Vocabulary Size and Its Implications:
A Study of the Continuing Education Students

Hui-mien Tan

Department of Applied English   Kun Shan University of Technology

82

2,000

1,000

Abstract

This study aims to explore the instrumental role of vocabulary in reading and writing as well as the significance of vocabulary size to learners of English as a second language. The 2,000-word level of the vocabulary levels test was adopted to measure the vocabulary size of students attending the 4-year program at the continuing education division of Kun Shan University of Technology. Eighty-two students coming from a first-year and a third-year class participated in the test. The findings indicate that the participants are far below the 2,000 high-frequency word level, which is commonly cited as the threshold vocabulary size necessary for basic language use. The study infers that a majority of the continuing education students' vocabulary size is less than 1,000 words. Teaching programs appropriate to working students such as explicit vocabulary instruction, narrow reading and vocabulary learning strategies are suggested to expand students' vocabulary size.

Keywords   vocabulary size, vocabulary levels test

I. Introduction

Research findings have shown that vocabulary knowledge is related to success in reading, writing and general language proficiency as well as academic achievement. Tests of vocabulary are highly predictive of performance on tests of reading comprehension. According to Alderson (2000:99), in studies of readability, most indices of vocabulary difficulty account for about 80% of the predicted variance. Qian's (2002) study of 217 ESL students with 19 L1 (first language) backgrounds also confirmed the importance of the vocabulary factor in reading assessment. His empirical results have shown that vocabulary size and depth scores are both capable of explaining over 50% of the variance in reading comprehension scores.

Vocabulary also plays a critical role in good writing. Lexical simplicity is often considered to be a severe handicap in large scale testing and university-level assessments of student essays. According to

Read (2000:200), in standardized tests of ESL writing, a great deal of importance is attached to lexical richness, which includes features of a variety of different words and a selection of low-frequency words that are appropriate to the topic and style, rather than just general, everyday vocabulary. Hinkel's (2003) quantitative analysis of 1083 L1 and L2 academic texts indicated that nonnative-English-speaking students in U.S. universities employed excessive simple syntactic and lexical constructions.

The nature of vocabulary is complex, and the mechanics of vocabulary learning are still something of a mystery. A brief review of Qian's (2002) conceptual framework may give us some perception on this topic. Based on the collective strength of earlier models from a number of researchers, Qian proposed that vocabulary knowledge comprises four intrinsically connected dimensions: a) vocabulary size, b) depth of vocabulary knowledge, c) lexical organization, and d) automaticity of receptive-productive knowledge. These dimensions are not only intrinsically connected but also interact closely with one another in fundamental processes of vocabulary use and growth.

In light of its importance and complexity, vocabulary is certainly an area that deserves research efforts. This article attempts to measure the vocabulary size of the continuing education students and to explore its implications for English learning and teaching, with special attention to the background of working students.

II. Vocabulary Size

Vocabulary size refers to the number of words of which a learner has at least some superficial knowledge of meaning. Goulden et al. (1990) gave us an estimate of around 54,000 word families for the total number of English words by counting words in a large contemporary dictionary with compound words, proper names and alternative spellings etc. excluded. A word family is taken to include a base word, its inflected forms and its common derivatives. By using a carefully chosen procedure of sampling words from the dictionary, Goulden et al. (1990) estimated that well-educated adult native speakers of English have a vocabulary of around 17,000 base words.

While the goal of developing a vocabulary size similar to that of a native speaker seems beyond the reach of most L2 learners, it is more practical to investigate on the minimal amount of words they need to know. Nation (1990) analyzed one text for young native speakers and another for native speakers on the secondary level, and found that about 87% of the words in the text are all in the most frequent 2,000 headwords (base words) of English. The university words which occur frequently in most kinds of academic texts, technical words and low-frequency words account for the remaining 8%, 3% and 2% of the text respectively. He also concluded that figures for collections of long texts also supported their findings from short texts. According to Nation (1990), all learners need to know about 2,000 to 3,000 high-frequency words in order to function effectively in English. For instance, it is difficult for learners to read unsimplified texts unless they know these words. These high-frequency words occur often in the material we read or listen to, and they occur in many different kinds of material on many different topics. Similarly, drawing on her previous studies, Laufer (1997a) suggested that the threshold vocabulary size essential for reading comprehension is about 3,000 word families. It was shown that learners below the 3,000-word vocabulary level did poorly on the reading test regardless of how high their academic ability was. In terms of text coverage, the 3,000 word families were reported to provide coverage of between 90% and 95% of any text. Furthermore, it is necessary to have good knowledge of at least 5,000 words in L2 if someone aims to read advanced, authentic, academic texts (Hirsh & Nation, 1992).

In short, these studies suggest a threshold size of around 2,000 high-frequency words for effective basic

language use and a vocabulary size of 3,000 to 5,000 words for successful text comprehension.

III. The Study
Participants

The participants of this study are students attending the 4-year university program at the continuing education division of Kun Shan University of Technology. They come from two classes: 35 first-year information management students and 47 third-year mechanical engineering students. Most of them are young adults who work at daytime and have graduated from vocational high schools for some time.

Instrument(the vocabulary levels test)

There is no commonly accepted standardized test of English vocabulary size. One that has been widely used is the vocabulary levels test, first devised by Nation (1990). The purpose of the test is to give an estimate of a learner's total vocabulary size by measuring single meanings of content words out of context at four word-frequency levels and a university word list. It has been accepted by a number of L2 researchers as an appropriate measure of vocabulary size. Schmitt (2000) wrote two revised and expanded versions of the vocabulary levels test, which have 30 items

at each level, instead of the original 18. The new versions are statistically equivalent and have been validated by a range of analysis techniques (Schmitt et al., 2001). This vocabulary levels test is composed of five parts: the 2,000-word level, the 3,000-word level, the 5,000-word level, the Academic Word List (AWL), and the 10,000-word level. The 2000-word level contains the most frequent words and the AWL contains words that occur in a wide variety of academic contexts. Words in each level of the test are representative of all the words at that level. Each frequency level of the test comprises 10 sections and each section includes 6 words and 3 definitions. The 6 chosen words of each section all have different meaning senses. Test takers match target words with their corresponding definitions. The instrument used in the present study was the 2,000-word level adapted from Schmitt's (2000:192) vocabulary levels test, version one (Appendix A).

Procedure

The 2,000-word level test was administered in June, 2004. The test was presented as part of the class activities. In scoring the test, one point was given to each correct answer.

Results and Discussion

Table 1. Scores attained in the 2,000-word level test (maximum score=30)

	N	Mean	SD
First-year students (Information Management)	35	9.3	3.9
Third-year students (Mechanical Engineering)	47	7.9	3.5
Total	82	8.5	3.7

Table 1 shows the performance of the two groups of test takers. The management group performed slightly better than the engineering group, but the general

performance of both groups was very poor. The random selection of target words allows the test results to give a reasonable indication of what proportion of the total number of words at that frequency level the learner has some knowledge of. A mean score of 8.5 reflects a very limited vocabulary size of about 600 high-frequency words. Though this number is only a rough estimate, it is reasonable to infer that a considerable portion of the continuing education students have not reached a vocabulary size of 1,000 words. This is a rather disappointing though not too surprising result as compared to Chen's (1998) investigation, in which two thirds of 174 freshmen at a local national university have reached the 2,000-word level.

Working students' poor vocabulary size may be explained by their previous limited exposure to English. Apparently, vocational high school students receive considerably less English instruction than senior high school students. Next, many of these working students have left school for some time before they enroll in the university. Therefore, they are more likely to face the problem of attrition, that is, a person may forget a known word when one does not use English for a long time or stops a course of language study. The undervaluation of vocabulary development in the current curriculum, lack of time, low motivation to learn English are other possible reasons.

Limitations

First of all, the accuracy of the estimation will be affected if some test takers do not take the test seriously. Second, though the definitions are written in simple English, in some cases, the test taker may know the Chinese meaning of the target word but is unable to choose the correct answer due to misinterpretation of the words used in the definition. Third, in terms of sample rate, a larger sample size would constitute a more representative sample of the population as a whole. Finally, the vocabulary levels test can only measure the vocabulary size but not the depth nor the productive use of vocabulary.

IV. Teaching Implications

Despite its limitations, the findings of this study have given us a general picture of the overall state of working students' vocabulary size. High priority in bridging their vocabulary gap is clear; otherwise they will have great difficulty in all types of English functions. However, the implication here does not mean an over-emphasis on teaching vocabulary solely since students need to learn other skills as well, but it highlights the need to incorporate vocabulary development into the regular curriculum directly and indirectly with thought and planning. Taking into consideration of the age, maturity, language proficiency and time constrain of working students, instruction programs appropriate to them have to be practical, realistic, highly interesting and easy to follow. The following are some suggestions based on this insight.

1) *Explicit teaching of vocabulary.* Some forms of explicit teaching are necessary to help students build up a larger size of sight vocabulary, that is, words whose forms and common meanings are recognized automatically. Research has shown that learning 30 words per hour is possible, at least in the sense of gaining some initial partial knowledge. The teacher can work out a realistic goal with the students according to the time available. Vocabulary can be introduced from word lists or according to the lesson content. Set aside some time for doing some kinds of enhancement activities like word-building exercises, matching words with various types of definitions, semantic mapping, collocation activities, cloze exercises and dictionary work (Nation&Newton,1997; Paribakht&Wesche,1997; Schmitt,2000). These explicit instructional procedures can increase the salience and cognitive processing of the target words. It is also critical to have a review session soon after the learning session and then at gradually increasing intervals for more long term retention.

2) *Vocabulary learning strategies*. Strategies can facilitate learning in class or independently. Based on Schmitt's (1997) taxonomy of vocabulary learning strategies, a local study of 90 junior college students indicated a rather narrow range of uses in vocabulary learning strategies. The three most used strategies reported by Chen (2002) are consulting bilingual dictionary, taking notes in class and verbal repetition, and about 80% of the participants perceived consulting a bilingual dictionary as the most helpful strategy. Introduction of strategies other than the memorization type would enable students to have more choices in tackling new words or consolidating learned words. According to Schmitt's(1997) study on four different age groups of Japanese learners, many of the strategies that are used more and perceived as being more helpful when learners grow older involve the kind of "deeper processing" (imaging, association, analysis). To match with adult learners' cognitive maturity, the teacher may introduce strategies like connection of words with synonyms and antonyms, use of a new word in sentence, analysis of parts of speech, guess from textual context, and analysis of affixes and roots.

3) *Narrow reading*. Incidental learning through reading is the usual way for native speakers to acquire most of their vocabulary. Henricken's (1999) first dimension of lexical competence (partial to precise knowledge continuum) supports the incremental nature of vocabulary acquisition. More senses of word form and meanings will be consolidated after repeated exposures. Reading provides good opportunities for multiple exposures of words. Yet extensive reading will be too frustrating and too time-consuming for working students who don't have the threshold vocabulary size. Guessing techniques are not workable if most of the words in the text are unknown to the reader. Simplified/graded readers provide the benefits of controlled vocabulary, but they usually do not match with adult learners' psychological maturity. A more appropriate way to organize their reading is narrow reading which means to read a number of authentic texts, but all on one subject. Narrow reading allows more repeated exposure of the theme-based vocabulary. Therefore it gives the reader a better chance of learning this recurring vocabulary, and makes the on-going reading easier by lessening the vocabulary load. Schmitt & Carter's study (2000) provided evidence that the vocabulary load in a series of running newspaper stories was substantially lower than in an equivalent amount of unrelated stories. The selection of reading materials is crucial because tired students coming to lesson after work do need something that can motivate their interest. Instructors should select short to medium length articles that are well-written in simple English and match with learners' background and maturity. Generally speaking, students react quite well to current affairs, popular events or products, and entertainment.

4) *Awareness of confusing words and word learnability*. Some words are easy to cause misinterpretation like words with a deceptive morphological structure, words with multiple meanings and similar lexical forms. Examples on "words you think you know" were well discussed in Laufer (1997a). Some features inherent in the word itself might affect the ease or difficulty with which it is learned such as pronunciation difficulties, orthography, length etc (Laufer, 1997b). Some understanding on these intralexical factors can help teachers deliver more realistic and effective teaching.

5) *Remedial classes*. The vocabulary levels test can be used as a placement tool to diagnose students' vocabulary size after they finish all the required English courses. Those who are still far below the 2000-word level should extend their English learning time by attending remedial classes for at least one more semester. Word games and vocabulary puzzles are some teaching

techniques to enhance their learning motivation. Students of very low English proficiency may need more encouragement from teachers to build up their confidence in mastering English.

V. Conclusion

This article has examined the significance of vocabulary size to English learners. It is apparent that teachers need to help students acquire a minimal amount of words in order to achieve success in the use of English. Effective methods of vocabulary instruction and adult learners' process of vocabulary acquisition will be our directions for future research. As Zimmerman (1997:17) concluded in her historical survey of vocabulary teaching methods, " It is hoped that the central role occupied by vocabulary in the reality of language learning will one day be reflected in the attention given to it in research and the classroom."

References

1. Alderson, J.C. (2000).Assessing Reading. Cambridge: Cambridge University Press.
2. Chen, H.C. (2001). A preliminary study of Chinese EFL learners' difficulties in vocabulary learning and remedial learning strategies.

81-92
3. Chen, H.J. (1998). A preliminary investigation on Taiwanese EFL Learners' vocabulary size. In Proceedings of the Fifteenth Conference on English Teaching and Learning in the Republic of China, p.193-209. Taipei: The Crane Publishers.
4. Goulden, R., Nation, P., & Read, J. (1990). How large can a receptive vocabulary be? Applied Linguistics, 11(4):341-363.
5. Henricksen, B. (1999). Three dimensions on vocabulary development. Studies in Second Language Acquisition, 21(2):303-317.
6. Hinkel, E. (2003). Simplicity without elegance: Features of sentences in L1 and L2 academic texts. TESOL Quarterly, 37(2):275-301.
7. Hirsh, D. & Nation, P. (1992). What vocabulary size is needed to read unsimplified texts for pleasure? Reading in a Foreign Language, 8(2):689-96.
8. Laufer, B. (1997a). The lexical plight in second language reading: Words you don't know, words you think you know, and words you can't guess. In J. Coady & T. Huckin (Eds.), Second Language Vocabulary Acquisition (p.20-34). Cambridge: Cambridge University Press.
9. Laufer, B. (1997b). What's in a word that makes it hard or easy: Some intralexical factors that affect the learning of words. In N. Schmitt & M. McCarthy (Eds.), Vocabulary: Description, Acquisition, and Pedagogy (p.140-155). Cambridge: Cambridge University Press.
10. Nation, I.S.P. (1990). Teaching and Learning Vocabulary. Boston: Heinle & Heinle Publishers.
11. Nation, P. & Newton, J. (1997). Teaching vocabulary. In J. Coady & T. Huckin (Eds.), Second Language Vocabulary Acquisition (p.238-254). Cambridge: Cambridge University Press.
12. Paribakht, T.S. & Wesche, M. (1997). Vocabulary enhancement activities and reading for meaning in second language vocabulary acquisition. In N. Schmitt & M. McCarthy (Eds.), Vocabulary: Description, Acquisition, and Pedagogy (p.174-197). Cambridge: Cambridge University Press.
13. Qian, D. D. (2002). Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. Language Learning, 2(3):513-536
14. Read, J. (2000). Assessing Vocabulary. Cambridge: Cambridge University Press.
15. Schmitt, N. (2000). Vocabulary in Language Teaching. Cambridge: Cambridge University Press.
16. Schmitt, N. & Carter, R. (2000). The lexical advantages of narrow reading for second language learners. TESOL Journal, Spring 2000:4-9.
17. Schmitt, N. Schmitt, D. & Clapham, C.

(2001). Developing and exploring the behaviour of two new versions of the vocabulary levels test. Language Testing, 18(1):55-88.

18. Zimmerman, C.B. (1997) Historical trends in second language vocabulary instruction. In J. Coady & T. Huckin (Eds.), Second Language Vocabulary Acquisition (p.5-19). Cambridge: Cambridge University Press.

Appendix A Vocabulary Levels Test Write the number of the word next to its meaning. Here is an example.

1. business

2. clock   __6__ part of a house

3. horse   __3__ animal with four legs

4. pencil   __4__ something used for writing

5. shoe

6. wall

The 2,000-word level

1. birth

2. dust   _____ game

3. operation   _____ winning

4. row   _____ being born

5. sport

6. victory

1. choice

2. crop   _____ heat

3. flesh   _____ meat

4. salary   _____ money paid regularly for doing

5. secret   a job

6. temperate

1. cap

2.education   _____ teaching and learning

3. journey   _____ numbers to measure with

4. parent   _____ going to a far place

5. scale

6. trick

1. attack

2. charm   _____ gold and silver

3. lack   _____ pleasing quality

4. pen   _____ not having something

5. shadow

6. treasure

1. cream

2. factory   _____ part of milk

3. nail   _____ a lot of money

4. student   _____ person who is studying

5. sacrifice

6. wealth

1. adopt

2. climb   _____ go up

3. examine   _____ look at closely

4. pour   _____ be on every side

5. satisfy

6. surround

1. bake

2. connect   _____ join together

3. inquire   _____ walk without purpose

4. limit   _____ keep within a certain size

5. recognize

6. wander

1. burst

2. concern   _____ break open

3. deliver   _____ make better

4. fold   _____ take something to someone

5. improve

6. urge

1. original

2. private   _____ first

3. royal   _____ not public

4. slow   _____ all added together

5. sorry

6. total

1. brave

2. electric   _____ commonly done

3. firm   _____ wanting food

4. hungry   _____ having no fear

5. local

6. usual