ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research, volume 356

2nd International Conference on Contemporary Education, Social Sciences and Ecological Studies (CESSES 2019)

A Study on English Majors' Vocabulary Size and Its Correlation with Scores on Test for English Majors Grade-Four*

Jianying Miao
School of Foreign Languages
China West Normal University
Nanchong, China

***Abstract*—Taking 104 second-year English majors from a normal university as the subjects, this paper investigates their English vocabulary sizes along both the receptive and productive dimensions by adopting two effective and reliable vocabulary testing instruments. It also explores the correlation between the vocabulary sizes and the scores on the Test for English Majors Grade-Four (TEM-4). The results show that on the one hand, both the English majors' receptive vocabulary and productive vocabulary are limited, with the average size of 3,707 and 1,654 respectively, which account for 69 percent and 31 percent of the average total vocabulary size; and the two dimensions of vocabularies are unbalanced, the average total productive vocabulary size being only 45 percent of the average total receptive vocabulary size; what's more, there is notable internal discrepancy among different levels of both receptive and productive vocabulary sizes; on the other hand, both the receptive and productive vocabulary sizes of the subjects correlate significantly with their TEM-4 scores, with all the correlation coefficients falling between the statistically significant sphere from .40 to .70. The findings in this paper reveal some problems in English majors' teaching and learning of vocabulary in current Chinese universities and provide certain implications. Due importance should be attached to the acquisition of both receptive and productive vocabulary, and more attention should be paid to students' productive mastery and knowledge of English vocabulary.**

Keywords—vocabulary size; receptive vocabulary; productive vocabulary; correlation; TEM-4 scores

I. INTRODUCTION

Among the three components of language, which include phonetic, vocabulary and grammar, vocabulary plays a more important role in all language activities. To emphasize the importance of vocabulary for communication, Wilkins [1] comments "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed." And for the importance of vocabulary for language use, Alderson [2] notes that the size of one's vocabulary is relevant to one's performance on any language test, in other words, language ability is to quite a large extent a function of vocabulary size. All parties involved in the learning process including students, teachers, materials writers, and researchers agree that learning vocabulary is an essential part of mastering a second language [3]. However, vocabulary learning has posed a great difficulty for second and foreign language learners just as Meara has pointed out, "most learners identify the acquisition of vocabulary as their greatest single source of problems" [4] and mastering a "sufficient" number of words constitutes a particular challenge for learners of English because there are purportedly more words in this language than in other languages [5]. If taking the students in the university where this research has been done for instance, they are always confronted with such a tremendous problem as small vocabulary size and inadequate knowledge of lexical depth, which result in their poor listening and reading, not to mention their low quality of writing caused by limited productive mastery of vocabulary. They do attach great importance to learning vocabulary but merely to enlarging their amount of vocabulary but neglecting the depth of their vocabulary knowledge. In preparations for important national English proficiency tests like Test for English Majors Grade-Four or Eight (TEM-4/8), and College English Test Band-Four or Six (CET-4/6) respectively for English majors and non-English majors, they would spend much time memorizing words in hopes of enlarging their vocabulary size to cope with the tests successfully. They tend to think their vocabulary size would make the difference between success and failure in the tests. Quite a few researchers abroad have examined the relationship between vocabulary size and language proficiency and show that vocabulary has strong relationships with the language skills such as reading with correlations of .50-.75, listening from .61-.65, writing from .70-.79, and grammar at .64. [3] Such researches have mostly taken native speakers or bilinguals as participants. But comparatively fewer Chinese researchers have studied how Chinese students' English vocabulary size is related to their language skills or test scores and the researching results vary due to some factors like the different subjects with different English levels and educational backgrounds, the varied researching methods, etc. So this study, taking the English majors as the participants, examines their vocabulary size and finds out the link between the vocabulary size and the TEM-4 scores.

*Fund: This work was supported by the Meritocracy Research Funds of China West Normal University, under Grant No. 17YC429.

II. LITERATURE REVIEW

In the 80s of last century, vocabulary acquisition has begun to be a hot issue in second language acquisition studies initiated and boosted by scholars with Meara as the typical representative. About vocabulary knowledge, different scholars gave different classifications. Nation [6] classifies it into receptive and productive vocabulary, and the former refers to the words of whose meaning one has at least some basic understanding in listening or reading while the latter refers to the words which one can actively use in speaking or writing. Nation also believes that vocabulary can be grouped as high-frequency vocabulary, academic vocabulary, technical words and low-frequency vocabulary, in which high-frequency words cover most of the vocabulary [7]. Laufer & Paribakht categorize vocabulary knowledge into breadth of vocabulary knowledge and depth of vocabulary knowledge and the former refers to the ability to understand the common meanings of words, while the latter refers to the quality of vocabulary knowledge and indicates learner's cognitive depth of words and constructive forms of words in the mind [8]. Although vocabulary knowledge is multifaceted and contains a number of interrelated, though separable aspects [3], in much of the literature on vocabulary acquisition, vocabulary size or both breadth and depth of vocabulary knowledge have been regarded as the two important aspects of vocabulary mastery. While in examining vocabulary size, researchers mostly have taken "reception" and "production" into account because among the several aspects of vocabulary mastery, receptive and productive mastery are the most representative. Therefore, researchers are supposed to test the learner's vocabulary size along both the receptive and productive dimensions.

Researchers at home and abroad have conducted numerous studies of the relationship between vocabulary knowledge (breadth and depth) and vocabulary size (reception and production) and other language skills. Although such studies have been done on testees of different levels and from different angles, they show that vocabulary knowledge is positively correlated with other L2 skills. In studying the relationship between vocabulary and reading, Qian found that receptive vocabulary size correlated significantly with depth of vocabulary knowledge [9]. N. Schmitt did a survey and analysis of the researches done by other scholars and concluded that vocabulary size has high correlation with language skills such as reading, listening and writing, and vocabulary accounts for 37%-62% of the variance in the various language proficiency scores [3]. Chinese researchers have also performed studies on relationship between vocabulary knowledge and language proficiency as well as the developments of learners' vocabulary size. Shichun Gui investigated 551 English majors' vocabulary size and found that there was positive correlation between language skills and vocabulary size; taking English majors as the participants, Yanyan Cui and Tongshun Wang studied developments and relationships of receptive vocabulary size, productive vocabulary size and depth of vocabulary knowledge, revealing that English majors' receptive vocabulary size progressed in a liner pattern and productive vocabulary size expanded at a much slower rate than the receptive vocabulary size and that the three aspects correlated with each other significantly [10] [11]. In recent years, Ziying Wang, Huaqing He, Lianlian Luo, etc. have conducted researches in different universities, finding that college non-English majors' vocabulary size has a high correlation with their scores on CET-4; but Wang's result showed vocabulary size was not much related to CET-6, while he concluded that the productive vocabulary had a significantly positive correlation with both the total and part scores of CET-4, but the receptive vocabulary size didn't relate significantly to the scores; Luo got the result that the correlation varied within the vocabulary layers and there was higher correlation between vocabulary size and scores of the students with higher scores than those with lower ones [12] [13] [14]. Jiao Wang and Huiyan Xia explored English majors' vocabulary knowledge and autonomous learning ability getting the results that both of them had high positive correlation with English majors' TEM-4 scores and that the breadth of vocabulary had a significant predicative value on English achievement [15].

The above researches have presented certain interesting revelations on vocabulary knowledge and beneficial implications for vocabulary teaching and learning. However, the majority of the studies paid more attention to receptive vocabulary than productive vocabulary. In addition, much previous research focused on non-English majors' vocabulary level and its relationship with CET sores and L2 skills, not enough researches have been done on English majors' vocabulary size and how it is correlated with their English level as a whole. Therefore this study aims to investigate the relationship between Chinese English majors' vocabulary size and their TEM-4 scores along both the receptive and productive dimensions.

III. RESEARCH DESIGN

This empirical research aims to examine the English majors' vocabulary size involving the receptive and productive dimensions and investigate the relationship between the vocabulary size and TEM-4 achievement, hoping to find evidence and implications beneficial to vocabulary acquisition in L2 learning and teaching.

A. Research Questions

There are two questions which this research intends to answer.

- What is the English majors' vocabulary size? To be specific, what is their size of receptive vocabulary and productive vocabulary respectively?
- What is the relationship between the vocabulary size and the TEM-4 scores?

B. Participants

104 students from 4 natural classes in a normal university in Sichuan, China, participated in this research, all of whom were sophomores majored in English and took the TEM-4 in 2018. Among them there were 99 girls and 5 boys, whose average English score on the College Entrance Examination

was 129 from a total of 150 and 60.9 on TEM-4 from a total of 100, with 60 as the passing score.

"Table I" displays the subjects' TEM-4 scores. The mean TEM-4 scores were 60.9, with a standard deviation of 8.19, and 42 as the minimum while 81 as the maximum.

TABLE I. DESCRIPTIVE STATISTICS FOR ENGLISH MAJORS' TEM-4 SCORES (N=104)

Mean	60.9
Std. Deviation	8.19
Minimum	42
Maximum	81

The standard deviation is only 8.19, indicating there isn't significant difference among the majority of subjects' scores.

C. Instruments

To collect data, three tests were used.

1) The productive levels test: To test students' productive vocabulary size, Version C of the Productive Levels Test made by Laufer and Nation was employed. The test's content has been verified more than once, and proved to be highly reliable [8] [13] [16] [17]. This test contains five sections, four assessing the 2,000, 3,000, 5,000 and 10,000 frequency levels and one assessing university word level with 570 academic word families. The four sections represent respectively the English vocabulary of 2,000, 1,000, 2,000 and 5,000 word families (word families are used as the units of vocabulary) and the 2,000 layer to 3,000 layer represent the words of the highest frequency to the words of medium scale of frequency, the 5,000 layer represent words between the high-frequency and low-frequency, while the 10,000 layer represents words of the lowest frequency. The 570 academic word families beyond the 2,000 level are frequent in academic texts. For every frequency level, 18 short sentences composed with the 2,000 high-frequency words are used to elicit the testees to come up with the target words. To avoid more than one correct answer to a question, the first or several letters are given. For example: He has a successful car____ as a lawyer. As this study examines the second-year Chinese English majors' vocabulary level, all the the layers except the 10,000 one, i.e. the first three levels — 2,000, 3,000, 5,000 and 570 academic word families were chosen, with 72 questions in total. Only when both the spelling and grammar are correct, one mark can be given to each correct answer. In this way, the participants can be tested on more aspects of productive vocabulary, such as the form of words and grammar [7] [13] [18] [19].

2) Vocabulary levels test: The Receptive Vocabulary Test (Vocabulary Levels Test (version 2) was initially created by Nation and then developed by Schmitt et al.[20]. The internal reliability of the test contents has been verified several times and can exceed 0.8, which is a high reliability [8][13][17][20][21]. This test is used to examine the participants' English vocabulary ability without context. Like the productive levels test, it is composed of five sections with the vocabulary in the same levels of frequency. Unlike the productive levels test, in this test a word-definition matching format is used, and the target words are identified without any context. There are 10 clusters for each column, each of which has six words listed on the left and three potential answers on the right which can be matched with some of the left ones as is shown in the example below. In this research, as with the productive vocabulary test, the first three levels of the vocabulary frequency, i.e. 2,000, 3,000, 5,000 and 570 academic word families (12 clusters with 36 questions) were chosen. Therefore, there are 126 questions in total, and one mark is given for each correct answer. For example:

- copy
- event____ end or highest point
- motor____ this moves a car
- pity____ thing made to be like another
- profit
- tip

3) TEM-4: TEM-4 is designed to test the integrated English skills and language knowledge of the second-year English majors and the scores of this test can be regarded as the index to students' English proficiency and achievement. It is taken once a year in every April and since the initial application in 1991, with its high reliability and validity, it has been socially recognized and attached with great importance.

4) Procedure: Two weeks before the 2018 TEM-4, the 104 participants, who were not informed of the test in advance, were convened to take the two vocabulary tests at the same time in two classrooms with two teachers to supervise to make sure the data is reliable and valid. Since the receptive and productive vocabulary tests were drawn from the same vocabulary levels, several words in the receptive vocabulary test are target words in the productive test, which might provide cues for the productive vocabulary test [13]. As a result, the productive vocabulary was tested first and after it had been finished and handed in to the teacher by all the participants, the receptive vocabulary test was handed out. The whole test lasted about 40 minutes.The participants had to finish the test independently without any reference and communication with others. For the convenience of data collection, they were required to write down relevant personal information: their class number, student number and name. All the 104 test papers were collected and proved to be valid. Because the answers of the two tests are unique and unambiguous, and according to earlier studies, in order to test more aspects of participants' depth of vocabulary knowledge such as spelling and grammatical forms, only when word spelling

and grammatical form are exactly right sores can be given in marking the productive vocabulary test, so the reliability of test marking is high. The scores on each layer in the tests were converted into the corresponding vocabulary size, and finally the total vocabulary size was estimated. All the 104 participants' scores on the TEM-4 were collected at the end of September.

SPSS22.0 was then used to process and analyze the collected data. Firstly, vocabulary size in different layers of both receptive and productive dimensions were described and analyzed. Secondly, Pearson correlation coefficient was performed to analyze the relationship between the vocabulary sizes and the total scores on the TEM-4.

IV. Research Results and Discussion

A. Descriptive Statistics and Discussion of Vocabulary Size

"Table II" shows the subjects' receptive vocabulary size respectively in 2,000, 3,000, 5,000 layers and their receptive vocabulary entirety plus the separately calculated academic vocabulary size. Specifically, in 2,000 layer which represents the 2,000 word families of the highest frequency, the mean size is 1869.87 word families, with a standard deviation of 122.24; the minimum size is 1467, while the maximum is 2,000. In 2,000 to 3,000 layer, which represents the 1,000 word families of comparatively high frequency, the mean size is 820.61 word families, with a standard deviation of 116.62, and 467 as the minimum while 1,000 as the maximum; in the 3,000 to 5,000 layers, which represents the 2,000 word families from high frequency to comparatively low frequency, the mean size is 1,016.63 word families, with a standard deviation of 298.69, and 333 as the minimum, 1,800 as the maximum. The average total receptive vocabulary size is 3707.08 word families, with a standard deviation of 458.03; the minimum is 2600, while the maximum is 4767. The mean academic vocabulary size is 426.18 word families, with a standard deviation of 92.87, and 111 as the minimum while 570 as the maximum.

TABLE II. Descriptive Statistics for English Majors' Receptive Vocabulary Size (N=104)

	Receptive 2000	**Receptive 2000-3000 (1000)**	**Receptive 3000-5000 (2000)**	**Total Receptive (5000)**	**Academic Vocabulary (570)**
mean	1869.87	820.61	1016.63	3707.08	426.18
Std. Deviation	122.24	116.62	298.69	458.03	92.87
Minimum	1467	467	333	2600	111
Maximum	2000	1000	1800	4767	570

"Table III" describes the subjects' productive vocabulary size in 2,000, 3,000, 5,000 levels respectively and their productive vocabulary entirety plus the separately calculated university word level. In 2,000 level, the mean size is 1059.81 word families, with a standard deviation of 302.05; the minimum size is 444, while the maximum size is 1778; in 2,000 to 3,000 word level, the mean size is 254.88, with a standard deviation of 124.17, 56 as the minimum and 611 as the maximum; while in 3,000 to 5,000 word level, the mean size is 339.61, with a standard deviation of 185.13, and 0 as the minimum, while 778 the maximum. The average total productive vocabulary size is 1,654.31 word families, with a standard deviation of 522.52; the minimum is 611, while the maximum is 3,056 word families. The mean university word level is 129.36 word families, with a standard deviation of 69.76, and 0 as the minimum and 253 as the maximum.

TABLE III. Descriptive Statistics for English Majors' Productive Vocabulary Size (N=104)

	Productive 2000	**productive 2000-3000 (1000)**	**Productive 3000-5000 (2000)**	**Total Productive (5000)**	**University Word Level (570)**
Mean	1059.81	254.88	339.61	1654.31	129.36
Std. Deviation	302.05	124.17	185.13	522.52	69.76
Minimum	444	56	0	611	0
Maximum	1778	611	778	3056	253

The mean numbers of both receptive and productive vocabulary sizes in 2,000 layers and 2,000 to 3,000 layers are higher than those in the study of Huaqing He which were 1,605 and 607 word families respectively concerning receptive vocabulary, and 756 and 149 word families respectively concerning productive vocabulary [13]. In He's study, the subjects came from the same university with almost the same educational backgrounds as the subjects in this study, but He's were non-English majors and only the first two layers with a total of 3,000 word families were tested. Compared with the research results of Yanyan Cui and Tongshun Wang [11] who also took English majors as the subjects and tested their receptive vocabulary size with the same tool as this study did, there isn't much difference in the 2,000, 3,000 and 5,000 layers of word families and academic vocabulary. However, in this study, it is found that there is great internal disparity in the 3,000 to 5,000 layer of receptive vocabulary for the standard deviation is 298.69, which is much higher than those of the first two layers. This indicates to acquire the 2,000 word families which shift from higher frequency to lower frequency is a difficult task and stage for many students. Also, to certain extent this result reveals the relationship between vocabulary acquisition and frequency, i.e. the higher-frequency words are always

acquired earlier than the lower-frequency ones and learners generally acquire more frequent vocabulary before less frequent lexis [3]. But this result shows the students' productive vocabulary is regrettably restricted which is a warning to us that in current teaching and learning of vocabulary, both teachers and learners attach more importance to breadth and reception of vocabulary knowledge but to certain extent have neglected the depth and production of vocabulary knowledge, which might seriously hinder the developments of learners' English level.

The average total number of productive vocabulary size is lower than that in the researching result of Weiwei He and Jieyun Duan [22] due to the fact that their test included the 10,000 layer with the equivalent of 5,000 word families, although both researches took the second-year English majors as the participants. It is important to note that in the 2,000 layer, the subjects' productive vocabulary shows strikingly great internal discrepancy as the standard deviation is as high as 302.05 compared with 124.17 and 185.13 in the other two layers. This might demonstrate that students show great diversity in their mastery of vocabulary layer with the highest frequency and generally in their productive activities they usually use the high frequency vocabularies. Take both receptive and productive vocabulary sizes into account, it could be found in this study the English majors' receptive and productive vocabularies were asymmetrical, the mean total size of productive vocabulary being only 45% that of the mean total size of receptive vocabulary. There wasn't much difference between this result and those of He [13] and of Zhang [17] with 41% and 49% respectively. The average receptive vocabulary size accounts for 69% of the total vocabulary size while the average productive vocabulary size accounts for only 31% of the total vocabulary size. This study further proves what has been found out: There is an asymmetry between receptive and productive vocabulary: in general the receptive vocabulary is one to five times the size of productive vocabulary [23], which is the rule of vocabulary acquisition. To both native children and second language learners, receptive vocabulary acquisition precedes productive vocabulary, and there is always a difference between the two [24].

B. The Correlation Between Vocabulary Size and TEM-4 Scores

To observe the relationship between vocabulary size and scores on the TEM-4, Pearson's correlation analysis was employed.

1) Analysis and discussion of correlation between receptive vocabulary size and TEM-4 sores:

"Table IV" shows that receptive vocabulary sizes in all the layers have different levels of positive correlation with the TEM-4 scores, with correlation coefficients reaching .455, .554, .527, .606 and .593 respectively.

TABLE IV. CORRELATION BETWEEN RECEPTIVE VOCABULARY SIZE AND TEM-4 SCORES (N=104)

	2000	3000	5000	total	academic	score
2000	1					
3000	.624**	1				
5000	.449**	.595**	1			
total	.719**	.809**	.923**	1		
academic	.578**	.694**	.626**	.739**	1	
score	.455**	.554**	.527**	.606**	.593**	1

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

Generally speaking, the mean absolute value of a correlation coefficient in statistics is called low correlation between .20-.40; real or moderate correlation between .40-.70; and high correlation between .70-.90 [25]. So, according to the statistical criteria, the total receptive vocabulary size has significant correlation with TEM-4 scores, the correlation coefficient being as high as .606. All the four layers of vocabulary sizes have effective correlation with TEM-4 scores, with academic vocabulary having the highest correlation coefficient reaching .593, the 3,000 layer .554, the 5,000 layer .527, while the 2,000 layer having the lowest coefficient of .455. This means the subjects' vocabulary sizes in academic level, 3,000, 5,000 and even 2,000 levels are significantly relative to the TEM-4 scores. It is necessary to observe that academic vocabulary mastery is a more important contributor to TEM-4 scores, since the main items such as listening, language knowledge, cloze, and reading in TEM-4 mostly involve academic texts. Therefore to improve English majors' proficiency, enlarging their academic vocabulary is the key, but developing other layers of vocabulary also plays an important role. According to both the syllabus for teaching and for TEM-4, English majors at the foundation stage are expected to reach the level of 5,500 to 6,000 words of receptive vocabulary.

2) Analysis and discussion of correlation between productive vocabulary size and TEM-4 sores:

"Table V" presents the correlation of productive vocabulary sizes in all the layers with the TEM-4 scores. Specifically, the total productive vocabulary size is significantly relative to the scores with correlation coefficient as high as .617, and the 2,000, 3,000, 5,000 and university word levels are moderately relative to the scores with correlation coefficients of .513, .542., .541 and .500 respectively. So, statistically, the subjects' total productive vocabulary size and all the different levels of vocabulary sizes contribute significantly to their TEM-4 scores. Among the four levels, the 3,000 and 5,000 levels have almost the same correlation coefficients to the scores, while the 2,000 and university word levels have very close correlation coefficients to the scores. The 3,000 level and 5,000 level of vocabulary represent respectively 1,000 and 2,000 word families with considerably high frequency. According to both the syllabus for teaching and for TEM-4 the English majors at foundation stage are expected to master 3,000 to

4,000 active words which may be regarded as their productive vocabulary. In other words, they are expected to produce such amount of words with the accurate spellings, forms and appropriate meanings. In TEM-4, such items as dictation, question-answering and writing are designed to test such level of productive ability. While the 2,000 level represents 2,000 word families with the highest frequency which English majors may have already surpassed, and the 570 university word level represents 570 word families of academic vocabulary which the English majors at the foundation stage still fall short of. This illustrates that to improve students' TEM-4 scores, it is more important to enlarge and consolidate the knowledge of productive vocabulary especially in the levels of 3,000 and 5,000 word families.

TABLE V. CORRELATION BETWEEN PRODUCTIVE VOCABULARY SIZE AND TEM-4 SCORES (N=104)

	2000	3000	5000	total	University word	score
2000	1					
3000	.423**	1				
5000	.523**	.584**	1			
total	.580**	.632**	.582**	1		
university word	.424**	.512**	.547**	.600**	1	
score	.513**	.542**	.541**	.617**	.500**	1

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

In addition to the general analysis of the correlation of receptive and productive vocabulary sizes to the TEM-4 scores, it is necessary to look further into other statistics shown in the two tables. It can be found that in both the receptive and productive dimensions different levels of vocabularies are also significantly correlative with all the correlation coefficients not only reaching but also surpassing the statistical significance at the 0.01 apparent level. This illustrates that both receptive and productive vocabulary can reflect learners' lexical competence from different perspectives and have certain predictive value for learners' test scores [26]. Interestingly, the total productive vocabulary size has the similar correlation as the total receptive vocabulary with the TEM-4 scores, the coefficients being .606 and .617 respectively, which may mean both receptive and productive vocabulary play important roles in students' English proficiency. However, correlation coefficients to TEM-4 scores among different layers of receptive vocabulary and productive vocabulary are different; the coefficients among the layers in receptive dimension are more apparently different, while the ones in productive dimension do not have much difference. This indicates the internal differences of receptive vocabulary are larger than those of productive vocabulary or there is greater diversity among student's mastery of receptive vocabulary than among their productive vocabulary. Moreover, compared with receptive vocabulary, productive vocabulary contributes more significantly to TEM-4 scores, which suggests that both teachers and learners should focus more on the productive mastery of vocabulary.

V. CONCLUSION

To English learners, vocabulary plays an important role in both language acquisition and application, and to a great extent the vocabulary size can determine and reflect the learners' English level and achievement. This research studied the English majors' vocabulary sizes from both receptive and productive dimensions and explored the correlation of their vocabulary size with the TEM-4 scores. The results show that the English majors' vocabulary sizes in all the levels, especially the total vocabulary size in both receptive and productive dimensions are small and haven't yet met the requirements by the syllabus for teaching and learning which requires English majors at the foundation stage to reach the level of 5,500 to 6,000 receptive words and 3,000 to 4,000 productive words. What's more, there is an asymmetry between the English majors' receptive and productive vocabulary, the productive vocabulary being only 45% of the receptive vocabulary and the average receptive vocabulary size accounts for 69% of the total vocabulary size while the average productive vocabulary size accounts for only 31% of the total vocabulary size. The rate of correct output in their productive vocabulary is low, which influences the development and improvement of their English level as a whole. This implies that it's more urgent to improve their productive vocabulary. Both the receptive and productive vocabulary sizes have significant correlation with the TEM-4 scores, which suggests that in English majors' foundation stage, teachers, learners and textbook designers should attach adequate importance to both language input and output. To enlarge the receptive vocabulary, students should be provided with adequate amount of reading and listening materials and be guided with effective vocabulary acquiring strategies. To enlarge the productive vocabulary, students should develop a rich and specific meaning representation and the knowledge of the word's form, syntactic functioning, collocations, etc. instead of superficial understanding of the meaning. Since vocabulary learning is gradual and incremental, it is necessary for students to be repeatedly and increasingly exposed to the words they are expected to receive and produce. Although this research is based on an empirical study, it has some limitations in that the number of subjects is small with only 104 English majors from an ordinary normal university, the methods employed to test vocabulary size were relatively simple and the subjects' TEM-4 scores didn't include the part scores on different items of the test. In future studies, such aspects should be reconsidered and improved.

REFERENCES

[1] D. A. Wilkins, Linguistics in Language Teaching. London: Arnold. P.111, 1972.

[2] J. C. Alderson, Diagnosing Foreign Language Proficiency. London: Continuum. P. 88, 2005.

[3] N. Schmitt, Researching Vocabulary. Beijing: Foreign Language Teaching and Research Press, 2015

[4] P. M. Meara, "Vocabulary Acquisition: A Neglected Aspect of Language Learning," Language Teaching, vol. 13, pp. 221-246, 1980.

[5] N. Schmitt, "Current perspectives on vocabulary teaching and learning," International Handbook of English Language Teaching: Part II. New York: Springer, pp. 827-841, 2007.

[6] I. S. P. Nation, Teaching and Learning Vocabulary. New York: Newbury House Publishers, 1990.

[7] I. S. P. Nation, Learning Vocabulary in Another Language. Cambridge: Cambridge University Press. pp. 416-428, 2001.

[8] X. Zhang, "The Influence of Vocabulary Size and Productive Lexical Knowledge on L2 Oral Production," Foreign Language World, vol. 4, pp. 34-41, 2015.

[9] D. D. Qian, "Evaluation of an In-depth Vocabulary Knowledge Measure for Assessing Reading Performance," Language Testing, vol. 21, pp. 28-52, 2004.

[10] S. Gui, "An Investigation into and Discussion of English Majors' Vocabulary Size," Modern Foreign Languages, vol. 1, pp.1-6, 1985.

[11] Y. Cui and T. Wang, "Developments and Relationships of Receptive Vocabulary Size, Productive Vocabulary Size and Depth of Vocabulary Knowledge," Modern Foreign Languages, vol. 4, pp. 392-400, 2006.

[12] Z. Wang, "An Empirical Study of the Predictability of the Vocabulary Size Test on Language Proficiency," Foreign Language Learning Theory and Practice, vol. 2, pp. 71-75, 2014.

[13] H. He, "The Correlation Between High-frequency Vocabulary Size and College English Test-Band-Four Scores," Advances in Social Science Education and Humanities Research, vol. 205, pp.476-481, 2018.

[14] L. Luo, "The Correlation Between Students' Vocabulary Knowledge and English Test-Band-Four Scores," Journal of Social Science of Hunan Medical University, vol.11, pp.145-147, 2009.

[15] J. Wang and H. Xia, "Correlation Study of the Vocabulary Knowledge, Autonomous Learning Ability and TEM 4 Achievement of English Majors," Journal of Tianjin Radio & TV University, vol.22, pp.44-49, 2018.

[16] B. Laufer and P. Nation, "A Vocabulary Size Test of Controlled Productive Ability," Language Testing, vol.16, pp. 36-55, 1999.

[17] X. Zhang, "The Relationship Between Lexical Knowledge and Listening Comprehension of TEM 4," Foreign Language World, vol. 2, pp.36-42, 2011.

[18] K. I. A bdullah et al., "Validation of a Controlled Productive Vocabulary Levels Test Below the 2000-word Level," System, vol.41, pp. 352-364, 2013.

[19] L. Bai and C. Dai, "The Impacts of Different Frequency Bands and Dimensions of Lexical Knowledge on the Ability of Reading and Writing," Foreign Language Learning Theory and Practice, vol. 2, pp. 72-78.

[20] N. Schmitt, D. Schmitt, and C. Clapham, "Developing and Exploring the Behavior of Two New Versions of the Vocabulary Levels Test," Language Testing, vol.18, pp. 55-88, 2001.

[21] Y. Wang, "The Study on the Relationship Between Vocabulary Knowledge and L2 Lexical Inferencing Performance," Foreign Language World, vol. 6, pp. 32-38, 2013.

[22] W. He and J. Duan, "The Effect of Productive Vocabulary Size and Depth of Vocabulary Knowledge on English Majors' Writing Quality," Journal of Zhaotong Teacher's College, vol. 34, pp. 62-76, 2012.

[23] S. Gui, "Aspects of English Vocabulary Learning," Foreign Language World, vol. 1, pp.57-65, 2006.

[24] B. Laufer, "The Development of Passive and Active Vocabulary in Second Language: Same Or Different?", Applied Linguistics, vol. 19, pp. 255-271, 1998.

[25] X. Qin, Quantitative Data Analysis in Foreign Language Teaching and Research, Wuhan: Huazhong University of Science and Technology, 2003.

[26] Q. He, "An Empirical Study of Senior High School Students' English High-frequency Vocabulary Proficiency," (unpublished), dissertation for the degree of master of education submitted to the Graduate Faculty of China West Normal University, 2018.