Toward the Use of Monolingual English Dictionaries: Building Knowledge of Defining Vocabulary

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Abstract

Studies have indicated that a program of systematic lexical expansion is necessary in English language instruction for Japanese university students. In this paper, a word list compiled from the Defining Vocabulary of three major monolingual dictionaries is proposed as pedagogically effective. Based on the list, word surveys and vocabulary tests were conducted with 367 first- and second-year Doshisha students. The results have led to an estimate that the average student knows 40-60% of the words on the proposed list. Mastering the remaining 500 or so problematic words, which would make monolingual dictionaries more accessible, represents a clear, significant, and feasible goal for students to attain during the first two years of college study.

Introduction

A survey of approximately 1000 Japanese university students conducted in 1994 in the Kansai region (Writing Research Group, 1995: 9-10) found that many students considered vocabulary acquisition to be the most

important yet most neglected aspect of their English education. A repeat survey conducted by the same research group ten years later proved that the situation has not changed at all (Writing Research Group, 2003). The results of questionnaires given to 257 Doshisha students (Ishihara, Okada, and Matsui, 2000: 39-40) also suggested that students consider vocabulary to be the most badly needed aspect of their English study.[1] Students' complaints that their efforts to write English or read authentic English language texts are frustrated by a lack of vocabulary knowledge are borne out by such survey results.

It is generally accepted that a vocabulary of 3000-3500 words is the minimum necessary for reading authentic English-language texts (Nation, 2001: 146); Laufer (1992), and Hirsh and Nation (1992) suggest that attainment of the 5,000-word level in terms of the Levels Test (Nation, 1990: 264-272) is needed for unsimplified reading (Hayashi, 2002). Laufer and Shmueli (1997: 90) point out that at the Cambridge First Certificate of English level, which is "also the level of many high school graduates in English in the western world, students are supposed to know about 3,000-3,500 words (word families)".[2]

Barrow, Nakanishi and Ishino (1999: 224) have noted in their study of 1283 Japanese college students in the Kansai region that because of "the wide variation in the quality of English language programs and English materials used, teachers do not accurately know the size and depth of students' English vocabulary knowledge upon entering college." Our research with Doshisha students (Ishihara, Okada and Matsui, 1999) estimated that first- and second-year survey participants can be expected to know all of the vocabulary contained in all of the major high school English textbooks, and approximately one-half of the vocabulary used only in some textbooks, but virtually no vocabulary that is not taught in high school. Our estimate of the average first- and second-year Doshisha student having an English vocabulary of 2000-2500 words is similar to Barrow *et al.*'s figure

of 2,304 words.[3] If, as alleged by Anderson and Shifrin (1980), vocabulary knowledge is a good measure of general English ability, it is of little surprise that Japanese learners of English are widely perceived as lacking in English skills compared to learners in other countries, as indicated by the results in such international achievement tests as the TOEFL.[4]

As we have argued in our previous papers (Ishihara *et al.* 1999, 2000), if the goal of increasing students' vocabulary is to be taken seriously, the college English curriculum must include a systematic program for lexical expansion. Before such a program can be put into practice, however, it is necessary to determine what students already know and what they need to learn. Finally, after determining the starting point and the goals of such a program, the most effective teaching methods for realizing these goals must be selected. As Richards (1980: 437) pointed out nearly a quarter century ago, the "link between approach, method and technique" is as essential in vocabulary instruction as in other aspects of EFL/ESL teaching. What follows is an interim report on an on-going project covering these topics in regard to vocabulary instruction.

Preparation of the xcl Word List

Vocabulary instruction necessarily relies on students' self-learning efforts. Therefore, the instructors' first task is to provide appropriate lists of words for students to study and learn. A number of word lists have already been proposed and made available for ESL/EFL instruction. In addition to the First Thousand and Second Thousand Words based on M. West's General Service List (1953),[5] there are lists specifically designed for ESL students such as H. Barnard's (1971-1975) and H. D. Rogerson's (1988-1990); the VOA list contains a restricted number of words for use in the Voice of America "Special English" radio programs delivered at a slower pace than normal radio speech (*i.e.* at approximately 120 words per minute) for non-native English-speaking audiences. In Japan, Hokkaido University,

Hitotsubashi University and Nagoya University each have their own word lists compiled for students to study and/or teachers to use as check lists or reference material. Yoshioka (1997) proposed a list of 1500 words to be taught during the first two years of college. The Japan Association of College English Teachers (JACET) has published the "JACET 4000 Basic Words" (1993) and the "JACET List of 8000 Basic Words" (2003).

Each of the above lists is fine in its own way. However, the fact remains that if students are required to learn the words on a vocabulary list, that list must fit the specific curriculum in which the students are studying, as well as provide them with a clear instructional goal. In vocabulary instruction, a plausible objective would be to lead students toward using monolingual English learner's dictionaries, thus enabling them to become independent learners, since there is the idea that, "in order to learn the language well, eventually the student has to work within the language, not from outside it" (Waring, 2001: 7).[6]

In an earlier article on students' vocabulary ability (Ishihara *et al*., 2000: 41), it was suggested that the defining words of such monolingual English dictionaries as the *Cambridge International Dictionary of English* be taught during the first two years of college, since knowing defining vocabulary will bring students closer to using monolingual English dictionaries. At the same time, defining vocabulary has the advantage of being truly "basic" vocabulary, not in the sense that it is the vocabulary of everyday life, but in that these are the words that enable students to describe, or understand a description of, other words. For example, rather than teaching students the everyday American English term, "dish detergent," which varies across English-speaking regions, for example, "dish soap" or "washing up liquid," we would argue that it is ultimately more productive to teach students how to express the idea of "a soap for washing dishes," from which they could then elicit the appropriate vernacular term from native speakers. Pursuing that line of thought, the current project is based on the defining vocabulary

lists of three major English-English dictionaries: the *Oxford Advanced Learners' Dictionary* (6th ed. 2000; henceforth OALD), the *Cambridge International Dictionary of English* (1995; henceforth CIDE), and the *Longman Dictionary of Contemporary English* (2000; henceforth LDCE).

These three defining vocabulary lists were first converted into computer files. Of the three dictionaries, CIDE alone shows headwords under which word family members (See Bauer and Nation, 1993 for a definition of word family) are grouped together, thus under the headword "alphabet," for instance, are listed "alphabetical" and "alphabetically," and under "announce," "announcement" and "announcer." The other two dictionaries simply list all the words used in definitions.

Table 1: Number of words in the defining vocabulary lists of
three major monolingual dictionaries.

Index words	Oxford Adv Learner's		Cam Int'l Dict of Eng		Long D of Contemp Eng		Ox-Cam-Long
	words	wd family	words	wd family	words	wd family	head words
2403	2903	2252	3746	1875	2046	1785	1567

The next step of the project was to rearrange the word lists of OALD and LDCE under the same headwords as in CIDE. As shown in Table 1, the resulting lists have 2252, 1875, and 1785 headwords respectively for OALD, CIDE, and LDCE. The third step was to compare the three lists of headwords to determine the intersection among the three, *i.e.* which of the headwords appeared in all three lists of defining vocabulary (labeled Ox-Cam-Long or xcl for short), which turned out to be 1567 words as indicated in Table 1.

This 1567-item list[7] included 507 basic words listed either by the Japanese Ministry of Education for the middle school level, or in the most basic level of the JACET 4000 word list. This set of words is largely comprised of pronouns, lower numerals, prepositions, major conjunctions, the days of the week, and the names of the twelve months. Since these words were not considered relevant to university-level instruction, they

were deleted from the list for this project. The remaining 1060 words were
then submitted to the Familiarity Survey of this project.[8]

Table 2: 1516 xcl index words compared with 5 other lists

Word lists	Number of Words	Overlap with xcl	Overlap %	Non-overlap
First Thousand	999 (107)	828 (73)	82.8%	171 (34)
Second Thousand	956 (107)	532 (73)	55.8%	424 (34)
NAWL	570	70*	12.5%	500
JACET4000	3148	1495**	47.3%	1659
JACET8000	5474	1505***	27.5%	3969

In parentheses are words listed both in First and Second Thousand.
See *Table 3, **Table 4, and ***Table 5 for details.

Table3: 70 xcl index words contained in the New Academic Word List

NAWL sublists	Number of words	Overlap with xcl	Overlap %	% of 70	Cumulative %
List 1	60	19	31.7%	27.1%	27.1%
List 2	60	12	20.0%	17.1%	44.3%
List 3	60	12	20.0%	17.1%	61.4%
List 4	60	5	8.3%	7.1%	68.6%
List 5	60	5	3.3%	7.1%	75.7%
List 6	60	3	5.0%	4.3%	80.0%
List 7	60	4	6.7%	5.7%	85.7%
List 8	60	4	6.7%	5.7%	91.4%
List 9	60	6	10.0%	8.6%	100.0%
List 10	30	0	0%	0	100.0%
Total	570	70	10.9%	100.0%	

Table 4: 1495 of 1516 (98.6%) xcl index words on JACET 4000 (21not on JACET 4000)

JACET4000	Number of wfs	Overlap with xcl	Overlap %	% of 1489	Cumulative %
J-1	452	418	92.5%	28.0%	28.0%
J-2	450	349	77.6%	23.3%	51.3%
J-3	807	438	54.3%	29.3%	80.6%
J-4	691	203	29.4%	13.6%	94.2%
J-5	810	87	10.7%	5.8%	100.0%
Total	3210	1495	46.6%	100.0%	

Table 5: 1505 of 1516 (99.2%) xcl index words on JACET 8000 (11 not on JACET 8000)

JACET8000	Number of wfs	Overlap with xcl	Overlap %	% of 1505	Cumulative %
1000	912	812	89.0%	54.0%	54.0%
2000	797	426	53.5%	28.3%	82.3%
3000	736	187	25.4%	12.4%	94.7%
4000	590	28	4.7%	1.9%	96.6%
5000	612	28	4.6%	1.9%	98.4%
6000	639	13	2.0%	0.9%	99.3%
7000	593	4	0.7%	0.3%	99.6%
8000	592	7	1.2%	0.5%	100.0%
Total	5471 word families	1505	27.5%	100.0%	

Characteristics of the xcl list might be clarified by comparing it with commonly known lists such as the First and Second Thousand Words, Coxhead's New Academic Word List (Coxhead, 2000), the JACET 4000 (JACET, 1993) and the JACET 8000 (JACET, 2003). As summarized in Table 2, of the 999 items in the First Thousand Words, 828 or 82.8% are included in the xcl list; of the 956 items of the Second Thousand Words, 532 or 55.8% appear among xcl words. On the other hand, 70 of the 570 New Academic Words are also among the 1516 xcl words.[7] Put differently, 84.7% of the xcl words are included in the first two thousand words, while 4.6% are in the New Academic Words. The xcl list contained 19 of the 60 most frequent words on the New Academic Word List, and 12 each from the next two most frequent levels (Table 3). It is to be noted that 43 or 62.8% of the "academic" words among the xcl words are in Coxhead's three most frequent levels of 180 nouns and verbs. In the word survey under the current project, the First and Second Thousand Words were not deleted from the xcl list unless they appeared either in the Ministry of Education list for middle schools or the most basic level of the JACET 4000 list.

A comparison of the words with the JACET 4000 again proves that 418 of the 452 most basic words or 92.5% are in the xcl list (Table 4). As noted earlier, these were deleted from the current survey project because the project's focus is on college-level content words. Of the next three levels of the JACET 4000, consisting of 1948 word families, 990 or 50.8% are among the xcl words.

A comparison of the xcl words with the corpus-based JACET 8000 Basic Words is summarized in Table 5 for each of the eight frequency groups. The first three most frequent levels together, *i.e.* 1000, 2000 and 3000, account for 94.7% of the xcl list, once again proving the general basic nature of the xcl items. On the other hand, only 5.3% (or 80 items) of the xcl words are in the less frequent categories of 4000 through 8000.

Word Familiarity Survey

To obtain a basic idea regarding the extent of the students' familiarity with the xcl words, a simple familiarity survey was conducted with the cooperation of 102 first- and 265 second-year non-English major students. The words were divided into twelve survey sheets, eleven of which listed 92 or 93 vocabulary items each while the twelfth contained 50 words. Each sheet presented the vocabulary items in alphabetical order to the survey participants, who marked the words they knew with a circle, those they did not know with an x, and students left words of which they were unsure unmarked.

Survey participants worked on one sheet at a time; many of them (97 or 95.1% of the first-year and 227 or 85.7% of the second-year students) went through two of the twelve survey sheets on two separate occasions several weeks apart. Going through one survey sheet took approximately 5 minutes in most cases and never more than 10. The responses were entered in computer files and calculated for degrees of familiarity in terms of the percentages of participants responding with a circle. This was considered as an indication of their familiarity with the meaning (or at least one of the meanings) of the vocabulary items concerned.

Table 6: Word survey results

Ox-Cam-Long head wds	1567 words
Word Survey A - L	1072 words
100% familiar	185 words
90 - 98.8 % familiar	395 words
less than 90% familiar	492 words

The results showed that, of the 1072 words surveyed,[8] 185 items were marked familiar by 100% of the participants, while 395 words were marked familiar by 90 to 99% of the participants, and 492 by fewer than 90% of the students (Table 6).[9] The opportunity to work with survey sheets was generally welcomed by the students who found it meaningful to confirm the

extent of their vocabulary knowledge in this particular manner. This was especially true of the second-year students, perhaps because by the time they reach the second year of college, many students feel they are losing the vocabulary they think they acquired before entering university and wish to confirm the extent of their current knowledge.[10]

Vocabulary Tests Using Short Sentences

In the Familiarity Survey just described, the students simply reported which items they thought they knew. Barrow *et al.* (1999: 238) conducted a familiarity survey followed by a translation test and, by comparing the familiarity data with the test results, concluded that "students over-estimated their familiarity with basic words by about 17%." For our familiarity data also some verification of the students' claim of word knowledge was considered necessary.

Read (1993: 357-358) points out that "the design of any vocabulary test represents a compromise among competing considerations," the chief among them being that between breadth and depth of lexical knowledge. Especially in the case of tests seeking to measure the breadth of vocabulary knowledge, ways must be found to determine and limit the number of items to be tested because of practical considerations of time, space, and test-taker fatigue. Focusing on the defining vocabulary of the three major monolingual dictionaries was one way of delimiting the range of vocabulary dealt with. Also in the current project, the original list of defining vocabulary was reduced first by deleting the words taught at the middle school level, then by grouping words into word families from which only one item each (primarily the most frequent form) was chosen for the word survey.

For this stage of the current vocabulary project, the survey words with less than 90% familiarity were selected to be tested, which meant that out of the 1072 words surveyed, 492 or 45.9% were dealt with in the tests.[11] To

these 492 items were added eight grammar-related words out of the xcl list, namely "adjective, adverb, noun, verb, singular, plural, participle" and "phrase," since these were considered necessary for dictionary use. The resulting list of 500 words was used to create a series of ten vocabulary tests of 50 words of varying familiarity rates. Each test was designed to be taken within 15-20 minutes of class time.

In view of the goal of enabling students to use monolingual English dictionaries, the format of the vocabulary tests best suited for this project was considered to be sets of short independent sentences, since the use of monolingual English-language dictionaries would normally require reading comprehension ability of such sentences. In writing test sentences, the most basic meaning of the word concerned was chosen, generally the one given immediately after the dictionary entry. All three xcl dictionaries were consulted to determine the meaning to be chosen. Some of the test sentences involved paraphrases of the test words, while others were similar to example sentences that users of dictionaries would encounter in monolingual dictionaries. Both for writing paraphrase-like and example-like sentences, a range of practical facets involving the participating students' linguistic and cultural backgrounds as well as the procedures of administering the tests in the classroom had to be taken into consideration. As a way of increasing the accuracy of the test scores and reducing scoring by chance, half of the 50 test words were used as distracters: namely, out of a group of ten test words, half of which are distracters, participants were to choose the most appropriate word for a blank in each of the five test sentences. The following is an example of the test format:

    1. fair   2. bit   3. chain   4. cliff   5. width

    6. shelf   7. rubber   8. vehicle   9. hammer   10. wire

a. A motor [   ] means such things as cars, trucks, and buses.

b. His house stands at the edge of a [   ] overlooking the ocean.

c. I found my favorite book on the top [   ] of the bookcase.

d. This narrow road does not have enough [   ] for a large truck.

e. The ball the children are playing with is made of [   ].

Each test sheet consisted of five groups of five sentences with a corresponding list of ten words to choose from as in this example. Altogether, ten test sheets were prepared and presented to seven groups, A through G, of participating students.

Content Validity

After revising the ten vocabulary tests for brevity, clarity and appropriateness, they were pilot-tested by a high-proficiency group consisting of 35 undergraduates from 13 U. S. liberal arts colleges of the Associated Kyoto Program which is housed on the Doshisha campus. They took the ten tests, five at a time on two separate occasions a week apart and offered comments and opinions on specific test items as well as the tests as a whole. All the test items received the expected correct responses. These students' comments will serve as a basis for future revisions in the next step of this project.

Vocabulary Test Results

The ten vocabulary tests were presented to seven cohorts of first- and second-year Doshisha students A through G (Table 7) comprising about 280 students. Each of the groups undertook up to four of the ten tests in the course of an academic year, normally as part of their mid-term or final exams. Table 7 shows the months in which the vocabulary tests were taken together with the number of participants in the left half of each square, and the mean scores and the standard deviations in the right half. Since the tests contained 25 test sentences, a perfect score was 25 points for each test. Although the test sheets were prepared for what is considered to be of much

Table 7: Vocabulary test results.

Class	A Month/N	A Mean/SD	B Month/N	B Mean/SD	C Month/N	C Mean/SD	D Month/N	D Mean/SD	E Month/N	E Mean/SD	F Month/N	F Mean/SD	G Month/N	G Mean/SD	All N	All Mean	All SD
Voc Test 1	May 42	15.3 5.38	Jan(2) 43	16.6 4.90					July 41	16.5 4.75					163	16.3	4.75
	Oct 37	16.7 4.37															
Voc Test 2	July 40	15.1 5.76	July 43	16.6 5.18			Oct 45	16.6 5.13							169	16.1	5.23
	Dec 41	16.20 4.86															
Voc Test 3			May 42	13.7 6.00			June 44	16.2 4.98							171	15.2	5.35
			Oct 43	15.7 5.34			Jan(1) 42	15.3 4.87									
Voc Test 4			Jan(1) 40	16.1 5.67	May 41	16.5 4.59			Oct 43	15.9 5.52	May 48	15.3 5.40			172	15.9	5.29
Voc Test 5					July 41	18.9 4.91			Jan 43	17.2 5.58	July 48	16.0 5.14			174	17.7	5.20
					Oct 42	19.3 4.57											
Voc Test 6					Jan(2) 44	16.0 5.48	May 45	15.5 5.53			Jan 42	15.8 5.36			132	15.7	5.57
Voc Test 7					Nov 45	16.3 3.81	July 43	15.9 3.81	May 45	14.9 4.81	Oct 46	14.7 5.30			179	15.5	4.51
Voc Test 8	Jan 40	16.8 4.91							Nov 44	17.4 4.88			Oct 23	17.7 5.7	107	17.4	4.78
Voc Test 9					Jan(1) 42	18.40 3.70	Jan(2) 44	18.3 3.68					Dec 21	19.6 3.87	107	18.6	3.72
Voc Test 10													July 22	19.3 4.42	22	19.3	4.42
VT 1-10 N	200		211		255		263		216		184		66				
VT 1-10 Mean	16.0		15.7		17.5		16.3		16.4		15.4		19.1				
VT 1-10 SD	5.09		5.48		4.70		4.79		5.16		5.28		4.19				

the same difficulty level, the mean scores for the ten tests as shown at the right end of Table 7 vary from 15.2 for Test 3 to 19.3 for Test 10. This variation may either be due to a discrepancy in the difficulty levels of the particular tests and/or in the vocabulary knowledge of the participating students in the different groups, or to other factors involved in the administration of the tests. As seen at the bottom of the same table, the mean scores for the seven classes also vary from 15.4 to 19.1. From these figures, it can be assumed that out of 25 test words, at least 15 and at most 19 were correctly responded to by the average participant.

As it turns out, five classes happened to take vocabulary tests 1, 2, 3, or 5 twice in the course of the year: Class A, for instance, took Test 1 in May

and October. In all but one of these five cases, the mean scores improved the second time the test was taken.[12] If score improvement later in the year is seen repeatedly or regularly in the future as well, it might well mean that there is a practice effect involved, in which case these vocabulary tests would serve for vocabulary practice as well as to assess vocabulary ability.[13]

Table 8: Word survey and Vocabulary test data.

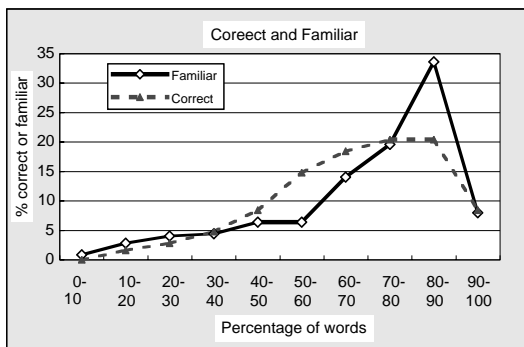| Familiar or correct responses(%)	Number and percentage of words			
	Familiar	%	Correct	%
90-100	20	8.0	21	8.4
80-89.9	84	33.6	51	20.4
70-79.9	49	19.6	51	20.4
60-69.9	35	14.0	46	18.4
50-69.9	16	6.4	37	14.8
40-49.9	16	6.4	21	8.4
30-39.9	11	4.4	12	4.8
20-29.9	10	4.0	7	2.8
10-19.9	7	2.8	4	1.6
0-9.9	1	0.4	0	0.0
No survey data	1	0.4	0	0.0
Total	250	100.0	250	100.0

Figure 1: Word survey and Vocabulary test data

Table 9a: Vocabulary test results of top 25 words.   Table 9b: Vocabulary test results of lowest 25

	Vocabulary test results (ordered by Test Score) %correct			Word survey results %familiar	
1	VT10	24decorate	100	J 22	93.3
2	VT5	12royal	96.0	B 70	84.6
3	VT5	29electricity	95.4	K 27	81.5
4	VT9	42nurse	95.3	B 55	85.9
5	VT9	23thumb	95.3	K 85	74.1
6	VT7	8petrol/gas	94.4	J 59	23.3
7	VT1	8bright	93.9	L 11	83.8
8	VT9	31conversation	93.0	D 19	80.7
9	VT9	35pick	93.0	A 60	82.4
10	VT8	49clothing	92.5	L 16	89.2
11	VT9	32ancient	91.9	L 3	81.1
12	VT7	23occasion	91.1	G 56	75.0
13	VT8	41broadcast	90.7	A 12	85.3
14	VT8	44custom	90.7	H 22	87.2
15	VT3	49get rid of	90.5	L 68	89.2
16	VT7	35metre/meter	90.5	E 51	88.6
17	VT10	35comfort	90.5	J 17	93.3
18	VT10	29respect	90.5	F 68	92.7
19	VT10	48serious	90.5	B 72	94.9
20	VT10	40sharp	90.5	K 73	92.6
21	VT10	50suffer	90.5	A 81	91.2
22	VT3	41divide	89.9	K 25	85.2
23	VT5	36chemistry	89.1	C 15	89.7
24	VT1	22wheel	89.0	F 91	76.8
25	VT2	23disease	88.8	F 25	74.4

	Vocabulary test results (ordered by Test Score) %correct			Word survey results %familiar	
1	VT3	40remark	42.6	J 68	85.0
2	VT8	17owe	40.2	D 57	67.5
3	VT1	46involve	38.7	B 44	79.5
4	VT6	4generous	37.9	F 36	59.8
5	VT2	11beak	36.7	L 7	10.8
6	VT7	14ceiling	36.3	J 13	60.0
7	VT2	13drawer	36.1	C 26	32.1
8	VT6	35dismiss	35.6	H 26	38.5
9	VT3	21patience	35.5	J 58	71.7
10	VT1	11glue	34.4	H 37	5.1
11	VT10	5phrases	33.3	J 60	73.3
12	VT2	8threat	32.0	G 85	82.5
13	VT7	4temporary	31.8	E 83	77.1
14	VT1	15load	30.7	C 48	84.6
15	VT4	36weave	29.7	A 91	44.1
16	VT6	10loyal	29.5	J 48	85.0
17	VT8	1knot	26.2	A 46	14.7
18	VT3	3stiff	26.0	B 79	26.9
19	VT4	50swear	25.0	A 82	35.3
20	VT7	11thread	24.0	F 84	42.7
21	VT7	19hollow	20.7	D 40	13.3
22	VT9	26plain	16.3	F 60	76.8
23	VT7	21row	14.0	A 70	70.6
24	VT9	3transparent	14.0	K 87	29.6
25	VT3	1lid	11.2	E 47	11.4

At the next stage of score analysis, the percentage of correct responses was calculated for each test word. As summarized in Table 8 and Figure 1, more than 90% of the participants responded correctly to 21 or 8.4% of the 250 words, between 80 and 89.9% of them to 51 or 20.4%, etc. At the lower end of the list are 4 vocabulary items that were correctly responded to by only 1.6% of the students. Tables 9a and 9b list the 25 specific vocabulary items with the highest and the lowest percentages respectively of correct responses.

As shown in Figures 2 and 3, a profile of the participants of each test can be clarified by dividing them into eight score brackets, 1-4, 5-7, 8-10, 11-13, 14-16, 17-19, 20-22 and 23-25 points respectively. Although

distribution varies from test to test as evident in the two figures as well as in the tables attached immediately below them, when averages are calculated (Table 10), 65.1% of the participants can be found to have scored between 14 and 22 points, 24.1% below 13 points, and 10.8% above 23 points. The

Figure 2: Vocabulary test participants in 8 score brackets
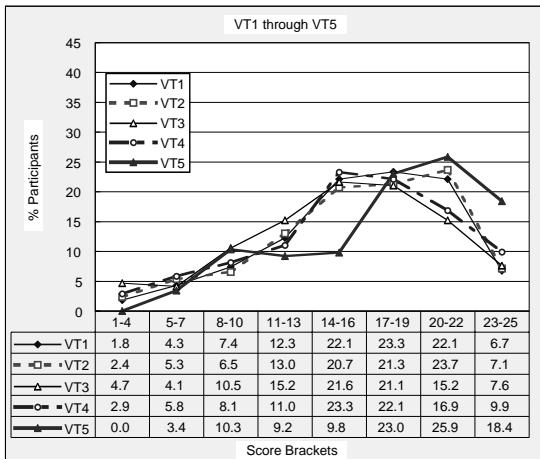(Vocabulary Tests 1 through 5)

	1-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25
VT1	1.8	4.3	7.4	12.3	22.1	23.3	22.1	6.7
VT2	2.4	5.3	6.5	13.0	20.7	21.3	23.7	7.1
VT3	4.7	4.1	10.5	15.2	21.6	21.1	15.2	7.6
VT4	2.9	5.8	8.1	11.0	23.3	22.1	16.9	9.9
VT5	0.0	3.4	10.3	9.2	9.8	23.0	25.9	18.4

Figure 3: Vocabulary test participants in 8 score brackets
(Vocabulary Tests 6 through 10)

	1-4	5-7	8-10	11-13	14-16	17-19	20-22	23-25
VT6	3.8	8.3	8.3	12.1	14.4	22.0	28.0	3.0
VT7	1.1	5.6	8.9	16.2	19.6	27.9	17.9	2.8
VT8	0.9	2.8	7.5	11.2	13.1	22.4	28.0	14.0
VT9	0.0	0.0	1.9	9.3	16.8	19.6	41.1	11.2
VT10	0.0	4.5	0.0	0.0	22.7	18.2	27.3	27.3
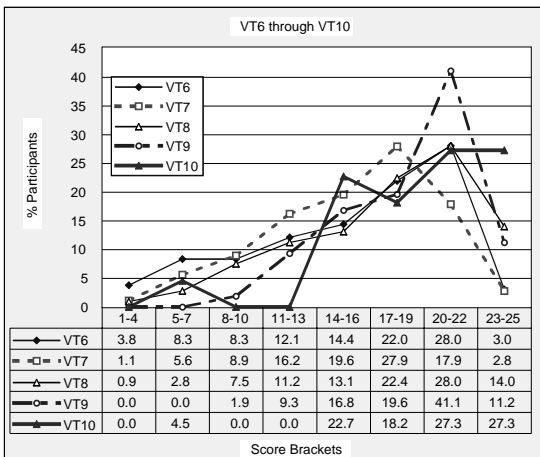
Table 10: Average percentages of test participants in 8 score brackets.

Brackets	Average %
1-4	1.8
5-7	4.4
8-10	6.9
11-13	11
14-16	18.4
17-19	22.1
20-22	24.6
23-25	10.8
Total	100

average percentages of participants in the eight score brackets are as listed in Table 10.

When the test results for the 250 words are compared with the familiarity data (Table 8 and Figure 1), one of the ten percentage brackets stands out, namely, that of 80 to 89.9%, in which 51 words are correctly responded to while 84 vocabulary items are marked familiar. This is the only category in which there are a markedly larger number of words reported familiar than correctly answered in the tests. Between the 30% and 79.9% categories, there are more words correctly answered than reported familiar, while in the rest of the categories, the discrepancies are minimal.

Table 11: Familiarity data compared with percentages of correct responses on 250 test words.

Percentage of familiarity rates	Percentage of correct responses in the vocabulary test (Number of words)									Total
	90-100%	80-89.9%	70-79.9%	60-69.9%	50-59.9%	40-49.9%	30-39.9%	20-29.9%	10-19.9%	
90-100	6	9	1	2	2					20
80-80.9	12	23	19	15	6	6	2	1		84
70-79.9	2	10	9	10	8	4	4		2	49
60-69.9		7	11	5	9	2	1			35
50-59.9			5	6	2	2	1			16
40-49.9			6	4	3	1		2		16
30-39.9		1			3	4	2	1		11
20-29.9	1			3	2	2		1	1	10
10-19.9				1	2		1	2	1	7
0-9.9							1			1
No survey data		1								1
Total number of words	21	51	51	46	37	21	12	7	4	250
over-estimate		9	20	27	25	14	8	4	3	110
under-estimate	15	18	22	14	10	6	2	2		89

Reviewing the specific test words in comparison with the familiarity rates (Table 11), of the 21 words correctly responded to by 90 to 100% of the students, for instance, 6 were reported familiar by 90 to 100% of the students (not necessarily the same persons), 12 by 80-89.9%, 2 by 70-79.9%, and 1 word by 20-29.9% of the participants. Regarding the 6 words indicated in the bold-lined square of Table 11 under 90-100% familiarity (*i.e.* as listed in Table 9, "decorate, comfort, respect, serious, sharp," and "suffer"), the ratios of correct answers and familiarity responses are both between 90-100%. In other words, out of the 21 words in this category, these 6 words are the only ones to which the participants' (not necessarily the same persons') word-familiarity percentage corresponded to the proportion of correct answers in the test, while in the case of the other 15 of the 21 words that were 90-100% correct, more participants gave correct answers than reported familiarity.

Likewise in the rest of Table 11, the figures in the bold-lined squares indicate the numbers of words for which the percentages of correct responses and familiarity reporting are in the same percentage brackets. The figures on the upper side of the bold-lined squares represent the numbers of words that were reported familiar by more participants than were correctly answered in the tests. If the vocabulary test results are assumed to represent word knowledge more accurately than the familiarity reporting, these figures above the bold-lined squares represent the numbers of words of which participants "over-estimated" their knowledge. On the other hand, the numbers below the bold-lined squares in Table 11 represent the number of words about which the participants actually have more word knowledge than they indicated in the familiarity survey. All together, the test and survey results showed that the participants were "over-confident" about 44.0% or 110 words out of the 250, "under-confident" about 35.6% or 89 words. Regarding the remaining 50 words or 20% of the 250 test words, the percentages of familiarity and correct answers were in the same

percentage brackets.

Discussion and Concluding Remarks

The current project estimates that the average first-and second-year Doshisha student knows 15-19 or 60-76% of the xcl words. If these results are accurate, the students do not have a sufficient command of the vocabulary needed to use a monolingual English learner's dictionary, much less any of the three dictionaries on the basis of which the xcl word list was compiled. There is a general agreement among vocabulary experts that for learning new words through free reading, an ESL/EFL reader must know 95% or more of the words contained in the reading material (Nation, 2001). The xcl words are the common core of the defining vocabulary in the three dictionaries used as the basis of this project. All three dictionaries use words other than the xcl items (Table 1) in their definitions. Thus, to comprehend definitions in the three dictionaries, a reader must know nearly all of the xcl words, if not more.

On the other hand, again assuming that the vocabulary test results accurately approximate the students' word knowledge, the participating students already know, on average, 60-76% of the xcl words, so that the other 24-40% new words (or 6 to 10 out of 25, or presumably 12-20 out of the 50 items listed in each of the vocabulary tests of the current project) would be a concrete and achievable goal for weekly instruction. More specifically, out of the 50 words that appear on each test, 12 to 20 of them would be new to the average student. Students might then be given a week to work with these words before materials such as the vocabulary test developed in this project would be used to practice/confirm their study/acquisition results.

By being given a concrete overall objective, such as acquiring all 500 xcl words together with a feasible step-by-step study plan, students would presumably be more willing to make efforts in their word study than when

they are faced with a vast never-ending task with no clear goal in sight. Instead of simply emphasizing the importance of vocabulary study in general terms (a fact of which students are already aware, as questionnaires have repeatedly revealed), presenting a clearly defined word list such as the xcl words along with concrete steps toward achieving the study target is what seems to be most needed in the vocabulary aspect of foreign language instruction at this basic level. Learning the defining words used in the major monolingual dictionaries is likely to be an achievable and convincing goal for most students.

In order to be able to make the transition from a bilingual to a monolingual (or bilingualized) dictionary, there are several obstacles that must be overcome, the first of which is whether or not students possess the knowledge of enough vocabulary to understand the monolingual entries.

A second obstacle is that, for students to be able to obtain the necessary information from monolingual English dictionaries, they must have functional reading ability, or the ability to read English for information. In order to develop functional reading ability, graded readers for an ESL/EFL audience are generally regarded as the most beneficial reading material (Nagy, Herman and Anderson, 1985; Day and Bamford, 1998; Nation, 2001: 150-171; Hayashi, 1999b). Since language levels can be chosen by the students themselves, translation is not needed for comprehension, an ideal situation for using bilingualized or monolingual learner dictionaries, if dictionaries are needed at all. Reading assignments can be given as an out-of-class activity. Graded readers offer plenty of cultural background while confirming the students' English as well as more general language ability. Using graded readers is also known to be more beneficial for vocabulary building and developing functional reading than the practice of putting English into L1 (Nation, 2001; Hayashi, 1999a and 2002).[14] Most students welcome and enjoy reading English books from cover to cover (Hayashi, 1999b; Kitao, 2002, 2003). A simple book report consisting of a short

summary and comments such as recommended by Kitao (2002) can further serve as excellent practice. The classroom support and teacher control of this type of out-of-class reading activity is essential.

The third major obstacle to using a monolingual dictionaries is the tendency for students to over-rely on bilingual dictionaries. In a survey of Japanese students, Schmitt (1997: 218-225) found a strong preference for bilingual dictionaries at four different age levels: junior high school, high school, university, and adult. Laufer and Schmueli (1997: 93) quote a study by Atkins and Knowles (1990) of "over 1000 learners in seven European countries [which] shows that bilingual dictionaries are used by the majority of the students (75%)." This preference is not without good reason. A study by Knight (1994) suggests that bilingual dictionary use gives a special advantage to students of lower ability levels.[15] Despite claims coming from the anti-bilingual dictionary camp that translation "encourages lazy minds and so inhibits the transfer of a new item to long-term memory," Laufer and Scmueli note that learners "do not feel secure about understanding them [*i.e.* L2 words] until they relate them to their mother tongue" and have shown that vocabulary glossed in the learners' L1 is remembered better than words glossed in L2 (Laufer and Scmueli, 1997: 92-93). Waring (2001: 7), despite his strong recommendation of monolingual English dictionaries, admits that at the intermediate level, bilingual dictionaries and monolingual learner dictionaries should be seen as "complementary, not competitors and both have roles to play in the scheme of things."

There is, however, good reason for students to consider switching from bilingual to monolingual dictionaries, especially for those at the intermediate and advanced levels. Laufer and Hadar (1997: 189) note that a monolingual entry "can generally provide more detailed and precise information than the bilingual entry." A number of anecdotal instances have been encountered where Japanese users of English were wrong or unsure about meanings of specific English words until they met with

paraphrases or explanations in English. Perhaps more user-friendly for ESL/EFL students than bilingual or monolingual dictionaries are "bilingualized" dictionaries, which combine the advantages of monolingual dictionaries with the sense of security derived from having the information available in L1. They contain L1 translations of all the entries of the monolingual dictionaries on which they are based.[16]

   Comparing the effectiveness of the three types of dictionaries, *i.e.* bilingual, bilingualized, and monolingual, for Hebrew-speaking EFL students, Laufer and Hadar (1997) conclude that, both in comprehension and production tasks, "a good 'bilingualized' dictionary is suitable for all types of learners," namely, "unskilled, average, and skilled users" of dictionaries, while between a bilingual and a monolingual dictionary, unskilled dictionary users seem to benefit more from bilingual than monolingual dictionaries. This seems to suggest that the L1 part of a bilingualized dictionary is useful for unskilled users. Regardless of the levels of dictionary skills, all participants in Laufer and Hadar's research possess an English vocabulary size of 3000-3500 words, which is considered to be "beyond the entry understanding threshold" (p. 195) of the defining words used by learner dictionaries (See Table 1). Their data imply that, even with adequate vocabulary knowledge, training in the use of dictionaries is still necessary, especially for unskilled dictionary users to fully benefit from the monolingual part of a bilingualized dictionary. Waring (2001) emphasizes that, for students to realize the advantages of monolingual dictionaries, systematic "dictionary training" in the classroom is essential. Experience has shown that, by encountering instances where a monolingual entry gives a generally more satisfying, *e.g.* concrete, accurate and/or more detailed, explanation than the single-word translation in a bilingual dictionary, Japanese EFL learners are quickly convinced of the user-friendly nature of monolingual dictionaries.

   In every case, the essential factor in using a monolingual dictionary is

possessing a vocabulary beyond "the entry understanding threshold." In specific terms, acquiring knowledge of all the xcl words is the fundamental step toward using monolingual dictionaries or fully benefiting from the monolingual part of a bilingualized dictionary. It is true that "no matter what their level of competence, foreign learners and dictionary users turn to their bilingual dictionaries as long as they use dictionaries at all" (Piotowski, 1989 quoted in Laufer and Hadar, 1997: p. 190).   The writers of the present paper do not intend to dissuade anyone from using bilingual dictionaries, but only to emphasize that the advantages offered by monolingual and bilingualized dictionaries for vocabulary expansion should also be placed in "the scheme of things" along with necessary instruction and training appropriate to student levels and needs.

In brief, at the current level of vocabulary competence of the average participant in this project, several types of instruction and acquisition processes are needed before they are ready to use and benefit from monolingual English dictionaries, the first stage of which is to offer them opportunities to learn the words they still do not know in the core defining vocabulary.

Jack C. Richards (1980: 431) argues that "beyond the elementary levels of instruction, a major feature of a second language program should be a component of massive vocabulary expansion." Of the two main forms of vocabulary acquisition, direct instruction and incidental learning through reading, common sense as well as research evidence suggest that reading is the most effective way to bring about such a massive buildup of vocabulary, since obviously, as Nagy *et al.* (1985: 252) point out, "the number of words to be learned is too enormous to rely on word-by-word instruction"; they demonstrate that significant, if partial, vocabulary learning takes place through incidental learning from context during free reading: hence, the usefulness of graded readers. However, in terms of quality of word processing and long term retention, it is generally agreed that direct

instruction is necessary (Carter and McCarthy, 1988; Nation, 2001). By carefully comparing different modes of word memorization, Laufer and Shmueli (1997) contend that the best way to memorize vocabulary has proven to be through lists of words in isolation (*i.e*. without context) matched to translations in the learners' native language.

Presenting the xcl words and supporting weekly study through simple test/practice devices might be a useful first step toward assuring acquisition of the basic defining vocabulary. Given the level of knowledge at which our project has found the majority of students to be currently functioning, some direct vocabulary instruction accompanied by the planning and overseeing of out-of-class learning efforts seems to be the most promising way of meeting students' needs in this area.

Acknowledgement

Note

1 Also a survey of a Doshisha CAI class conducted in December 2002 revealed that 36% of the students considered vocabulary to be of "some difficulty," while 64% said it was of "great difficulty"; half the students listed vocabulary as one of the two aspects of English most in need of future study/practice while other aspects, such as grammar, sentence structure, and paragraph organization were chosen by a quarter or less.

2 To put this figure into perspective, McCrum, Cran and MacNeil state in the televised version of their book (BBC Video "The Story of English," Chapter 3) that

"while Shakespeare drew on his teeming vocabulary of 34,000 words," the book (McCrum, *et al*., 1986, p. 102) notes that "estimates of an educated person's vocabulary today vary, but is probably about half this." Nation (1990: 12) quotes Kirkpatrick's estimate (1907) of 17,600 words as the vocabulary of eighteen-year-old native English speakers. Quoting Anglin's estimates, Nation (2001: 366) states that six-year-old native speakers know about 3,000 root words, eight-year-olds about 4,500 root words, and ten-year-olds about 7,500 root words.

3 Further research (Ishihara *et al*., 2000) found a significant gap in the level of students' reception and production vocabulary, which remained constant for students of differing English proficiency levels as measured by the C-Test.

4 TOEFL scores are published by ETS Educational Testing Service in its booklet entitled "Toefl." At the World Congress of Applied Linguistics in 1999 (AILA 99), the JACET research group on "Foreign language education in an international perspective (   )" presented a set of relevant data at its poster session. See also Y. Otani *et al.* (2004: p 479).

5 The First Thousand refers to the more frequent half, and the Second Thousand to the other or less frequent half of M. West's list. See Nation (1990: 21-24).

6 This does not mean, however, that the ultimate goal of such a course of study is to dispense with bilingual dictionaries. See the Discussion section below.

7 At a later date, the 1567-item list was further examined and some additional word family members were regrouped and several more function words and numerals deleted. The resulting list was comprised of 1516 items which were used for comparison with five other lists: the First and the Second Thousand Words, the New Academic Word List, the JACET 4000 and the JACET 8000 (Tables 2-5).

8 Actually, in the first round of the familiarity survey, 1022 items were used. A twelfth survey sheet was later added listing the 38 remaining items of the 1060 along with 12 items selected from the earlier survey sheets. The 12 words were selected for the purpose of confirming or revising their somewhat doubtful familiarity percentage obtained in the first round of the survey. That brought the actual number of survey words to 1072 items in total..

9 In all the figures cited so far, the 12 words surveyed a second time in the second round of the 50-word list are counted as two items each for practical convenience.

10 That was partly the reason why the present project targeted primarily the second-year groups. It was considered useful to have them confirm for themselves the extent of their vocabulary knowledge and build or rebuild the confidence to find realistic study goals and plans in the vocabulary aspect of their English study.

11 In the last (*i.e*. twelfth) survey sheet, 21 words obtained higher percentages than

90%．In the last (*i.e.* tenth) vocabulary test, 37 words (including these 21 items) with familiarity ratios of over 90% were used．6 of these turned up among the top 25 test items in the test scores (Table 9a).

12 Unlike in the other four instances, the mean score for Test 3 of Class D showed a decrease between June (16.2) and January (15.3)．This may well be due to some such circumstances as high-scoring students participating in June but not in January.

13 The practice effect can be an interesting subject of study, but beyond the immediate scope of the current project.

14 For a list of "high-quality language learner literature" with the specification of Cambridge Certificate, TOEFL and TOEIC vocabulary levels, see Day and Bamford, 1998．Nation (2001: 171-174) also has a section on how to prepare graded reading materials.

15 However, using bilingual dictionaries is no easy task for students．Studies by Luppescu and Day (1993: 277) with 293 first- and second-year Japanese college students found that bilingual dictionary use actually led to errors in some cases where the students were not able to locate the appropriate gloss, especially where entries involved a list of numerous meanings, so that they suggest that more teaching as well as investigation is needed on "effective strategies to use . . . bilingual dictionaries." Nishimura, Suga, Takaie, and Sekiyama (1999) state that because "dictionaries . . . are unable to serve for the users without some orientation, teachers have to play the role of mediator between lexicographers and EFL learners." Since dictionary definitions are written for generalized contexts, students often find it hard to find those that fill their immediate needs for more specific explanation or definition that fits given contexts．Besides, dictionaries are generally focused on the meaning of words as lexical items and are accompanied by little supplementary information, while EFL learners often require more of the latter than dictionaries are normally designed to offer．Moreover, "a simple one-word translation in a bilingual dictionary can be misleading, especially when there are semantic incongruencies between the two languages" (Laufer and Hadar, 1997, p. 189)．Such "incongruencies" are considerable both in number and degree between Japanese and English．To bridge the distance between the lexicographic definition and the specific localized meaning, providing paraphrases in English for reading and listening materials of somewhat challenging levels has proven to be an effective method of confirming students' existing word knowledge as well as leading them toward the use of monolingual or bilingualized English dictionaries.

16 Obunsha has been publishing the *Senior English Dictionary with Japanese Annotations* since 1978．More recently, Zoshinsha has published a bilingualized

version of the Oxford *Wordpower English Dictionary* under the title, the *Wordpower Fully-Bilingual Dictionary* (2002), while Shogakukan has published a "semi-bilingual version" of *Cambridge Learner's Dictionary* (2004).

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40-60%   500

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