Receptive and Productive Vocabulary Sizes of High School Learners: What Next for the Basic Word List?[*]

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The realization that there is a mismatch between the vocabulary level presented in the Korean National Curriculum, and the required vocabulary size for EFL (English as a Foreign Language) high school learners to take the high-stakes Korean College Scholastic Ability Test stimulated the researchers of the present study to administer an assessment of Korean high school learners' vocabulary sizes. Measurement of vocabulary knowledge was conducted with the adaptation of Nation's bilingual vocabulary size test, receptive and productive, by improving construct validity of the items. Learners were tested for the 1st ~ 10th 1,000 word bands to ascertain learners' vocabulary size at each level. The assessment of vocabulary size demonstrated receptive vocabulary knowledge to be as large as 6,000 words. However, unforeseen rises in the EFL learners' vocabulary sizes at some word bands were observed, which seem to have emerged from the educational milieu and the predominant focus on receptive lexical knowledge and the testing of them. Suggestions are proposed for the revision of word list of the National Curriculum, which would become the blueprint for controlling vocabulary level in the development of national textbooks of English.

I. INTRODUCTION

Vocabulary research in second language teaching acknowledges that vocabulary knowledge is essential to interacting in the foreign language (FL) (e.g., Laufer, 1992;

Nation, 2001). Adolphs and Schmitt (2003) estimate that, at least, 2,000 words have to be mastered in order to understand the words in around 90% and 94% of spoken discourse in different contexts so that gaining command of the 2,000 ~ 3,000 most frequent words (i.e., of the British National Corpus) as soon as possible is vital for the language learner to communicate orally and in written form in the foreign language (Nation & Waring, 1997). More recently, Nation (2006) has claimed that for 98% coverage of a text, 8,000 to 9,000 words are needed for understanding a written text and a vocabulary of 6,000 to 7,000 words for comprehension of spoken text. Hirsh and Nation (1992) also point out that knowledge of 5,000 words is necessary to enjoy reading. However, in relation to the purpose of the current study, there is practically no research available on the vocabulary size of Korean high school learners, particularly in connection to the size and type of vocabulary that has been taught through the National Curriculum of English. As such, studies on EFL learners' vocabulary sizes are needed to guide practitioners in the field as to the type of lexical items that need to be incorporated into instructional materials, such as in curriculum-based textbooks, which may be based on word lists of a national curriculum, particularly in EFL contexts.

1. Contextual Constraints Initiating the Study

The present study takes place in the context of Korea, where English is taught as a foreign language from the third year of elementary school to the senior year of high school, equaling 10 years of instruction. Although the National Curriculum of English encourages the development of communicative competence in all four skills, anecdotal and experiential evidence demonstrates that the Korean context for learning English at the high school level places priority on learning reading skills and test-taking strategies, and that the students and teachers themselves are not geared towards training in the productive skills, that is speaking and writing, due to lack of classroom time and their primary focus on the Korean College Scholastic Ability Test which primarily tests reading and listening. We also found that instruction of English is commonly known to be complemented by private instruction (e.g., cram schools). In fact, when we asked 2,871 high school students from 16 cities in Korea in a preliminary study on how many of them were relying on private instruction, 33.1% (n=950) reported to be obtaining extra help for their English from cram schools (54.8%, n=525), private tutoring (27.3%, n=262), and Internet-based lectures aired by the Korea Educational Broadcasting System (17.5%, n=168).

One major reason for the learners' reliance on private education stems from the high school learners' imminent needs to excel on the high-stakes College Scholastic Ability Test (CSAT), which is the gatekeeper to prestigious universities in the country. The test

involves the testing of receptive skills (i.e., listening and reading), which entails swift retrieval of receptive vocabulary knowledge. In spite of the importance, we claim that there has been a lack of vocabulary teaching in high schools, such as via learning of words based on frequency information, which has been documented to be common also in other contexts (Akbarian, 2010; Chui, 2006; Nurweni & Read, 1999). In the following, we present an overview of the Korean National Curriculum of English covering elementary to high schools in connection to the size and level of words presented in the curriculum-based textbooks. This procedure was deemed necessary in order to ascertain later the relationship between the materials and the learners' receptive and productive vocabulary sizes.

2. The Korean National Curriculum of English and English Textbooks

The publication of the authorized textbooks usually involves passing a set of evaluation criteria established by the Korean Ministry of Education, Science, and Technology (MEST) before any of the national curriculum-based textbooks can be published and be selected for use at the individual schools. According to the recently revised 7th National Curriculum of English (see Shin & Chon, 2001 for the permitted number of words for teaching), first year high school students are expected to learn 1,810 words of English as a part of the requirement for the National Common Curriculum. High school seniors who will have completed the Advanced Curriculum are expected to have learnt 3,000 words of English by the time they exit high school. Of the 3,000 words, 75% come from the Basic Vocabulary List of the National Curriculum (where 90.37% of the words can be categorized to be from the 1st ~ 3rd 1,000 bands of the BNC), and 25% of the words are left to the decision of the publishers. This can be problematic to those interested in controlling the size and speed of vocabulary learning since it is difficult to know the exact vocabulary level of the textbooks that are published in the country as a whole. In fact, our lexical analysis of 161 nationally-authorized textbooks and workbooks (i.e., consisting of 28 elementary school, 88 middle school, and 45 high school books; totaling 5,628,795 tokens) indicated that the textbooks actually reached a level of 7,600 words. As a whole, we realized that the vocabulary level presented in the materials was much higher than what has been stipulated by the national curriculum, so that there is a mismatch between the two (Shin & Chon, ibid).

II. BACKGROUND

1. Vocabulary Size Tests and Methodological Issues

The size of vocabulary knowledge is considered as referring to the number of words that language learners know at a particular level of language proficiency (Nation, 2001), and information on the measurement of a non-native speaker's vocabulary size becomes useful when it indicates how close the learner is to having enough vocabulary to be able to perform certain tasks. There is now data available on the vocabulary sizes needed to perform such receptive tasks as reading a novel to listening to friendly conversations (see Nation & Belgar, 2007 on vocabulary sizes for 98% coverage of various texts). To measure vocabulary sizes, researchers have used various types of assessment tools with different formats to measure this dimension of vocabulary knowledge (see Wesche & Paribakht, 1996, for a discussion of these various assessment types). One widely used measure to assess the size of vocabulary knowledge in the literature is the Vocabulary Levels Test (henceforth VLT), which has a word-meaning matching format and is composed of words representing different word-frequency levels, ranging from the high frequency (e.g., 2,000 word level) to low frequency level words (e.g., 10,000 word level). Researchers have also tried to ascertain the gap between the receptive vocabulary size and the productive by use of the VLT (Waring, 1997).

Studies have been conducted regardless of the methodological problems with VLT. For instance, the receptive test, which mainly tests form and meaning, can be considered to have problems with construct validity since an item tries to test 6 words at the same time, resulting in items being excessively difficult and possibly leading to an underestimation of the learners' actual vocabulary size (Webb, 2008). Also, a flaw of the productive version, as seen in the following items, is that it requires subjects to demonstrate sometimes complex aspects of lexical knowledge, such as in displaying collocational competence (e.g., *earn a salary, wind roar*) by going beyond a single word item. However, research with EFL learners has demonstrated the strong relationship between learners' performance on a cloze test and collocational competence (Keshavarz & Salimi, 2007), and the difficulty of accessing appropriate collocates (Shin, 2007). Finding the target word is sometimes assisted by common cultural knowledge (i.e., *mother's apron strings*) or background knowledge (i.e., *park bench, Romans used to hire auxiliary troops*) so that there are problems with construct validity.

2,000 word level	She earns a high <u>sal</u> as a lawyer.
	The wind <u>roa</u> through the forest.
3,000 word level	Two old men were sitting on a park <u>ben</u> and talking.

| 5,000 word level | Some people find it difficult to become independent. Instead they prefer to be tied to their mother's ap_____ strings. |
| 10,000 word level | The Romans used to hire au_____ troops to help them in their battles. |

However, regarding the issue of vocabulary size in foreign language learning contexts, results are scarce on measuring the vocabulary size of EFL learners, being restricted to a small number of subjects in a specific discipline (e.g., English majors) (Waring, 1997) with attention to separate slices of a learner's vocabulary (the 2nd 1000, the 3rd 1000, the 5th 1000, the Academic Word List, and the 10th 1000; Webb, 2008), or without connection to the type of materials (e.g., curriculum-based textbooks) that students would have been exposed to (Laufer & Paribakht, 1998). In the following, we review the recent studies that have looked at measuring the vocabulary size of second or foreign language learners.

2. Studies on Vocabulary Sizes of Second or Foreign Language Learners

Studies of learners' vocabulary size have focused on native speakers of the language (Goulden, Nation & Read, 1990), and second or foreign language learners (e.g., Fan, 2000; Gui, 1982; Laufer & Paribakht, 1998; Morgan & Oberdeck, 1930; Waring, 1997; Webb, 2008). Having compared the vocabulary size of EFL learners in Israel to ESL learners in Canada at different levels of proficiency, Laufer and Paribakht (1998) found that passive (i.e., receptive) vocabulary was always significantly larger than active (i.e., productive) vocabulary, but that the passive-active vocabulary gap was smaller in the EFL group due to the smaller receptive vocabulary size largely consisting of more frequent words. They attribute this to the speculation that the EFL learners invested more effort than ESL learners to acquire a similar amount of passive vocabulary through deliberate learning rather than through incidental learning. However, this type of explanation of the results of the vocabulary profiles of the EFL learners fails to provide a discussion in relation to students' educational experiences in vocabulary learning, which will probably have an influence on the vocabulary size of the EFL learners. It cannot be assumed that circumstances of the EFL contexts provided in Laufer and Paribakht's (1998) study would apply in the same way to other EFL contexts since the national curricula of countries where English is learnt as a foreign language will have different focuses according to different educational policies and goals. Also, interest in the vocabulary sizes of East Asian learners deserves attention since, as far as the authors' knowledge is concerned, there are few studies that have focused on this area. The few studies on EFL learners have been conducted by Waring (1997) and Webb (2008), but

they are not without their own limitations.

Waring (1997) conducted a study to investigate the nature of the receptive and productive vocabulary frequency profiles of foreign language learners. The intention was to find the difference between the receptive and productive vocabulary knowledge of 76 Japanese female learners of English at a women's university. In the study, there was use of the Receptive Vocabulary Levels Test developed by Nation (1990), and the Productive Vocabulary Levels Test developed by Laufer and Nation (1999). Results indicated that difference between receptive and productive knowledge was significant at all bands (i.e., 1000, 2000, 3000, 5000 word levels). Among the three proficiency groups, Waring found that with the increase in the second language learners' vocabulary size, the differential size of the learners' receptive and productive vocabulary increased slightly but still remained high. However, the validity of the findings is reduced when there was testing of the same words in the two different tests for measuring receptive and productive lexical knowledge. Although Waring explains that the productive test was administered before the receptive version, this still does not remove the possibility of a learning effect that would have influenced the results. Also, the small number of subjects in the study limited to a specific major (i.e., English) does not allow generalization to other EFL learners. The study calls for a further study with a larger group, by also considering knowledge of the students' educational background (e.g., educational milieu and characteristics of the English curriculum) since this is likely to show what students regard as important in language learning (e.g., preparing for a test or for authentic communication).

By expanding upon earlier methodologies, Webb (2008) investigated the relationship between receptive and productive vocabulary size among 83 native speakers of Japanese second-year EFL university learners. In trying to overcome the flaws of previous vocabulary levels test, Webb employed equivalent receptive and productive test formats in the form of translation tests with different receptive and productive target words to provide more accurate results. He found the total receptive vocabulary size to be larger than productive vocabulary (as also found in Laufer & Paribakht, 1998; Morgan & Oberdeck, 1930; Waring, 1997), with the difference between receptive and productive knowledge increasing at the lower frequency ends. Based on the results, Webb explains how the difference between the receptive and productive vocabulary sizes of EFL learners may be smaller than that of ESL students. Webb predicts that this may have arisen when EFL learners are likely to learn more words through explicit instruction than are ESL learners (Laufer & Paribakht, 1998). He postulates that explicit vocabulary learning may have led to deeper knowledge of meaning and greater gains in productive knowledge than might typically occur with incidental vocabulary learning. However, the claim made by Webb is not completely valid since there are variables in different

educational EFL contexts that need to be considered.

3. Statement of the Problem

Given the concerns raised in the previous section on the Korean context and the realization that there is a lack of studies that make connections to the EFL learners' educational background, in particular, to the lexical aspects of the curriculum, the following research questions guided the current study:

> Q1: What are the receptive and productive vocabulary sizes of Korean EFL high school learners, and how do they vary at each word frequency level?
>
> Q2: How do the receptive and productive vocabulary sizes differ for learners with different overall L2 proficiency?
>
> Q3: What are some implications for the teaching of vocabulary and revision of curriculum-based English textbooks, which is based on the word list of a national curriculum?

III. METHOD

1. Participants

We measured the vocabulary size of EFL high school participants in a suburban area of Korea. The 402 participants of an intact group were Grade 11 high school learners (17 years old), and the group consisted of 201 female and 201 male students. Of the students, there were 11 students who had lived in English speaking countries for 6 or more months, but since this number was small compared to the other 391 students, we did not consider it a problem for sampling.

A subject variable of interest was the learners' overall language proficiency. In the study, scores from the English section of the preliminary College Scholastic Ability Test (CSAT) was used as a measure of the students' overall language proficiency. The students' score from the test administered in September 2009 recorded a mean score of 68.4 (SD = 20.4) from a total of 100. Considering that the nationwide mean score of the preliminary CSAT for general public high schools is within the vicinity of 60 according to the records from the Provincial Education Office in 2009, we can consider the participants to be at intermediate-high levels of proficiency. Also, the group's score being close to the national mean also indicates that they can be considered a representative sample of the Korean high school student population from a public school.

2. Instruments

We used two instruments to measure the receptive and productive sizes of students' English vocabulary knowledge, and one instrument to measure the students' overall L2 language ability.

1) The Vocabulary Size Test for Receptive Vocabulary Size

An adapted version of Nation's vocabulary size test (VST) (2010) (downloadable from http://www.victoria.ac.nz/lals/staff/paul-nation.aspx) in a bilingual form was utilized to measure the receptive vocabulary size of learners. The test was originally developed to provide a reliable and comprehensive measure of a learner's vocabulary size by selecting word items at each band from the 1st to the 14th 1000 word families, which is based on the development of the fourteen 1,000 BNC word lists (Nation & Beglar, 2007). In effect, each word would represent a sample of 100 words at each level, and thus learners' scores are multiplied by 100 to roughly estimate their total vocabulary size. However, in our study, while adapting the same format of the test, we randomly re-selected words with *Random Item Generator* v.1 available at *Compleat Lexical Tutor* (http://www.lextutor.ca/) for each frequency band since some words in the original version of Nation's VST were recognized as being overly culture-specific (e.g. *ruck, lintel*), which would incur problems for construct validity. The first item of the receptive vocabulary size test is presented as follows:

1. see: They **saw** it. (Answer: c. 보았다 [= saw])
   ① 잘랐다 [= cut]
   ② 기다렸다 [= waited]
   ③ 보았다 [= saw]
   ④ 시작했다 [= started]
   ⑤ '잘 모르겠음' [= 'don't know']

An improvement of the test was achieved by also including ⑤ '잘 모르겠음' (i.e., *Do not know*) among the options provided in L1, which we expected could reduce the possibility of guessing by the learners. A strength of the test is that it not only shows the total vocabulary size of the learners, but also indicates vocabulary size at each word band, which is unlike the previous receptive tests developed by Nation (1990) or Schmitt, Schmitt and Clapham (2001), whose tests measured receptive knowledge at the 2000, 3000, 5000, University Word List/ Academic Word List, and 10,000 word levels.

In the context of the present study, we deemed it sufficient to test the EFL students on the $1^{st} \sim 10^{th}$ 1,000 word bands based on our experience with similar types of students and knowledge of the context.

2) The Vocabulary Levels Test for Productive Vocabulary Size

The decision for the type of productive vocabulary test to be used was based on Laufer and Nation's (1999) productive vocabulary levels test, which is thus far one of the well-known tests for measuring controlled productive vocabulary size. The test assesses the learners' vocabulary size at 2000, 3000, 5000, University Word List, and 10,000 word levels by presenting 18 items at each level in the form of C-tests by providing 2-4 initial letters of the target word. The items involve the learners' ability to produce target words to express an intended meaning. However, the test can be criticized for going beyond single words to test learner's vocabulary knowledge since some items require the demonstration of knowledge on collocational competence. This results in items being presented that are overly difficult than anticipated for non-native speakers.

In our study, to overcome the aforementioned shortcomings of the productive levels test, we designed a new productive vocabulary levels test for the $1^{st} \sim 10^{th}$ 1,000 levels with 10 items at each level totaling 100 items. The 100 lexical items were randomly selected by use of *Random Item Generator* v.1 (as utilized in the receptive VST) which draws its randomizations from the first 14 British National Corpus Lists. Two items of the productive vocabulary size test are presented as follows:

1. 그 **배**를 봐라.
   Look at the b_ _ _. (Answer: boat)
8. 철을 만드는 **과정**은 복잡하다.
   The pr_ _ _ _ _ of making steel is complex. (Answer: process)

In addition to the L2 sentences in C-test format originally presented in Laufer and Nation's productive vocabulary levels test, we presented L1 sentence equivalents so that learners could retrieve target L2 words by help from the accompanying L1 translations rather than from the context of the L2 sentences, which may require testing of learners' collocational knowledge. For enhanced readability, we provided the L1 target words in boldface, and the blank spaces were provided with the first or two letters of the target word so as to reduce the possibility of learners producing an alternative word (e.g., a synonym) in relation to the L1 equivalent presented. One letter was provided for a one syllable word, while two letters were provided for words with two or more syllables.

Most of all, in the presentation of the prompts in the tests (i.e., *Look at the b_ _ _.*), the researchers tried to control the vocabulary level to be within the 1st 1,000 word level.

3) College Scholastic Ability Test of English

In order to assess the learners' overall English Language proficiency, we used a preliminary version of the Korean College Scholastic Ability Test (CSAT) of English to test the students. Our choice of the test was based on the decision of practicality and the test scores were easily accessible to the researchers since the tests are administered on a regular basis (i.e., four times a year by the 16 Metropolitan and Provincial Offices of Education) so that university applicants may have opportunities to practice for the actual high-stakes CSAT. One limitation of the test may be that it is used to primarily assess listening and reading through multiple-choice questions so that it may not be a direct reflection of the learners' productive language proficiency, such as speaking and writing. However, the test can be judged to have high face validity since the items (consisting of 17 listening and 33 reading multiple-choice items) are written in the exact same format as in the actual high-stakes CSAT that is administered nationally once every academic year.

3. Procedure

The receptive and productive vocabulary size tests were administered with the intact group of high school learners as a part of the students' regular class during the 1st semester of the academic year for diagnostic purposes in investigating the learners' vocabulary size. For each set of 100 items on the receptive and productive tests, learners were given an hour to complete both forms in one sitting. Previous to the test, students were told that it would be a measure of the learners' vocabulary proficiency, but that it would not affect their class grades.

Scoring of the receptive test was conducted by seeing if the learners had chosen the correct option. The productive test was scored so as to allow for assessment of different degrees of vocabulary knowledge. For example, with regard to spelling mistakes, if a learner misspelled the word by one letter and the overall shape of the word was similar to the target word, half a point was given since a part of lexical productive knowledge also involves the ability to retrieve the spelling of a word. If the learner provided spelling markedly similar to another word in English, it was not accepted and a zero was given as it may be that the subject had misspelled the wrong word. Similarly where a plural was needed, but the 's' was omitted or when the wrong tense was provided, half a point was awarded.

Having adapted Nation's (2010) receptive vocabulary size test and developed an improved version of the productive vocabulary size tests, we compared the sizes of the two kinds of vocabulary of the EFL learners in relation to their overall language proficiency.

IV. RESULTS AND DISCUSSION

1. Receptive and Productive Vocabulary Sizes of EFL Learners

The vocabulary size test administered on the second year high school EFL learners yielded means and standard deviations for the receptive and productive vocabulary sizes as presented in Table 1. When the participants' responses from the tests were calculated for the vocabulary sizes from a total of 100 words, the mean scores indicated the receptive vocabulary size (RVS) of the learners to be almost 60 and the productive vocabulary size (PVS) to be slightly above 24. In effect, this indicates that the learners had RVS knowledge of 6,000 words and PVS of 2,400 words when calculated for a total of 10,000 by multiplying the raw scores by 100 to obtain learners' total vocabulary size. In the data analysis of the present study, however, we used raw scores to prevent any misleading effects by the larger scores.

TABLE 1
Overall Means and Ratios of Receptive and Productive Vocabulary Sizes

(*n*= 402)	RVS	PVS	PVS/RVS (%)
Mean	59.69	24.40	39.71
SD	16.29	13.93	18.30
Minimum	10.00	1.00	2.04
Maximum	98.00	65.00	148.28

Note: RVS = Receptive Vocabulary Size; PVS = Productive Vocabulary Size

This pattern found between RVS and PVS is not surprising since words are easier to access receptively than to use productively, and being able to use words productively involves many complex aspects of knowing words (Nation, 2001; Wesche & Paribakht, 1996). The results support previous findings (Fan, 2000; Laufer, 1998; Laufer & Paribakht, 1998; Morgan & Oberdeck, 1930; Waring, 1997, Webb, 2008) as well as the widespread perception among researchers (Aitchison, 1994; Channell, 1988; Crow, 1986) that a learner's receptive vocabulary is larger than his or her productive vocabulary.

When the percentages were calculated for overall PVS/RVS ratio, the results indicated that the learners were able to produce 39.71% of the words that they knew

receptively (Refer back to Table 1). However, the percentages cannot be generalized for all word levels. Table 2 and Figure 1 provide details on the receptive and productive vocabulary sizes at each word band.

TABLE 2
Receptive and Productive Vocabulary Sizes at Different Word Frequency Bands

	RVS (MEAN)	PVS (MEAN)	PVS/ RVS (%)	F	df	Sig.
1st 1000	9.35 (1.16)	8.04 (2.05)	86.01	192.76		
2nd 1000	9.01 (1.62)	4.67 (2.79)	51.91	1523.20		
3rd 1000	7.99 (1.89)	3.27 (2.68)	40.93	1729.24		
4th 1000	6.07 (2.26)	2.29 (2.35)	37.72	1058.07		
5th 1000	6.14 (2.28)	1.63 (2.02)	26.60	1454.36	(1, 401)	.000
6th 1000	5.66 (2.33)	2.24 (1.55)	39.53	1074.02		
7th 1000	4.09 (2.42)	0.69 (1.05)	16.95	936.46		
8th 1000	3.41 (2.36)	0.65 (1.20)	19.20	578.62		
9th 1000	4.01 (2.31)	0.55 (0.87)	13.66	953.27		
10th 1000	3.97 (2.11)	0.36 (0.66)	8.95	1262.03		

* (   ) = Standard Deviations; $p < .05$

FIGURE 1
Overall Mean for Receptive and Productive Vocabulary Sizes
According to 1st 1,000 to 10th 1,000 Word Bands
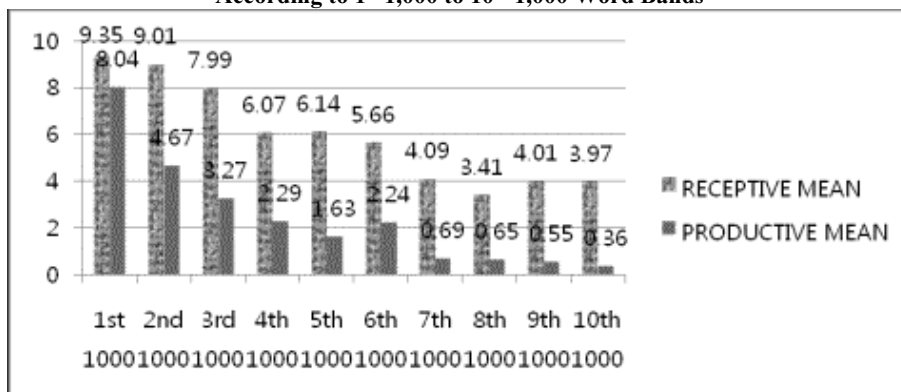
The difference between RVS and PVS scores with repeated ANOVA indicated the receptive scores to be significantly higher than the productive scores at all bands, but the PVS/ RVS ratios generally showed a steady increase in the differential size of the receptive and productive vocabularies as the learners' vocabulary size increased, which indicate that words at the lower frequency bands are less likely to become a part of the learners' productive vocabulary lexicon (Laufer & Paribakht, 1998; Waring, 1997; Webb, 2008). However, an unexpected rise of the PVS/ RVS ratio was noticed at the 6th 1,000 word level. The bounce to 39.53% before the drop to 16.95% connects to how the learners may be relatively more competent at this level in their use of the productive lexicon in relation to receptive knowledge. Other unexpected results arose at the RVS 9th and 10th 1,000 word bands respectively recording means of 4.01 and 3.97, indicating approximately 40% coverage of the receptive words. It was a surprise to see the RVS increasing at these lowest frequency bands since previous vocabulary studies (Laufer, 1998; Laufer & Paribakht, 1998; Morgan & Oberdeck, 1930; Waring, 1997; Webb, 2008) have documented learners' vocabulary sizes to be smaller at the lower frequency ends.

When the percentages of correct answers (PCA) of the individual word items were examined for the unexpected rises at the 9th and 10th 1,000 word levels, relatively high PCAs were noticed for *octopus* (89%), *carnival* (76%), *aptitude (90%)* and *ethic* (76%) as seen in Table 3. We can attribute this to possibly two factors: frequent exposure to the word through educational materials (e.g., textbooks, practice test booklets), and as claimed by Nation, the influence of loanwords which can make a significant difference when measuring vocabulary size of L2 learners (personal communication, Oct. 2010). Here *carnival* is a loanword as in the meaning of a 'festival.' *Octopus, aptitude,* and *ethic* when investigated were found to have appeared relatively frequently in the learners' textbooks to be recognized by a majority of the learners (see Table 3 for the frequency of words in textbooks). As such, rises at the lower frequency levels seem to have occurred due to the learners' knowledge of loanwords, or by incidental overlearning of specific items. What was also noticeable is the way the learners made use of the option ⑤ '잘 모르겠음' (i.e., *Do not know*) when they were not able to find the key for a test item. For instance, *quiver, grove, mutiny,* and *peeve* as seen in Table 3 recorded relatively a high percentage of responses for option ⑤. This indicates methodologically that the format used in the vocabulary size test was valid for eliciting L2 learners' vocabulary knowledge.

TABLE 3
Items on Receptive Vocabulary Size Test at 9th and 10th 1,000 Word Levels

| Item no.	Target word	PCA	%	Item no.	Target word	PCA	%
81	acorn [9]*	40%	38%***	**91**	aptitude [46]	90%	6%
82	astrology [0]	21%	20%	**92**	carnival [57]	76%	12%
83	confide [0]	21%	27%	**93**	deject [0]	48%	40%
84	detonate [0]	11%	38%	**94**	embroil [0]	33%	46%
85	glimmer [4]	58%	24%	**95**	ethic [66]	76%	10%
86	laud [0]	40%	31%	**96**	grovel [0]	20%	47%
87	meddle [0]	28%	41%	**97**	mutiny [0]	19%	58%
88	octopus [63]	89%	4%	**98**	peeve [0]	12%	49%
89	relive [0]	45%	20%	**99**	recline [0]	16%	44%
90	quiver [0]	34%	45%	**100**	slay [0]	28%	34%

Note: [   ]* indicates the frequency of words appearing in the corpora of 161 textbooks;
PCA indicates 'percentage of correct answers' for the word item
% indicates percentage recorded for option '⑤ '잘 모르겠음' (i.e., *Do not know*)

Comparative analysis of Japanese EFL women university learners' vocabulary sizes which were measured for 1st, 2nd, 3rd and 5th 1,000 word bands in Waring's (1997) study provides some explanations of the status of the EFL high school learners in the present study. While the scores of the EFL university learners were lower than those of EFL high school learners at the four bands for both RVS and PVS, the university students demonstrated a mean PVS/ RVS ratio of 44.8% for the four word bands whereas the EFL high school learners recorded a mean of 54.2%. In spite of the difference in the school levels of the subjects in the two studies, this indicates how vocabulary size of the EFL high school learners in the present study may actually be higher. As a whole, we attribute the relatively large vocabulary size (i.e., 6,000 words) and the unanticipated rises at certain word bands (i.e., 6th, 9th and 10th 1,000) to the educational milieu that has put pressure on students to learn and memorize relatively lower frequency or academic words rather than the higher frequency words that are likely to be needed more for reading and writing of English general texts (see previous *1. Challenges and contextual constraints initiating the study* for the educational context).

In the Korean context, there is focus on the learning of vocabulary for receptive knowledge and training of students to be able to swiftly notice clues in the options provided in the multiple-choice questions of the high-stakes CSAT. Productive skills – speaking and writing- have rarely been the object of assessment due to situational constraints in the context (e.g., who and how the assessment of written or spoken products of language is to be handled). Also, the vocabulary level presented in the high-stakes College Scholastic Ability Test, which was in fact at the 4,200 word level when analyzed for versions published from 1994 to 2008, may have potentially contributed to

encouraging students to be involved in more intensive vocabulary learning than required by the curriculum, resulting in the RVS at the 6th 1,000 word level.

FIGURE 2
Standard Deviations of Receptive and Productive Vocabulary Sizes
**According to 1st 1000 to 10th 1,000 Word Levels**
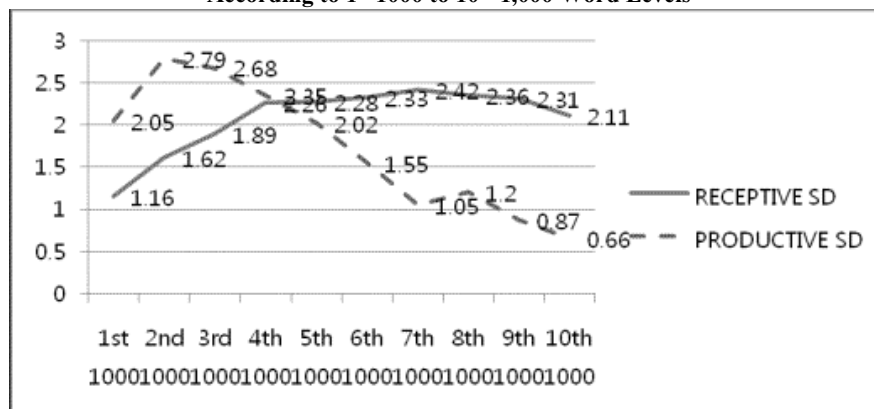
In order to analyze variability among learners, the SDs were also examined for each band as presented in Table 2 and Figure 2. The SDs for RVS rose up to the 7th 1,000 word level (i.e., 2.42), whereas the SD for PVS began to fall after the 2nd 1,000 word level. The RVS variability among students was easily visible at each word level, but the SDs that tended to decrease at the lower frequency levels for PVS indicate how students as a whole lack competence in the demonstration of productive lexical knowledge. In order to reduce the gap between receptive vocabulary knowledge and productive vocabulary knowledge, this potentially indicates how attention devoted to increasing learners' receptive vocabulary knowledge needs to be stretched to the improvement of productive vocabulary knowledge, such as through encouraging learners to write or speak at the *i*+1 levels where learners can be provided with sufficient opportunities to notice the lexical gaps and practice retrieving target words from their mental lexicon for consolidation (Chon, 2009; Swain & Lapkin, 1995).

2. Vocabulary Sizes and Different Proficiency EFL Groups

The second research question of the study focused on examining the receptive and productive vocabulary sizes in relation to the learners' different overall L2 proficiency. The learners' score on the September 2009 Preliminary CSAT of English was used as a measure of the subjects' L2 language proficiency.

FIGURE 3

Distribution of Scores for L2 Proficiency As Assessed with Preliminary CSAT
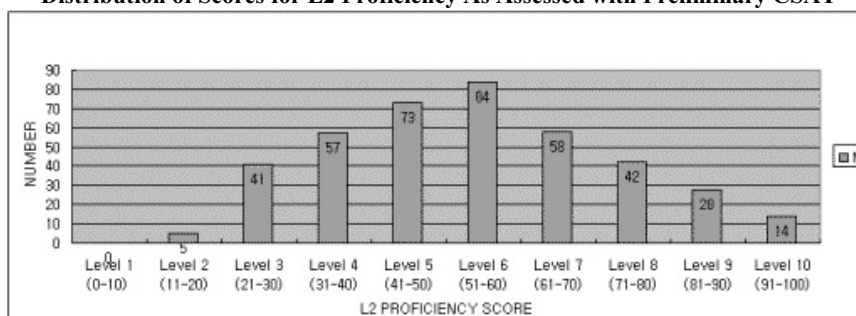
When the 402 learners' test scores were divided into 10 levels, a mode of 51-60 was demonstrated as in Figure 3 while indicating a normal distribution curve so that the scores as a whole were considered valid for use as a measure of the learners' L2 language proficiency. Correlation between the scores of the learners' L2 proficiency and overall means of RVS and PVS indicated moderate correlations of .663 and .728 at the $p<.01$ level with Pearson's r. The results suggest at a significant level that vocabulary knowledge is an important contributor of L2 language proficiency.

For finer analysis of the students' RVS and PVS with regard to L2 proficiency, we divided the students into three equal groups according to upper, middle and lower levels of learners' L2 proficiency (Waring, 1997) resulting in 134 learners in each group. Table 4 presents the means, SDs and PVS/ RVS ratios of the three proficiency groups. The results generally show that the RVS was clearly larger than the PVS for all the proficiency groups while demonstrating consistent and steady decreases in the vocabulary sizes respectively for RVS and PVS at the lower frequency ends. The different PVS/ RVS ratios at the three different proficiency levels (i.e., upper = 50.95%, middle = 37.11%, lower = 31.06%) indicate that there are significant differences between the three groups (F(2, 399)=52.26, $p<.05$) (see Table 4). When post-hoc comparisons were conducted with the Scheffe test for the difference in the PVS /RVS ratio of the three proficiency groups, there was a difference of 19.9% between the upper and lower groups and 6.05% for the middle and lower groups (see Table 5).

TABLE 4
Receptive and Productive Vocabulary Sizes of
Upper, Middle and Lower Proficiency EFL Groups

	RVS	PVS	PVS/ RVS (%)	F	df	Sig.
Upper (*n* = 134) Mean	71.78	36.62	50.95			
SD	10.52	11.90	14.64			
Min	44.00	6.00	8.22			
Max	98.00	65.00	87.50			
Middle (*n* = 134) Mean	59.53	22.20	37.11			
SD	12.38	9.51	13.29	52.26	(2, 399)	.000
Min	25.00	4.00	5.88			
Max	98.00	52.00	76.47			
Lower (*n* = 134) Mean	47.76	14.37	31.06			
SD	15.67	9.79	20.23			
Min	10.00	1.00	2.04			
Max	87.00	53.00	148.28			

* *p* < .05

TABLE 5
Post-hoc Comparisons of Proficiency Groups

Groups (I)	Groups (J)	Mean difference (I-J) (%)	Std. error	Sig.
Upper	Middle	13.85	2.00	.000
	Lower	19.90	2.00	.000
Middle	Upper	-13.85	2.00	.000
	Lower	6.05	2.00	.011
Lower	Upper	-19.90	2.00	.000
	Middle	-6.05	2.00	.011

* *p* < .05

The detailed views of RVS and PVS vocabularies at the various word bands are shown in Table 6. With regard to RVS, the differences among the three proficiency groups at the 1st 1,000 word band was not large recording means of 9.81, 9.69, and 8.51. However, the three proficiency groups clearly displayed differences at other word bands, and the difference increased markedly at the 4th 1,000 word band. The explanation that can be provided for this is that the Korean National Curriculum of English is limited to teaching 3,000 words, so that the differences in vocabulary sizes of the three groups seemed relatively larger at a point beyond the 3rd 1,000 word level. For PVS, relatively higher scores were recorded at the 6th 1,000 word band, particularly for the middle and low proficiency groups, respectively recording means of 2.06 and 1.19. This may reveal one aspect of the EFL learners' vocabulary learning style where it may be the lower

frequency words, for instance those at the 6th 1,000 level, that get practiced relatively early for production. In fact, when we examined the target words presented at the PVS 6th 1,000 word level, we noticed that the loanword *cookie* recorded a PCA of 46%, but this was not as high as expected considering that the word has also appeared 790 times in the 161 nationally-authorized textbooks. While the receptive form of 'cookie' would have been familiar to the learners, it seems that when students were asked to retrieve the word in written form, many of the learners experienced spelling problems as seen from the original test papers. In fact, it was the word *vacation,* a compulsory word in the elementary school curriculum that has appeared 911 times in the curriculum-based materials, that seems to have influenced learners' vocabulary size to be larger than expected. The frequency of the other words appearing in the materials was noticeably low.

TABLE 6
Receptive and Productive Vocabulary Sizes of
Upper, Middle and Lower Proficiency EFL Groups by Word Bands

	Upper Group			Middle Group			Lower Group		
	RVS MEAN	PVS MEAN	PVS/ RVS (%)	RVS MEAN	PVS MEAN	PVS/ RVS (%)	RVS MEAN	PVS MEAN	PVS/ RVS (%)
1ST 1000	9.81 (0.50)	9.36 (1.01)	95.43	9.69 (0.65)	8.43 (1.38)	87.06	8.51 (1.52)	6.32 (2.16)	74.23
2ND 1000	9.92 (0.30)	6.87 (1.90)	69.22	9.63 (0.74)	4.76 (1.92)	49.42	7.46 (1.91)	1.96 (1.76)	26.30
3RD 1000	9.25 (0.86)	5.44 (2.17)	58.79	8.28 (1.22)	2.80 (1.72)	33.78	6.26 (1.92)	0.94 (1.13)	15.02
4TH 1000	7.44 (1.60)	4.04 (2.27)	54.26	6.16 (1.72)	1.69 (1.42)	27.36	4.13 (1.92)	0.53 (0.82)	12.82
5TH 1000	7.58 (1.84)	3.03 (2.11)	39.96	6.19 (1.71)	1.07 (1.30)	17.25	4.21 (1.70)	0.23 (0.53)	5.50
6TH 1000	7.13 (1.52)	3.16 (1.46)	44.35	5.87 (1.62)	2.06 (1.25)	35.11	3.53 (1.75)	1.19 (1.11)	33.62
7TH 1000	5.72 (2.22)	1.33 (1.24)	23.21	3.92 (1.63)	0.49 (0.77)	12.38	2.08 (1.38)	0.09 (0.29)	4.30
8TH 1000	4.63 (2.04)	1.49 (1.57)	32.21	3.37 (1.77)	0.34 (0.69)	9.98	1.54 (1.44)	0.04 (0.27)	2.90
9TH 1000	5.23 (2.08)	1.11 (1.11)	21.26	3.95 (1.83)	0.39 (0.64)	9.83	2.27 (1.62)	0.09 (0.29)	3.95
10TH 1000	5.05 (1.70)	0.79 (0.83)	15.66	3.94 (1.58)	0.23 (0.47)	5.87	2.43 (1.48)	0.03 (0.17)	1.23

* ( ) = Standard Deviations

As a whole, while we speculate that a relationship exists between the frequency of

words appearing in the curriculum-based materials and the vocabulary size of learners, there also seem to be particular words that may be familiar to the learners regardless of proficiency groups. This indicates that the manner in which the learning of vocabulary occurs among the EFL learners may not be based on word lists by frequency distribution, but particular words may be drawn for learners' attention, for instance via textbooks, test-preparation materials, and vocabulary lists. Also, this may be due to how we saw curriculum-based textbooks not being based on strict word frequency distributions of native-speaker corpora (Shin & Chon, 2011). We consider this to have arisen due to MEST's vague guidelines about the vocabulary level of textbooks. Also, when learners often do not have access to all the published textbooks since only one is likely to be used in any one school, this makes learners study beyond the curriculum. The test-preparation booklets and vocabulary list books are the often favored types of materials used not only in cram schools but also at the regular schools.

3. Recommendations for the Word List and the National Curriculum

The natural pedagogic question is now related to how we can make suggestions for the development of a word list for the curriculum and the curriculum-based textbooks. The mismatches seen between what is stipulated in the curriculum, the vocabulary level presented in the curriculum-based textbooks and the actual vocabulary level demonstrated by the EFL students call for the adoption of curriculum-based textbooks in the form of Graded Readers (Nation, 2003) within the Korean education system so that exposure of vocabulary can become more controlled and systematic across the different grade levels. This would, as a result, blend effectively with the level-differentiated lessons that MEST is trying to incorporate in the recent National Curriculum (i.e., Revised 7th National Curriculum of English). Language that is graded for vocabulary, complexity of grammar structure, and the number of words is expected to cater to all levels from beginners through to advanced, particularly when there are plenty of opportunities for spaced receptive retrieval of appropriate vocabulary (Nation & Wang, 1999).

In creating a word list (WL) for the curriculum, which may act as the blueprint for the development of curriculum-based textbooks targeted for EFL learners, suggestions can be made. Since the research now tells us that learners need to have 95% text coverage in order to have a sufficiently high level comprehension of texts, we would need to present the vocabulary in WLs for elementary, middle, and high schools up to the senior year (i.e., 12th grade); at the moment, the current curriculum presents the WL for only up to 10th grade. Similarly, by increasing the number of words to be learnt via the curriculum, such as at a 4,000 or 5,000 word level, or by recommending a 1,000 word list to be

added to the current 3,000 word list, we may be able to alleviate some of the problems of textbook writers, who have a restricted number and type of words that they can use in curriculum-based textbooks. We acknowledge, nonetheless, that the decision on the target number of words in the WLs would need to be carefully discussed among experts and contemplated before a final decision could be made for the target number of words to be presented in the WLs.

Another recommendation for the revision of the WLs is that vocabulary needs to be presented for each grade level. The WLs in the current curriculum present vocabularies for elementary and secondary schools, and words in the current elementary school curriculum are only presented as a 'pool' rather than distinguished by grades. Stemach and Williams (1988), however, have proposed the idea of presenting 250 word groups generalized from several empirical studies of children's oral productions for 10 consecutive levels beginning at the elementary school level. The division of the WL at the respective school years is deemed important since this can be considered a prerequisite for the development of graded materials. If some materials writers should feel that dividing the words by grade level is too restrictive, since they are limited to the range of words that they can use in materials development, an alternative could be to combine the words at every other grade, such as for grades 3 and 4; and grades 5 and 6 (Shin & Chon, 2011).

A project currently underway in the Korean context is the development of a WL by utilizing native-speaker corpus data from different varieties of English for the National English Ability Test (NEAT). This test, the so called 'Korean TOEFL', is currently being developed with added components for the productive skills (i.e., speaking and writing) to possibly substitute for the current Korean College Scholastic Ability Test of English.

The development of the word list is based on an eleven million word compiled corpus that includes native-speaker corpora from different English-speaking regions (i.e., the British National Corpus, Wellington Written Corpus, Australian Corpus of English, and Freiburg-Brown Corpus) in order to arrive at a more natural balance between oral and written language by using eight spoken corpora and three recent written corpora. The aim of the word list is to arrive at a general word list, which includes words at the 2nd and 3rd 1,000 bands. As such, learning of the most frequent words would be most amenable to vocabulary learning with minimal gaps between RVS and PVS so as to encourage use of general L2 words in basic communication, which is not a skill easily achievable in EFL contexts. Also, since vocabulary learning in the EFL situation is not conducive to development of productive lexical knowledge, task-based syllabi (Ellis, 2003), for instance, through the use of unfocused tasks and the other utilizing a traditional structural syllabus taught through a focus-on-forms approach and/or through

focused tasks, need to be incorporated with the practice of productive skills (i.e., speaking, writing). Schmitt (2008) acknowledges how learners around the world are failing to achieve moderate vocabulary learning standards, and that to facilitate adequate vocabulary learning, it is the four learning partners (students, teachers, materials writers, and researchers) that need to contribute to the learning process. He has pointed out that a potential problem of the learning context is that especially the textbooks and syllabi have typically been negligent in providing clear descriptions and guidelines for vocabulary learning. Teachers need to provide guidance about which lexical items to learn and help learners develop effective learning techniques. Here the expertise and resources of the researcher are necessary "in providing reliable information about vocabulary itself (such as frequency lists), and effective methods of learning it" (p. 333). Schmitt asserts that the failure of any partner will end in the failure of the whole enterprise of vocabulary learning.

V. CONCLUSION

The investigation on the EFL high school learners' vocabulary sizes suggests that vocabulary learning in EFL contexts may not occur with the same results as in ESL contexts. Although a relatively large RVS was observed in our study, some irregular developmental patterns in vocabulary size were observed at particular levels due to the idiosyncratic way particular words may be brought to learners' attention through teaching materials, and some influence of loanwords that were incidentally included in spite of the random selection of target words. With regard to vocabulary size, Laufer (1992) has demonstrated how a vocabulary size of 5,000 words may be sufficient for learners to carry out academic tasks at the university level, but the researchers' experience has shown how a receptive vocabulary size of 6,000 words may not automatically lead learners to function well in even simple communicative tasks. We realize that learners need to be guided by teachers to try and minimize the gaps between RVS and PVS for those words most frequently occurring in native-speaker corpora. Particularly in EFL contexts where vocabulary learning relies on rote memorization not necessarily with an awareness on which words get used most frequently, learners need to be taught the basic words of English as soon as possible for learners to function more effectively (Schmitt, 2008). However, we also realize that particularly within educational contexts where learning is test-oriented, tests would need to be designed to promote the use of productive skills (i.e., speaking and writing) so as to bring positive washback effects. Unless this change is brought, we believe that EFL learners' vocabulary learning in the Korean context will become fossilized within the acquisition

of receptive vocabulary, which is then not readily available for productive use. We also believe that this type of study needs to be conducted further at a national-wide level for different school types as a way to oversee how vocabulary learning is occurring in the country and seek implications for how vocabulary at the different levels can be incorporated in national textbooks of English.

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APPENDIX A
Receptive Vocabulary Size Test

※ 다음의 영어단어에 해당하는 한글의 뜻을 5 개의 보기 중에서 고르세요. 잘 모를 때는 '⑤ 잘 모르겠음'을 선택하세요.

1. appear : He will **appear** soon.
① 춤을 추다 ② 나타나다 ③ 죽다 ④ 도망치다 ⑤ 잘 모르겠음
2. clean : The room is **clean**.
① 깨끗한 ② 큰 ③ 빨간색인 ④ 주인이 없는 ⑤ 잘 모르겠음
3. economy : The **economy** of Korea began to improve.
① 국민 ② 경제 ③ 정치학자 ④ 사업 ⑤ 잘 모르겠음
4. grow : He **grew** up in Suwon.
① 성장하다 ② 사라지다 ③ 생계를 유지하다 ④ 살다 ⑤ 잘 모르겠음
5. imagine : I couldn't **imagine** meeting you here.
① 의심하다 ② 주장하다 ③ 상상하다 ④ 속이다 ⑤ 잘 모르겠음
6. listen : **Listen** to the music.
① 느끼다 ② 듣다 ③ 의지하다 ④ 집중하다 ⑤ 잘 모르겠음

7. new : He is **new** here.

① 새로운 ② 오래된 ③ 늙은 ④ 사원 ⑤ 잘 모르겠음

8. pay : How do I **pay** for it?

① 사다 ② 지불하다 ③ 계약하다 ④ 가르치다 ⑤ 잘 모르겠음

9. recognize : He didn't **recognize** me.

① 사랑하다 ② 조사하다 ③ 인식하다 ④ 추천하다 ⑤ 잘 모르겠음

10. similar : Your opinion is **similar** to mine.

① 정반대의 ② 우호적인 ③ 비판적인 ④ 비슷한 ⑤ 잘 모르겠음

APPENDIX B
Productive Vocabulary Size Test

※ 다음의 한글 문장을 영어로 옮길 때 굵은 한글로 된 단어에 해당되는 영어를 쓰세요.

1. 그 **배**를 봐라.

   Look at the b_ _ _.

2. 너는 **의사**를 만나야 한다.

   You should see a do_ _ _ _.

3. 그녀의 **얼굴**은 빨개지고 있다.

   Her f_ _ _ is getting red.

4. **행복**하니?

   Are you h_ _ _ _?

5. 그는 **친절한** 선생님이야.

   He is a k_ _ _ teacher.

6. 그녀의 **어머니**는 기술자야.

   Her mo_ _ _ _ is an engineer.

7. **주문**을 받아도 될까요?

   Can I take your o_ _ _ _?

8. 철을 만드는 **과정**은 복잡하다.

   The pr_ _ _ _ _ of making steel is complex.

9. 그의 집은 **안전한** 장소이다.

   His house is a s_ _ _ place.

10. 나는 올림픽을 **텔레비전**에서 봤어.

    I saw the Olympics on te_ _ _ _ _ _ _ _.

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