.91 (Qian, 1998) and 0.89 split-half reliability calculated by Qian (2002) and Nassaji (2006).

The test consists of 40 items, each with an adjective as the prompt word and two

boxes of four words as options (See Figure 1). The participants should choose four words from the options of each item which are representative of three semantic relations: paradigmatic, syntagmatic, and analytic (Atai & Dabbagh, 2010).

Figure 1: An item sample from WAT

A	sudden
beautiful	quick surprising thirsty
change	doctor noise school

Vocabulary Levels Test (VLT). First designed by Nation (1983) and later revised and validated by Schmitt et al. (2001), VLT measures learners' breadth of vocabulary at four frequency levels (2K, 3K, 5K, and 10K words). The participants are given 10 groups of words in each frequency levels containing 6 cue words and three definitions to be matched with the best three of the cue words (See Figure 2). The reliability of the test was estimated as 0.92 by Qian (1999).

Figure 2: An item sample from VLT

1. business	
2. clock Part of a house
3. horse Animal with four legs
4. pencil Something used for writing
5. shoe	
6. wall	

Listening comprehension test. To assess L2 listening comprehension, an IELTS listening test (IELTS Examination papers from University of Cambridge ESOL examinations, 2002), which has been detached from the whole IELTS test for research purposes, was administered to the participants. The test consisted of 40 items in four sections, 10 items in each, which includes a variety of item types including sentence/note/table completion, short answer questions, multiple choices, and labeling a diagram. Both conversations (sections 1 and 3) and monologues (sections 2 and 4) were covered in the test. The listening material was played for the participants only once and they were



allotted 10 minutes at the end of the listening session to check their answers.

The reason to use such format of listening comprehension test was twofold. First, IELTS listening section, as a standardized test, is well-known for test-takers and enjoys strong face validity. Second, IELTS listening test is designed based on task-based language assessment (Stoynoff, 2009) which is centered on the assumption that measuring linguistic competence should necessarily include discourse competence, strategic competence and sociolinguistic competence as part of the test construct (Mislevy, Steinberg & Almond, 2002). Such approach to listening test development is in line with the current theoretical frameworks to describe listening comprehension (Goh, 2000; Graham, Santos & Vandergrift, 2010; Vandergrift, 2007).

4.3 Data Analysis

The present study followed an Ex post facto design with breadth and depth of vocabulary knowledge as the independent variables, and the participants' listening comprehension, as the dependent variable. Also, the contribution of each word-frequency level from breadth of vocabulary to the listening comprehension were scrutinized. The obtained data were analyzed using enter and stepwise methods of regression and correlational analyses using SPSS version 23.

5. Results

Table 1 displays a general profile of the participants' performance in WAT, VLT, and the listening test.

Table 1: Descriptive statistics for the WAT, VLT, and listening

	MPS	Mean	SD	N
WAT	100	57.1096	7.75951	73
VLT	120	67.9452	17.63668	73
2K	30	27.6164	2.85594	73
3K	30	22.0000	6.16441	73
5K	30	15.0822	6.89757	73
10K	30	3.2466	4.46213	73
Listening	40	22.6986	3.67682	73

MPS: Maximum Possible Score; SD: Standard Deviation

To probe the first research question investigating the extent to which depth and breadth of vocabulary knowledge contribute to the prediction of L2 listening comprehension scores, enter method of multiple regression analysis was applied to the WAT and VLT scores, as predictor variables, and listening comprehension scores, as the criterion variable. Prior to this, the Pearson product-moment correlation coefficient of these two variables should be presented. The results revealed a very strong correlation coefficient between WAT ($r = .823, p < 0.5$) and listening but not between VLT and listening ($r = .209, p > 0.5$).

To do the regression analysis, first the data was analyzed to check whether the collinearity of the variables in the analysis was not an issue which is a basic assumption underlying multiple regressions. This was confirmed as the tolerance value for predictor variables included in the regression model used (.76) much exceeded the minimum acceptable level of .10 (Tabachnick & Fidell, 2001).

The multiple regression analysis revealed that only depth of vocabulary offered a unique account in the prediction of listening comprehension test scores and vocabulary breadth did not provide a statistically significant contribution to the predictive power of the model. More specifically, vocabulary depth was able to predict 72% of the variance within listening comprehension scores ($F(2, 70) = 93.514$,

$p < .05$, Adjusted $R^2 = .72$). Table 2 summarizes information for the predictor variables entered into the model.

Table 2: The unstandardized and standardized regression coefficients for depth and breadth of vocabulary

	Unstandardized coefficients		Standardized coefficients
	β	SE β	β
Constant	.648	1.704	
Depth	.450	.034	.949*
Breadth	-.053	.015	-.256

Note: $R^2 = .720$; * $p < .001$. , Predictor: depth

In order to probe the second research question which explores the extent to which L2 learners' scores at different levels of VLT predict their L2 listening comprehension, a step-wise multiple regression analysis was run. The scores for the 2K, 3K, 5K and 10K frequency levels, as four sub-sections of VLT, were considered as predictor variables and the listening comprehension scores as the criterion variable. Like the previous regression analysis, the collinearity of the variables was first checked. The tolerance value for the 2K, 3K, 5K, and 10K frequency levels was estimated as 1.000 which is a satisfactory one. After running the analysis, it became evident that only VLT scores from the 3K level could predict, inconsiderably though, the variance in the listening comprehension test scores. As the VLT scores for the 2K, 5K, and 10K frequency levels could not make a significant contribution to the predictive power of the regression model, they were automatically excluded. Therefore, the multiple regression analysis was run with one model which included the 3K scores and could predict only 5.3% of the variance in listening comprehension test scores ($F(1, 71) = 5.011$, $p < .05$, Adjusted $R^2 = .053$). Table 3 represents the results of the analysis for the predictor variables entered into the

model. Pearson correlation analysis also resulted in significant relationship only between the 3K frequency level and listening comprehension ($r = .257$, $p < .05$), but not between 2k ($r = .179$, $p > .05$), 5K ($r = .130$, $p > .05$), and 10K ($r = .156$, $p > .05$) frequency levels and listening comprehension.

Table 3: The unstandardized and standardized regression coefficients for 3K frequency level

	Unstandardized coefficients		Standardized coefficients
	β	SE β	β
Constant	19.329	1.562	
3K	.153	.068	.257*

Note: $R^2 = .053$; * $p < .05$, Predictor: 3K

Finally, to investigate the third research question which tries to find the extent to which WAT scores account for scores of VLT, another regression analysis was run with WAT scores as the predictor variable and VLT scores as the criterion variable. This time also, before running the regression analysis, the Pearson product-moment correlation coefficient was performed to compare the correlation between the two tests. The result showed moderate significant positive correlation coefficient ($r = .49$, $p < 0.5$) between VLT and WAT. However, after checking for the collinearity of variables (tolerance level = 1.000), results of regression analysis revealed that WAT scores could predict for about 22% of the variance within VLT scores ($F(1, 71) = 22.437$, $p < .05$, Adjusted $R^2 = .229$). Table 4 depicts further details regarding the predictor variable.

Table 4: The unstandardized and standardized regression coefficients for WAT



	Unstandardized coefficients		Standardized coefficients
	β	SE β	β
Constant	4.337	13.550	
WAT	1.114	.235	.490*

Note: $R^2 = .229$; * $p < .05$, Predictor: WAT

6. Discussion

In this article, the predictive role of breadth and depth of vocabulary knowledge in L2 listening comprehension was investigated. Results confirmed that unlike breadth of vocabulary, depth of word knowledge can significantly contribute to L2 listening comprehension scores. In other words, having deep and quality knowledge about individual words can be of help in better performance in listening comprehension while knowing more words cannot significantly assist L2 listeners. One explanation can be that L2 listeners need paradigmatic as well as syntagmatic knowledge about the individual words heard in an aural context so that they can attach the best meaning to them. This is specifically the case when L2 listeners are going to do some task-based listening comprehension, such as completing a table or a summary in IELTS listening sub-test, which mostly needs knowing more of each individual word than a great number of words. Such deeper knowledge can include collocation, register and genre-specific vocabulary. As Mathews and Cheng (2015, p.3) stated "the depth of knowledge [is] needed for active recognition and application of word knowledge typical of which [is] needed when processing spoken language in real time". Another explanation can be that, as Goh (2000) mentioned, L2 listeners have difficulty in recognizing known words when exposed to the aural language. This shows that no matter how many words are known by L2 listeners, they may not be able to detect them in listening comprehension tasks and depth of vocabulary knowledge is needed to foster

the accessibility of words while listening. This is confirmed by Stæhr (2008, p. 150) indicating that "deep word knowledge is likely to promote the speed and automaticity with which words can be accessed and activated for receptive and productive use".

The strength of association observed in the present study between depth of vocabulary and listening comprehension ($r = 0.82$, $p < .05$) is comparable to those observed in previous studies, such as that of Stæhr (2009) ($r = 0.65$) and Mohammadi Foomani (2015) ($r = 0.948$). But the present findings are in contrast with Stæhr's (2009) which indicated less contributory role for depth of vocabulary knowledge in L2 listening in comparison with the role played by breadth of vocabulary. This shows that vocabulary breadth, unlike what Stæhr (2009) suggested, cannot be considered as *the* basic component of listening comprehension and depth of vocabulary plays a separate significant role. Also, the inability of breadth of vocabulary knowledge in predicting L2 listening comprehension is in contrast with findings of Stæhr (2008), Milton et al. (2010), and Afshari and Tavakoli (2016). This contrast can be discussed referring to the type of the listening task utilized in the present study which, unlike the ones used in the aforementioned studies, is more in line with the current understanding of the nature of listening skill. As mentioned above, fulfilling IELTS listening tasks, as a kind of task-based language assessment, calls for discourse competence, sociolinguistic competence and strategic competence in addition to linguistic competence. Therefore, the listener needs deeper knowledge of vocabulary to locate individual words within his or her mental lexicon and build an association among them based on the discourse, register and

the sociocultural context of the listening text. Such quality knowledge is of lower importance in a more multiple choice format of TOEFL listening which mostly needs linguistic competence. However, this by no means should totally nullify the significance of breadth of vocabulary in task-based listening.

Results also revealed a very low predictability power for the 3K frequency level in L2 listening comprehension which is partially in line with the findings of Mathews and Cheng (2015) who found the 3K frequency level could predict listening comprehension more and above 1K and 2K levels. However, the prediction power found in the present study was so much less than that of Mathews and Cheng's (ibid) results. The probable reason for this difference is that unlike the present study which used written format of a vocabulary breadth test, Mathews and Cheng (ibid) utilized word recognition from speech (WRS) in which test takers should listen to a contextualized sample of language and produce target words presented in the oral input. Such test modality directly taps the ability to recognize words in the time limitation imposed to listeners and can reflect the construct of vocabulary in listening comprehension.

Finally, the present study found that WAT scores can predict about 22% of the scores of VLT. This low predictive power is in contrast to the previous studies which reached a highly significant relationship and predictive power between WAT and VLT (Akbarian, 2010; Baba, 2009; Huang, 2006; Laufer et al., 2004). Though not negating the relationship between these two aspects of vocabulary knowledge which signifies considering both aspects in vocabulary studies (Ishii & Schmitt, 2009), the present findings highlighted that the construct of breadth and depth are distinct

from each other, at least in intermediate level of proficiency, which supports Nurweni and Read (1999) who reported a strong relationship between breadth and depth in advanced level and weak in lower advanced level of proficiency. This partial distinction of the constructs of vocabulary depth and breadth may explain their difference in contributing to listening comprehension scores in the regression analysis reported and discussed above.

7. Conclusion

The present study provided further empirical evidence for the interplay between two major aspects of vocabulary knowledge, namely depth and breadth, and L2 listening comprehension. The results revealed that only vocabulary depth could significantly predict L2 learners' listening comprehension while vocabulary breadth did not have such a predictive power. However, the 3K frequency level of breadth of vocabulary knowledge was attested to predict, in low percentage however, L2 learners' listening comprehension. Furthermore, the results indicated a significant, but low, contribution of depth of vocabulary to vocabulary breadth.

The findings of this study have a number of implications for teaching and learning EFL listening comprehension. It appears that, based on the results of the present study, L2 listening teachers need to explicitly focus on deep aspects of vocabulary knowledge which can confuse L2 listeners, such as collocation, synonymy, and polysemy. Also, they can raise L2 listeners' awareness of the associations which exist among different words as an important aspect of depth of vocabulary knowledge. This can be done in pre and post-listening tasks in which L2 teachers help learners build their own mental lexicon through networks of the words taken from the listening tasks. Such



mental lexicon can help L2 listeners make a better interpretation of the listening text. Another implication lies in developing listening comprehension materials. Listening material designers are suggested to include sections related to depth of vocabulary knowledge in listening course books with emphasis to assist L2 learners' familiarity with different aspects of the target words in the listening text including the register and collocation in which they are used.

Apparently, interesting issues have been awaited to be investigated about the interaction of vocabulary and listening comprehension. Future studies will involve the use of multiple measures of breadth of vocabulary knowledge, both orthographic and phonological, to find the possible difference in the interplay of vocabulary breadth and listening comprehension. This can be done in different language proficiencies and learner genders, as well. In addition, future studies can study the effect of teaching depth of vocabulary knowledge on listening comprehension improvement, specifically to locate such effect in different aspects of vocabulary depth.

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