The Results of *A Vocabulary Levels Test: Version 1* Conducted with Foundation Year Chinese Students

By Renate E. Kirchner

Research into students' level of receptive knowledge of vocabulary towards the end of their first year was conducted in the English Language Centre at Xi'an Jiaotong-Liverpool University. The subjects were 70 XJTLU Year 1 Finance stream students, 49 female and 21 male, all L1 Mandarin Chinese speakers with just under one academic year of university English language instruction. Paul Nation's monolingual A Vocabulary Levels Test: Version 1 was administered in two groups. Based on an analysis of the results, the average overall number of English words known by XJTLU students towards the end of Year 1 is 5,182 (5,079 in Group A and 5,285 in Group B). Taking into account other studies (Milton and Treffers-Daller, 2011; Hazenberg and Hulstijn, 1996; Nation, 2006), these findings suggest that more focus on vocabulary learning is required in the future.

Introduction

Background

For learners of English as a foreign or second language, building their vocabulary is a crucial part of acquiring the language. When considering reading skills, Nation (2004) contends that a learner will find a text easier to read the larger the size of his or her vocabulary. Hu and Nation (2000, cited in Nation, 2006, p. 61) found that "98% text coverage (1 unknown word in 50) would be needed for most learners to gain adequate comprehension". However, this could be considered the minimum. Nation (2006, p. 61) cites studies by Carver (1994) and Kurnia (2003) showing that 98% coverage presents a very high level of difficulty for most learners. Research results published by Nation in 2006 reveal that, for 98% coverage, a "vocabulary size of around 8,000 to 9,000 words is needed to read newspapers" (p. 72). This figure is relevant as Nation (2006, p. 71) finds that newspapers and academic texts share to a large extent the vocabulary contained in the Academic Word List.

The vocabulary size of learners of a foreign or second language must be seen as an essential aspect of the readiness of first year students to progress in a foreign, unilingual, learning environment. Hazenberg and Hulstijn (1996, p. 155) established that the vocabulary knowledge of non-native prospective students of the Free University of Amsterdam and the University of Amsterdam, who underwent the reading test of the Dutch language university entry examination, was 11,201. The estimated mean vocabulary size was 11,813 for those who passed the test and 9,712 for those who failed (p. 157). Compared to these figures, non-native undergraduate students at the end of their first year knew 15,802 words, whereas Dutch first-year students achieved a result of 18,807 words (p. 154).

In a British context, Milton and Treffers-Daller's (2011) research conducted into the vocabulary size of undergraduate students in Semester 1 at City University, Swansea University and UWE Bristol showed that the mean vocabulary size of non-native speakers of English was 7,500.00, that of bilinguals 9,833.33 and that of monolingual English speakers 10,091.35 (p. 11).

The appropriate level and skills in vocabulary are key to successful academic achievement. Folse (2008) emphasises the importance of extensive vocabulary acquisition for academic reading and writing, especially in the context of writing essays. In particular, the skills of paraphrasing, summarising and synthesising "require (a) full understanding of

the words and phrases in the original and (b) knowledge of another set of words and phrases to express those same ideas … alternate but accurate vocabulary at the same level of sophistication as the original" (Folse, 2008, p. 2). He also maintains that, in contrast to grammar mistakes, "insufficient vocabulary" or choosing imprecise vocabulary may render a sentence incomprehensible or distort its meaning (p. 3). Dordick (1996, cited in Folse, 2008) states that "lexical errors (including inappropriate word choice or word form) and verb related errors interfered with comprehension the most" (p. 6) .

Research aims

Considering that the language of instruction for Years 2-4 at XJTLU is English, and about half of undergraduate students transfer to the University of Liverpool at the end of Year 2 as part of the 2+2 programme, it was intended to assess the English vocabulary size of XJTLU students after they had been studying English for almost one academic year. It was also considered of interest how many words students know at different word frequency levels.

Research questions

The following research questions have been addressed:

RQ1: How many English vocabulary items and their meanings do XJTLU students know receptively towards the end of their first year of study?

RQ2: How many words do students know passively at the different word frequency levels?

Methodology

Participants

The subjects were 70 XJTLU Year 1 Finance students, Group A consisting of 28 females and 15 males, and Group B 21 females and 6 males. The test procedure was the same for both groups, the only difference being the time they could participate. All were L1 Mandarin Chinese speakers with just under one academic

year of university English language instruction of ten hours per week.

Materials: A Vocabulary Levels Test: Version 1 (Monolingual)

To assess the students' passive knowledge of English vocabulary, A Vocabulary Levels Test: Version 1 (monolingual), first published in 1983 by Paul Nation, was chosen. This version of the Vocabulary Levels Test (VLT) (Nation, 2005) consists of five frequency levels: starting with the 2,000 word level, progressing to the 3,000 and the 5,000 word levels, then the Academic Vocabulary level, and finally the 10,000 word level. Out of the 1000 words comprising each level, Nation chose a representative sample of 60 words for the test. The vocabulary items at the Academic Vocabulary level are based on the Academic Word List (Nation, 2004, p. 2). The sixty words at each level are divided into 10 blocks of six, each block containing words of the same word class. Three of the six words in each block are being tested, i.e., thirty in total. Students have to choose three words from the list of six on the left hand side which match their paraphrase on the right hand side. The remaining three words serve as distractors. This task requires a passive recognition of those words whose definitions have been provided, and their meanings, but does not require the subjects to know the distractors (Nation, 2005).

Procedure

The research was conducted near the end of Semester 2 of the Academic Year 2010-2011. Nation's Vocabulary Levels Test: Version 1 was administered in both groups. In total, 25 minutes were allocated for the participants to complete the test. To extrapolate the average number of English vocabulary items XJTLU students know, Nation's method of calculating the vocabulary levels of students was used (Nation, 2004, p. 2).

Results and analysis

Experiment results: A Vocabulary Levels Test

At the **2,000 word level**, participants of Group A achieved an average of 90% correct answers (Figure 1), with the lowest score of 56%. In

comparison, Group B achieved an average of 91% correct answers, with the lowest score of 63%. Eight questions out of thirty were answered correctly by all students in both groups.

The overall performance at the **3,000 word level** was lower for both groups, with Group A achieving an average of 65% correct answers, and only one question being answered correctly by all students. The lowest rate was 12%. Group B scored an average of 70% correct answers, with three words out of thirty being correctly matched with their corresponding meaning by all students. The lowest result was 30%.

At the **5,000 word level**, the results for both groups slipped even lower, with an average of 41% of students from Group A and 43% of students of Group B giving correct answers. The lowest score for Group A was 12%, whereas in Group B the lowest result was 7%. In Group A, one question attracted 81% correct answers as the highest score, whereas in Group B the highest rate of correct answers to two questions was 89%.

Compared to the 5,000 word level, students in both groups improved in academic vocabulary. On average, 56% of questions were answered correctly in Group A, whereas in Group B participants achieved 64% of correct answers. In Group A, two questions shared their lowest ranking of 16% correct answers, with only 7 out of 43 students being able to recognise the correct equivalents. Group B students also found one of those questions most difficult, with only 5 out of 27 students

(19%) finding the correct answer. Group A's highest rate of correct answers to one question was 91%, and Group B's highest rate was 89%.

Both groups scored lowest at the **10,000 word level**, where, on average, they achieved identical results of 15%, ranging from no correct answer (0%) to 49% correct answers in Group A, and from no correct answer (0%) to 56% correct answers in Group B.

Estimated size of XJTLU year 1 students' vocabulary

As the 60 words chosen for each level of the test are representative of all 1000 words at this level, Nation (2004, p. 2) argues that the percentage of correct answers a student achieves at each level reflects his or her overall knowledge of words at this level. Applied to the results of this research (see Appendix 1: Table 1), this means that, as Group A achieved an average score of 90% at the 2,000 word level, 900 words at this level can be deemed to be known collectively by this group. Group B scored 91% on average, and, therefore, it can be assumed that students in this group know 910 words but are unfamiliar with 90 words at this level.

Regarding the Academic Word List (AWL) (Nation, 2000: 570 headwords; Coxhead, 2000: 570 word families), it can be concluded that, collectively, members of Group A knew 319 academic words, but were unfamiliar with 251 university level words. Participants of Group B, as a whole, knew 365 vocabulary items at the academic level, but were unfamiliar with 205 crucial words for studying English for Academic

Table 1. VLT: Percentage of correct answers in Groups A and B

Vocabulary Levels Test:
Percentage of Correct Answers
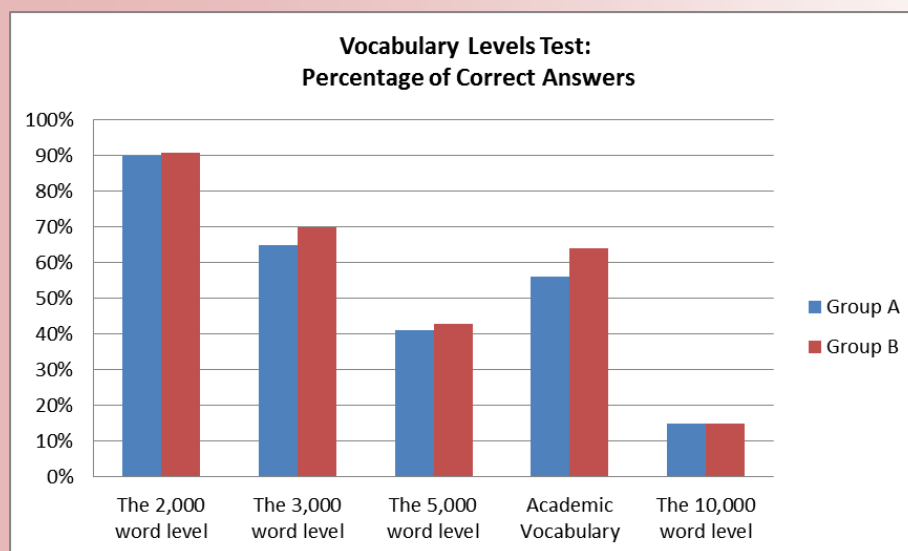
Purposes.[i]

An estimate of the overall number of words which students in both groups know was made by adding the figures which had been extrapolated at each level. As the VLT started with the 2,000 word level, 1,000 words had to be added for the 1,000 word level, on the assumption that all of these words are known. The researcher also added estimated figures for the 4,000 word level, calculated as an average of the scores achieved at the 3,000 and 5,000 word levels. Due to a lack of data for the 6.000, 7,000, 8,000 and 9,000 word levels, these figures had to be estimated, too.[ii] Furthermore, it is thought that, beyond the 10,000 level, the percentage of known words would continue to decrease and would likely become negligible. The overall figure for Group A was 5,079 at least passively known words, and for Group B it was 5,285 words.[iii]

Discussion

The relatively low level of knowledge of Academic Vocabulary and other key academic terms was surprising to the investigator, who was also an English tutor in the Finance stream. A detailed analysis of individual words which students failed to identify reveals that many of the words which students studying Finance at this level might reasonably be expected to know were not known to them, including, for example, words they had encountered in reading texts or listening exercises, or discussed in their EAP classes. Most striking was the lack of knowledge of the adjective "financial", considering that all subjects were students in the Finance stream.

It should be noted that, in addition to ten contact hours of English teaching and four hours of homework, Year 1 students are expected to devote ten hours per week to self-study. Coxhead's Academic Word List had been available to students throughout the Academic Year 2010-2011 on the ELC's intranet site ICE, and students were advised to spend self-study time to learn these vocabulary items. Vocabulary exercises and on-line vocabulary quizzes were also available to students for self study.

Conclusion

Summary of main findings

The VLT revealed that both groups had a very similar command of vocabulary at the 2000 word level as well as at the 10,000 word level, but some variability was seen at other levels. The overall number of English words known by XJTLU students at the end of Year 1 can be extrapolated to be 5,182 (5079 in Group A, and 5285 in Group B).

Implications and recommendations

In contrast to the non-native students' knowledge of Dutch vocabulary as estimated by Hazenberg and Hulstijn (1996), and the mean English vocabulary size of non-native undergraduate students as extrapolated by Milton and Treffers-Daller (2011), the number of English words known by XJTLU students near the end of their first year appears very low. Taking into account Nation's (2006) estimate of 8,000 to 9,000 words required for 98% coverage when reading newspapers, and also considering Folse's (2008) analysis of the central role vocabulary plays in academic success, it can be judged that students with vocabulary sizes of approximately 5,000 would probably struggle on an undergraduate degree programme in English. Hazenberg and Hulstijn (1996, p. 158) conclude that "individuals with a vocabulary of fewer than ten thousand base words run a serious risk of not attaining the reading comprehension level required for entering university studies." Milton and Treffers-Daller (2011, p. 21) state that "[a] figure of 10,000 words suggests that many of our students must be on the cusp of having sufficient vocabulary to handle the textbooks and articles we give them to read." Therefore, the results of this study suggest that a strong emphasis needs to be placed on learning and teaching vocabulary for students planning on studying in an English-medium higher education context.

Nation (2004, p. 1) insists that high frequency words "deserve repeated attention from the teacher, the learner and the course book" and recommends that "learners with academic purposes should also include the *Academic Word List* in their high frequency words". Folse (2008, p. 9) states that "[m]erely comprehending input or reading extensively will not suffice for the amount of vocabulary that a non-native speaker must learn … Explicit

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instruction in specific vocabulary and in vocabulary learning strategies is essential". He proposes to "[m]ake sure that explicit teaching of vocabulary is included in the writing program from the lowest level of vocabulary" (p. 14).

It is, therefore, recommended that university EAP programmes consider ways of incorporating vocabulary teaching and learning in their curriculum, and allocate more time for the acquisition process. It is further suggested that vocabulary testing should be made part of continuous normative assessment.

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Appendix 1: Table 1

Estimated size of XJTLU students' vocabulary based on available data up to and including the 10,000 word level, plus 570 Academic Vocabulary.

	Group A			Group B		
	Score	**Known**	Un-known	Score	**Known**	Un-known
The 1,000 word level (estimate)	*100%*	*1,000*	*0*	*100%*	*1,000*	*0*
The 2,000 word level	**90%**	**900**	100	**91%**	**910**	90
The 3,000 word level	**65%**	**650**	350	**70%**	**700**	300
The 4,000 word level (estimate)	*53%*	*530*	*470*	*57%*	*570*	*430*
The 5,000 word level	**41%**	**410**	590	**43%**	**430**	570
The 6,000 word level (estimate)	*35.8%*	*358*	*642*	*37.4%*	*374*	*626*
The 7,000 word level (estimate)	*30.6%*	*306*	*694*	*31.8%*	*318*	*682*
The 8,000 word level (estimate)	*25.4%*	*254*	*746*	*26.2%*	*262*	*738*
The 9,000 word level (estimate)	*20.2%*	*202*	*798*	*20.6%*	*206*	*794*
The 10,000 word level	**15%**	**150**	850	**15%**	**150**	850
Academic Vocabulary	**56%**	**319**	251	**64%**	**365**	205
Total		**5,079**	5,491		**5,285**	5,285

Appendix 2: End notes

i. As <u>Group A</u> achieved a score of 56% for the Academic Vocabulary, the researcher calculated 570 times 56%, arriving at a figure of 319 known words. <u>Group B</u>'s result of 365 familiar words was calculated by multiplying 570 with 64%, which was the percentage of correct answers accomplished by Group B for this level. By subtracting the numbers of words which were known collectively by each group from the total of 570, the numbers of unfamiliar words could be judged.

ii. It is safe to assume that, beyond the 5,000 word level, the numbers are likely to decline further and further at each level, until they reach the 15% attained at the 10,000 word level (150 words known). The researcher used the following calculations to arrive at the figures, even though the number of known words may not be as evenly distributed between levels as has been assumed here: <u>Group A:</u> The difference between 41% at the 5,000 level and 15% at the 10,000 level equals 26%, divided by 5 (five steps from the 5,000 level to the 10,000 level), equals 5.2%. 6000 word level: 41% minus 5.2% = 35.8%; 7000 word level: 35.8% minus 5.2% = 30.6%; 8000 word level: 30.6% minus 5.2% = 25.4%; 9000 word level: 25.4% minus 5.2% = 20.2%; (10,000 word level: 20.2% minus 5.2% = 15.0%). <u>Group B:</u> The difference between 43% at the 5,000 level and 15% at the 10,000 level equals 28%, divided by 5 (five steps from the 5,000 level to the 10,000 level), equals 5.6%. 6000 word level: 43% minus 5.6% = 37.4%; 7000 word level: 37.4% minus 5.6% = 31.8%; 8000 word level: 31.8% minus 5.6% = 26.2%; 9000 word level: 26.2% minus 5.6% = 20.6%; (10,000 word level: 20.6% minus 5.6% = 15.0%).

iii. Some students handed in blank pages, or left parts of a page blank. These were counted as zero-scores, although it was difficult to ascertain whether "no answer" was due to a genuine lack of knowledge of a word, or due to the lack of time available, or motivation to complete this part.