BNC ビジネス語彙の抽出と e-learning 教材の作成

中條清美・キャサリン オヒガン・西垣知佳子・内山将夫・中村隆宏

Creating E-Learning Material with Statistically-Extracted Spoken & Written Business Vocabulary from the British National Corpus

Kiyomi CHUJO, Kathryn OGHIGIAN, Chikako NISHIGAKI, Masao UTIYAMA and Takahiro NAKAMURA

For many people, specialist vocabulary is a key element of ESP (English for Specific Purposes); however, the use of conventional selection criteria (frequency and range) for identifying ESP vocabulary has been found to be only partly successful. Because the focus of these measures is ranking general-purpose vocabulary in order of priority, separating technical vocabulary from general-purpose vocabulary is still labor-intensive, time-consuming, and heavily dependent on the selector's expertise in English education and specialist knowledge of the domain, which English teachers generally do not have. To address this need, Chujo and Utiyama (2006) have established an easy-to-use, automated tool using nine statistical measures to identify level-specific, domain-specific words. In this study, the log likelihood ratio was applied to the 1.32-million-word spoken business component and the 7.12-million-word written business component of the British National Corpus. We examined the top 500 most outstanding words of each list and confirmed that the log likelihood ratio identified intermediate-level spoken and written business words by grade level, and verified that the measure was effective in separating business vocabulary from general-purpose vocabulary and in identifying spoken and written business vocabulary. This study outlines a systematic way to create spoken and written business vocabulary lists for a targeted proficiency level by using an established statistical measure, and describes the development of an effective e-learning program for Japanese college students based on our previously published vocabulary teaching material for teaching TOEIC vocabulary.

Keywords: Business English, ESP, Specialist Vocabulary, Statistical Measures, E-Learning Material

1. Background

As educators, we know vocabulary is the heart of a language (Beglar and Hunt, 2005:7)¹⁾ and with advances in corpus linguistics, we now have the tools to create our own, real-world vocabulary lists. Corpus linguistics is essentially studying language through existing texts or corpora. In other words, we as researchers can take a corpus of several million words already existing in real-world English, and analyze it in diverse ways—for example, what are the most frequently used words in English, or what are the most frequently occurring collocations, or in the case of our study, what business words appear in a corpus (see **Table 1**). Our challenge was how to take such a large corpus and find specific kinds of words, such as a business lexicon, and/or a targeted level of vocabulary.

Table 1 Examples of English language corpora and usages

Examples of English Language Corpora	Examples of Observational Language Usage
Bank of English (written & spoken English for COBUILD)	frequently used words
British National Corpus	frequently used words
(100 million spoken & written British words) American National Corpus	common collocations
(100 million spoken & written American words)	specialized words lists
International Corpus of English	
(international varieties of English)	

We know that applying conventional *frequency* and *range* criteria to a corpus tends to extract general-purpose vocabulary (Sutarsyah et al., 1994: 48) ²⁾ and is therefore of limited use in identifying technical ESP (English for Specific Purposes) words. Separating technical vocabulary from general-purpose vocabulary is still labor-intensive, time-consuming, and heavily dependent on the selector's expertise in English education and a specialist knowledge of the domain (Chujo and Utiyama, 2006: 256) ³⁾.

In 2006, Chujo and Utiyama established an easy-to-use tool employing nine statistical measures to identify level-specific, domain-specific words. They found that specific statistical measures identified specific types of vocabulary. For example, the *log*

likelihood ratio (*LLR*) identified intermediate-level technical words, and *mutual information* (*MI*) identified advanced level technical words. These measures were effective in separating technical vocabulary from general-purpose vocabulary, and provided the template for identifying business vocabulary for our current study.

2. Purpose of the Study

The goals of this study are (1) to extract a spoken and written business lexicon from the British National Corpus (BNC) using nine statistical measures; (2) to create intermediate level business lists; and, (3) to combine our previously published e-learning vocabulary teaching program for Japanese students with the business lists produced and refine the program to maximize its effectiveness.

3. Methodology

3.1 The data

3.1.1 BNC spoken & written business sub-corpora

The British National Corpus is one of the largest electronically-accessible corpora consisting of over 100 million written and spoken words in British English (Burnard, 2000; Kennedy, 2003; Leech et al., 2001) 40, 50, 60. It is organized into various subject-related components or sub-corpora such as the sciences, literature, world affairs, arts, and commerce and finance. Among them are a 1.3-million-word spoken business sub-corpus and a 7.1-million-word written business sub-corpus and these have been selected as the base corpora for this study.

The procedure for preparing these business-related sub-corpora for statistical applications is shown in **Fig. 1**. We first lemmatized both sub-corpora to extract all base forms using the CLAWS7 tag set⁷⁾ and created two alphabetical word lists. Lemmatizing means we counted only one form for each word, for example 'employ,' and noted the number of inflections such as 'employs', 'employed', and 'employing.' Then, for pedagogical application, all proper nouns and numerals were identified by their part of speech tags and deleted manually and all unusual or infrequent words were eliminated by deleting words appearing fewer than 10 times in the spoken list and fewer than 100 times in the written list. Finally, this left us with a 2,780-word spoken business master list, and a 2,973-word written business master list.

British National Corpus (BNC) 100 million spoken and written words Written Commerce and Finance Sub-corpus 7.1 million words ↓ lemmatized frequency 10 ↓ Spoken Business Master List 2,780 words Written Commerce and Finance Sub-corpus 7.1 million words ↓ Written Business Master List 2,973 words

Fig. 1 Procedure for preparing BNC business sub-corpora for statistical applications

3.1.2 Control lists

We wanted not only to extract spoken and written business words by using statistical measures but also to evaluate how effectively this was done. also In addition, we wanted to know if these words appear generally in English at what [U.S.] native speaker grade level and to determine which are learned by Japanese students in the course of their junior and senior high school years. For these reasons, the following four control vocabulary lists were created by using the same procedures described above in **3.1.1**, and each vocabulary is described in detail below:

- (1) The British National Corpus High Frequency Word List (BNC HFWL), a list of 13,994 lemmatized words representing 86 million BNC words that occur 100 times or more (compiling procedure is detailed in Chujo, 2004) 8, was used for comparison to statistically determine if and how these business-related words appear differently in a general corpus.
- (2) Longman Business English Dictionary (Pearson Education Limited, 2000)⁹⁾ includes 'over 20,000 words and phrases' based on the analysis of millions of authentic business texts. In this study, we used only 'words' (totaling 4,565 entries) as an existing technical vocabulary control list to evaluate how effectively nine statistical tools extracted business words.
- (3) The Living Word Vocabulary (Dale and O'Rourke, 1981) 10 includes more than

44,000 items, and each has a percentage score that rates whether the word is familiar to students in U.S. grade levels 4 through 16. This list was used to determine the grade level at which the central meaning of a word can be readily understood.

(4) The junior and senior high school (JSH) textbook vocabulary list containing 3,245 different base words was compiled from the top selling series of JSH textbooks (the *New Horizon 1, 2, 3* series and the *Unicorn I, II* and *Reading* series) ^{11), 12)} in Japan. Japanese high school students generally use these or similar books to study English before entering a university. This vocabulary was used to subtract all the words taught in junior and senior high school and to confirm the business core words are unknown to university students.

3.2 Statistical measures

Next, using the earlier Chujo and Utiyama (2006) study as our template, we applied nine statistical tools to these two spoken business and written business master lists to extract and organize the vocabulary into more meaningful lists. The nine tools used included simple *frequency* (*Freq*), the *Dice coefficient* (*Dice*) ¹³, *Cosine* (*Cosine*) ¹⁴, the *complementary similarity measure* (*CSM*) ¹⁵, the *log likelihood ratio* (*LLR*) ¹⁶, the *chi-square test* (*Chi2*) ¹⁷, *chi-square test with Yates's correction* (*Yates*) ¹⁸, *mutual information* (*MI*) ¹⁹, and *McNemar's test* (*McNemar*) ²⁰These statistical measures are widely used in computational linguistics. Using each measure, the statistical score for the extent of each word's "outstanding-ness" (Scott, 1999) ²¹ in frequency of occurrence is computed. The formula for each measure is available on the web and in Chujo and Utiyama (2006) ²².

3.3 Extracting spoken and written business words

As shown in **Fig. 2**, when each statistical tool is applied to the spoken business or written business corpus, these tools automatically identify outstanding words in frequency of occurrence by making comparisons between the business words and general English. In other words, we apply the statistics to both the ESP Master Word Lists and to the entire EGP BNC Word List (BNC HFWL), and compare the results. These statistics indicate whether a word is overused or underused in a specified list compared with a list of general English. In this way, we can statistically determine how words in the targeted lists (in this case the business words) would appear differently from words in a general corpus.

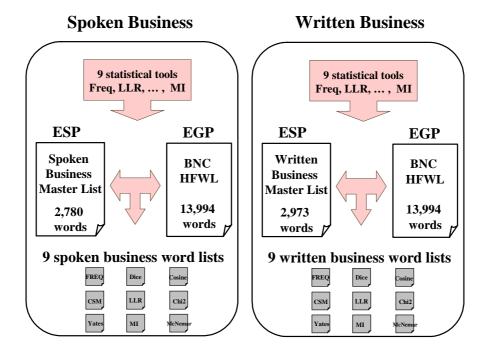


Fig. 2 Procedure for extracting BNC spoken & written business word lists

4. Understanding the Meaning of the Extracted Specialized Lists

4.1 Extracted business words comparison

In order to get a clear picture for potential pedagogical applications, we examined the top 500 outstanding words for each statistical measure. 'Outstanding' words indicate those words appearing near the top of each list and which are ranked as outstandingly prominent in terms of each statistical tool's criteria. Due to space limitations, **Table 2** shows only the top 15 outstanding words with the extractions from three of the nine tools from the two business corpora (spoken and written). This snapshot provides a clear and simple illustration of the types of words extracted by each measure.

Table 2 Top 15 extracted business words comparison

Dl-	Spoken Business			Written Business		
Rank	FREQ	LLR	MI	FREQ	LLR	MI
1	be	we	retrieve	the	market	lading
2	the	motion	measurable	be	company	buyout
3	I	region	acquisition	of	bank	long-run
4	you	congress	conductivity	to	the	arbitrage
5	to	union	induction	a	business	subcontractor
6	and	colleague	civilize	and	price	stockmarket
7	that	client	incompetent	in	rate	offeror
8	it	company	feasibility	that	cost	drafter
9	we	train	upturn	have	firm	no-arbitrage
10	a	conference	activist	it	tax	shareholding
11	have	procedure	scandal	for	investment	headhunter
12	of	business	marquis	they	account	payout
13	do	premium	right-hand	on	share	issuer
14	not	file	amalgamation	will	profit	liquidity
15	in	trade	retention	this	contract	salesperson
Frequency	31958	2440	22	152838	42795	203
Word Length	2.4	6.5	9.3	2.8	5.6	8.9

We can see that the lists are very different from each other even though they were extracted from the same spoken and written business master lists. For example, in the written *LLR* list, we can recognize fairly simple business words such as *market*, *company*, and *bank*, while in the written *MI* business list we can see more complex words such as *lading*, *buyout*, *arbitrage*, and *subcontractor*.

The bottom two rows of each column show the average frequency score and average word length of these 15 words. As we see from the **Table 2**, the average frequency score decreases from left to right or from *Freq* to *MI*. On the other hand, the average word length increases from *Freq* to *MI*, ranging from 2.4 or 2.8 to 9.3 or 8.9 letters. Although we are aware that word difficulty may be influenced by many more factors than frequency and word length, this might support the possibility that specific statistical tools can be used to target specific grade level vocabulary. This will be explored in the following sections.

4.2 Business English dictionary entry word overlap

First, to evaluate how effectively these tools extracted technical (business) words, they were compared to an existing technical (business) vocabulary control list. For this we used the 4,565 entry words in the *Longman Business English Dictionary*. In **Fig. 3**, the inner line in the radar chart shows the overlap in percentage between the business dictionary entries and the top 500 spoken business words, and the outer line shows the overlap with the top 500 written business words. We can see the nine tools effectively produced relevant technical vocabulary. In particular, we see that there is a 67% overlap between the *LLR*, *Chi2 and Yates* spoken word list and the dictionary entries. For the written business words, 79% of *LLR*, *Chi2 and Yates* and 80% of the *MI* words overlap with the dictionary entries.

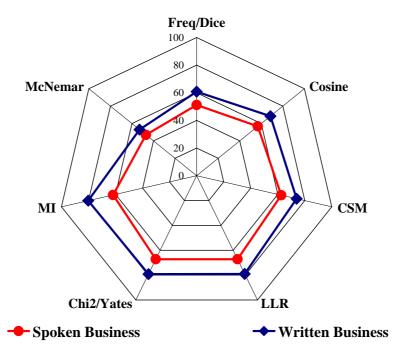


Fig. 3 The overlap of the top 500 extractions with the Longman Business English Dictionary

4.3 Grade level based on word familiarity

Next, we investigated at what US grade level the top 500 words would be understood by native speaking children. For comparative data, we used Dale and O'Rourke's 1981 data published in *The Living Word Vocabulary*. In looking at the horizontal line in **Fig. 4**, we can see that 80% of the words from *Freq*, *Dice*, *Cosine*, and *CSM* are generally

understood by 6th grade students; *LLR*, *Chi2 and Yates* are known by 8th to 10th grade students; and 80% of the *MI* and *McNemar* words are known by 12th or 13th grade students (college freshmen).

In terms of practical pedagogical application, we inferred from this data, in addition to several of our previous similar studies (Chujo and Utiyama, 2005; Chujo and Utiyama, 2006; Chujo, Utiyama and Oghigian, 2006) ^{23), 24), 25)} that (1) the business words extracted by *Freq*, *Dice*, *Cosine* and *CSM* might be most useful for beginner level EFL learners; (2) the *LLR*, *Chi2* and *Yates* lists might be most useful for intermediate level EFL learners; and (3) the *MI* and *McNemar* vocabulary might be most appropriate for advanced level EFL learners.

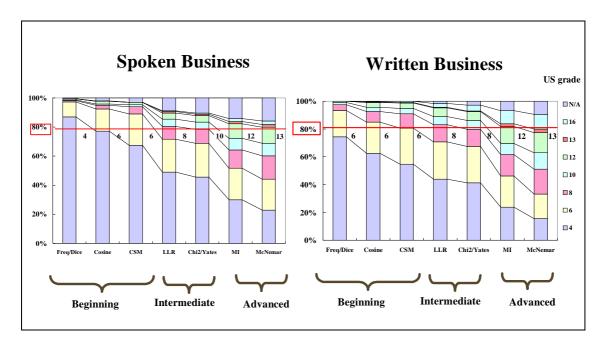


Fig. 4 US grade level comparisons for the top 500 words

5. Developing an E-Learning Vocabulary Building Program

5.1 Intermediate-level word selection

Since our goal in this study is intermediate level business vocabulary, we chose the *LLR* lists as the target lists for the following reasons: 1) *LLR* was effective in extracting business words as shown by the overlap with business dictionary entry words; 2) it extracted appropriate business words for intermediate level words in terms of word familiarity; 3) it is "a well-established statistical technique...and behaves well whatever the corpus size" according to Oakes (1998, p.174) ²⁶⁾; and 4) it is one of the most widely

used statistical tools in corpus linguistics (see Chujo and Utiyama, 2006, pp.256-257)

To further refine the intermediate business vocabulary from each of the top 500 spoken and written business words, we next subtracted all the known words taught in Japanese junior and senior high school (JSH words) (see **Fig. 5**). That gave us 71 core business words that appeared prominently in both spoken and written business contexts and that would be new to high school graduates. 190 and 194 words appeared prominently in a spoken and written business context respectively.

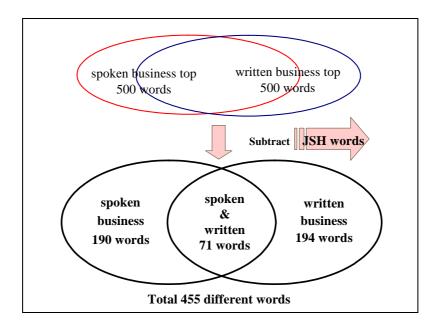


Fig. 5 Developing three intermediate-level business word lists

The goal in using statistical measures is to narrow down the number of candidates for the targeted technical word list, but it is not meant to be a definitive list. These statistical tools can help users to select technical vocabulary automatically and eliminates the need for expertise in that field. By using extracted lists such as these, users can easily manually delete irrelevant words.

From these 455 words, we created lists of "core words". As shown in **Fig. 6**, we chose 40 words appearing in both the spoken and written contexts as business core words, according to each word's score ranking. We also chose 40 core spoken words and 40 core written words based on each word's *LLR* score ranking. In this study, these 120 words will form the basis of the "Business Vocabulary 1" e-learning material, and the remaining 335 words will be used for developing "Business Vocabulary 2" and "Business Vocabulary 3."

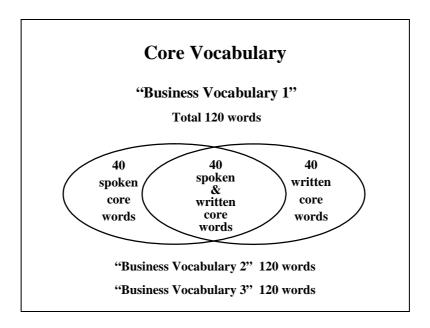


Fig. 6 Core vocabulary for Business Vocabulary 1

5.2 Building an e-learning program

Armed with our vocabulary lists, we then considered how we could present them in a framework that would best support vocabulary learning. We wanted to integrate theories of learning, information processing, second language acquisition and TESL to ensure long-term retention and create an enjoyable learning atmosphere.

Taking advantage of the possibilities inherent in computer-assisted language learning, we have been incorporating various kinds of specialized vocabulary such as TOEIC and TOEFL with a variety of exercises into an original vocabulary teaching method previously published (Chujo, 2002; Chujo et al., 2002, 2003, 2004) ^{28), 29), 30), 31)}. Previous implementation of this prototype software (with other types of vocabulary) showed that students enjoyed learning with this program and it allowed for a high retention rate for the acquired target words. Because this program has been shown to be an effective tool for learning vocabulary and improving communicative proficiency as measured by the TOEIC (Chujo et al., 2003) ³²⁾, we have used it as our template for this intermediate business vocabulary learning material.

This e-learning program has 12 units of ten words each, so students learn 120 words in total. As is shown in **Table 3**,they learn 10 target words for each unit using the 'Five Learning Steps' which are organized to teach target words first in isolation (Steps 1, 2, and 4), and then in phrases (Steps 3 and 5).

ze lear	nıng	steps
	'e lear	e learning

Introduction	Step 1	Overview of 10 new words	
Learning	Step 2	Step 2 Sounds & Meanings of 10 words	
	Step 3	Sounds & Meanings of 20 phrases	
Follow-up Step 4		Spelling of 10 words	
	Step 5	Dictation of 20 phrases	

In **Fig. 7**, example pages from this program are shown. In the Introduction, pictures depicting suitable business scenes corresponding to the ten target words in the unit are provided. In Step 1, a list of the target words is presented. In Step 2, students learn the correct pronunciation and the Japanese equivalent of each target word. In Step 3, two phrases for each target word are learned with their pronunciation. In Step 4, learners double-check their understanding of the target words by recalling the spelling of the words. Finally, in Step 5, learners listen to and transcribe each phrase in their notebooks with a pencil.

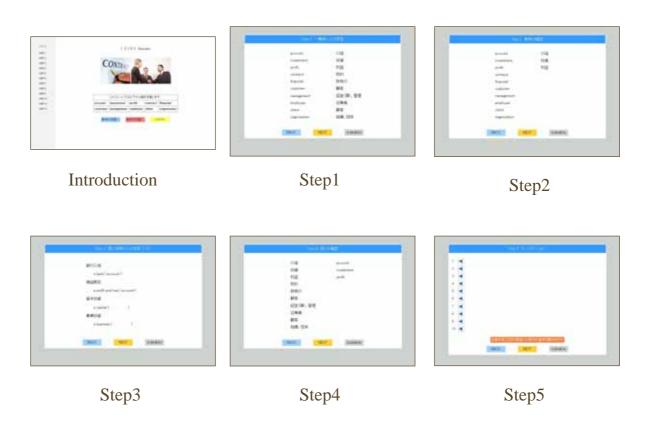


Fig. 7 Example pages from the "Business Vocabulary 1"

This "Business Vocabulary 1" e-learning material was created using Homepage Builder. Pictures were purchased from Shutterstock.com Support (http://www.shutterstock.com) ³³⁾, and sounds are obtained from (http://www.research.att.com/~ttsweb/tts/demo.php) ³⁴⁾.

The phrases for each target word were retrieved from the corresponding BNC sub-corpora using the Shogakukan Corpus Network (http://scn02.corpora.jp/~sakura03/)³⁵⁾, and two phrases were chosen with respect to occurrence of frequency and the brevity of examples. In other words, we chose "real" phrases directly from the BNC, selecting those which appeared most often and of those, phrases which were the most concise. Both words and phrases are provided with Japanese translations using *A Dictionary of English Usage for Business and Finance* (Hashimoto, 1991) ³⁶⁾ as well as consulting with a businessman specializing in financing. Because there may be some variation in what users will select, we have listed the 120 business words and their 240 business phrases from "Business Vocabulary 1" in the **Appendix.**

6. Further Research

In this study, we hoped to demonstrate how easily technical (business) vocabulary can be extracted from corpora and to provide other educators with the tools to do so themselves. The selected intermediate business words created in our study are available electronically at http://www5d.biglobe.ne.jp/~chujo. The "Business Vocabulary 1" e-learning material is available at http://weekend.kir.ne.jp. "Business Vocabulary 2" and "Business Vocabulary 3" are currently in development.

Further research will focus on implementing this e-learning material as a case study in university-level English classes in Japan to evaluate its effectiveness and to obtain feedback from students to help refine the material in order to promote better retention, usability and motivation.

Acknowledgement

This study is funded by a Grant-in-aid for Scientific Research (No.17520401) from the Japan Society for the Promotion of Science and Ministry of Education, Science, Sports and Culture. It was also supported in part by the College of Industrial Technology, Nihon University.

* Part of this study is based on a presentation given at the Fourth Asia TEFL International Conference, August 18, 2006, in Fukuoka, Japan ³⁷⁾.

References

- 1) Beglar, D. and Hunt A. (2005) Six principles for teaching foreign language vocabulary: A commentary on Laufer, Meara, and Nation's "ten best ideas". *The Language Teacher*, 29 (7), 7-10.
- 2) Sutarsyah, C., Kennedy, G. and Nation, P. (1994) How useful is EAP vocabulary for ESP? A corpus-based study. *RELC Journal*, *25*, 34-50.
- 3) Chujo, K. and Utiyama, M. (2006) Selecting level-specific specialized vocabulary using statistical measures. *SYSTEM*, *34* (2), 255-269.
- 4) Burnard, L. (2000) Reference guide for the British National Corpus (World Edition). http://www.natcorp.ox.ac.uk/World/HTML/thebib.html.
- 5) Kennedy, G. (2003) Amplifier collocations in the British National Corpus: Implications for English language teaching. *TESOL Quarterly*, *37*(3), 467-487.
- 6) Leech, G., Rayson, P. and Wilson, A. (2001) *Word Frequencies in Written and Spoken English*. Harlow: Pearson Education Limited.
- 7) CLAWS7 (1996) http://www.comp.lancs.ac.uk/computing/users/eiamjw/claws/claws7.html.
- 8) Chujo, K. (2004) Measuring vocabulary levels of English textbooks and tests using a BNC lemmatised high frequency word list. In: Nakamura, J., Inoue, N. and Tabata, T. (Eds.), *English Corpora under Japanese Eyes*. Amsterdam: Rodopi, pp. 231-249.
- 9) Pearson Education Limited. (2000) *Longman Business English Dictionary*. Harlow: Pearson Education Limited.
- 10) Dale, E. and O'Rourke, J. (1981) *The Living Word Vocabulary*. Chicago: World Book-Childcraft International, Inc.
- 11) Asano, H., Shimomura, Y., Makino T., Ikeda, M., Ikeya, A., Ishizuya, S., et al. (1999) *New Horizon English Course 1*, 2, and 3. Tokyo: Tokyo Shoseki.
- 12) Suenaga, K., Yamada, Y., Fukai, K., Nakamura, S., Ishizuka, K., Ichinose, K., et al. (2001) *Unicorn English Course I, II*, and *Reading*. Tokyo: Bun'eido.
- 13) Manning, C. D. and Schütze, H. (1999) Foundations of Statistical Natural Language Processing. Cambridge: The MIT Press.
- 14) Manning, C. D. and Schütze, H. (1999) Foundations of Statistical Natural Language Processing. Cambridge: The MIT Press.

- 15) Wakaki, M. and Hagita, N. (1996) Recognition of degraded machine-printed characters using a complementary similarity measure and error-correction learning. *IEICE Trans. Inf. & Syst.* E79-D, 5.
- 16) Dunning, T. E. (1993) Accurate methods for the statistics of surprise and coincidence. *Computational Linguistics*, 19 (1), 61-74.
- 17) Hisamitsu, T. and Niwa, Y. (2001) Topic-word selection based on combinatorial probability. *NLPRS-2001*, 289-296.
- 18) Hisamitsu, T. and Niwa, Y. (2001) Topic-word selection based on combinatorial probability. *NLPRS-2001*, 289-296.
- 19) Church, K. W. and Hanks, P. (1989) Word association norms, mutual information, and lexicography. *Proceedings of ACL-89*, 76-83.
- 20) Rayner, J. C. W. and Best, D. J. (2001) A Contingency Table Approach to Nonparametric Testing. New York: Chapman & Hall/CRC.
- 21) Scott, M. (1999) WordSmith Tools [Computer software]. Oxford: Oxford University Press.
- 22) Chujo, K. and Utiyama, M. (2006) Selecting level-specific specialized vocabulary using statistical measures. *SYSTEM*, *34* (2), 255-269.
- 23) Chujo, K. and Utiyama, M. (2005) Selecting level-specific BNC applied science vocabulary using statistical measures. *Selected Papers from the Fourteenth International Symposium on English Teaching*, Taipei: English Teachers' Association/ROC, 195-202.
- 24) Chujo, K. and Utiyama, M. (2006) Selecting level-specific specialized vocabulary using statistical measures. *SYSTEM*, *34* (2), 255-269.
- 25) Chujo, K., Utiyama, M. and Oghigian, K. (2006) Selecting level-specific Kyoto tourism vocabulary using statistical measures. *New Aspects of English Language Teaching and Learning*, Taipei: Crane Publishing Company Ltd., 126-138.
- 26) Oakes, M. (1998) *Statistics for Corpus Linguistics*. Edinburgh: Edinburgh University Press.
- 27) Chujo, K. and Utiyama, M. (2006) Selecting level-specific specialized vocabulary using statistical measures. *SYSTEM*, *34* (2), 255-269.
- 28) Chujo, K. (2002) Development of CD-ROM material for teaching TOEIC test vocabulary to beginning-level students. *JACET Summer Seminar Proceedings*, 2, 40-44.
- 29) Chujo, K., Shiina, K. and Nishigaki, C. (2002) Development of a CALL system to teach vocabulary for the TOEIC test. Paper presented at the AILA (Association Internationale de Linguistique Appliquée) Conference, Singapore.

日本大学生産工学部研究報告 B 第 40 巻, 2007

- 30) Chujo, K., Yamazaki, A. and Ushida, T. (2003) Bijuaru beishikku niyoru TOEIC-yoo goiryoku yoosei sofutowuea no shisaku (2) [The development of English CD-ROM material to teach vocabulary for the TOEIC test (utilizing Visual Basic): Part 2]. *Journal of the College of Industrial Technology, Nihon University*, 36, 43-53.
- 31) Chujo, K., Ushida, T., Yamazaki, A., Genung, M., Uchibori, A. and Nishigaki, C. (2004) Bijuaru beishikku niyoru TOEIC-yoo goiryoku yoosei sofutowuea no shisaku (3) [The development of English CD-ROM material to teach vocabulary for the TOEIC test (utilizing Visual Basic): Part 3]. *Journal of the College of Industrial Technology, Nihon University*, 36, 29-43.
- 32) Chujo, K., Yamazaki, A. and Ushida, T. (2003) Bijuaru beishikku niyoru TOEIC-yoo goiryoku yoosei sofutowuea no shisaku (2) [The development of English CD-ROM material to teach vocabulary for the TOEIC test (utilizing Visual Basic): Part 2]. *Journal of the College of Industrial Technology, Nihon University*, 36, 43-53.
- 33) Shutterstock.com Support. http://www.shutterstock.com.
- 34) Sounds http://www.research.att.com/~ttsweb/tts/demo.php.
- 35) Shogakukan Corpus Network. http://scn02.corpora.jp/~sakura03/.
- 36) Hashimoto, M. (1991) Keizai-Eigo Eiwa-Katsuyou Jiten [A Dictionary of English Usage for Business and Finance]. Tokyo: Nihon Keizai Shimbunsha.
- 37) Chujo, K. and Oghigian, K. (2006) Creating E-Learning Material with Statistically-Extracted Spoken & Written Business Vocabulary from the BNC. Paper presented at the 2006 Asia TEFL International Conference, Fukuoka, Japan.

Appendix Business Vocabulary 1

	Top 40 Spoken & Written Business Vocabulary						
No.	No. Word		Phrase	1	Phrase 2		
1	account	口座	a bank account	銀行口座	a profit and loss account	損益勘定	
2	investment	投資	a capital investment	資本投資	a business investment	事業投資	
3	profit	利益	profit before tax	税込み利益	a net profit	純利益	
4	contract	契約	an employment contract	雇用契約	a futures contract	先物契約	
5	financial	財務の	financial management	財務管理	a financial problem	財務問題	
6	customer	顧客	customer service	顧客サービス	customer satisfaction	顧客満足	
7	management	経営(陣),管理	top management	最高経営層,首脳部	system management	システム管理	
8	employee	従業員	a government employee	政府職員	an employee share ownership plan	従業員持株制度	
9	client	顧客	a client group	顧客グループ	a client company	取引先会社	
10	organization	組織,団体	a social organization	社会組織	an international organization	国際組織	
11	shareholder	(英)株主	a minority shareholder	少数株主	an ordinary shareholder	普通株主	
12	buyer	買い手	buyers and sellers	買い手と売り手	a first-time buyer	初めて不動産を購入する人	
13	payment	支払い	an interest payment	利息支払い	a monthly payment	月払い	
14	cash	現金	a cash flow	現金収支	a cash payment	現金支払い	
15	sector	部門	the private sector	民間部門、私的セクター	the public sector	公共部門、公的セクター	
16	liability	責任,義務	the tax liability	納税義務	the product liability	製造物責任	
17	fund	基金	a pension fund	年金基金	a trust fund	信託基金	
18	audit	会計監査	an internal audit	内部監査	an audit report	監査報告書	
19	insurance	保険	a life insurance company	生命保険会社	health insurance	健康保険	
20	policy	政策,保険証券	an economic policy	経済政策	an insurance policy	保険証券	
21	union	(労働)組合	a trade union	労働組合	a national union	全国組合	
22	corporate	法人の	corporate finance	企業金融	corporate body	法人	
23	employer	雇用者,事業主	a manufacturer employer	製造業事業主	a relationship between employer and employee	雇用者対従業員の関係	
24	executive	管理職の	a chief executive officer	最高経営責任者	an executive committee	経営委員会	
25	accountant	会計士	a chartered accountant	公認会計士	a trainee accountant	会計士補	
26	supplier	供給者	a software supplier	ソフトウェア製造業者	supplier companies	下請け会社	
27	employment	雇用,職業	an employment opportunity	雇用の機会	an employment agency	職業安定所	
28	objective	目標,客観的な	the main objective	中心的な目標	an objective fact	客観的事実	
29	competitive	競争の	a competitive market	競争市場	a competitive advantage	競争上の優位性	
30	fee	手数料	a licence fee	特許権使用料	a membership fee	会費	
31	premium	保険料,割増金	a premium rate	保険料率	a premium price	特別料金	
32	earnings	かせぎ高	export earnings	輸出収益	lifetime earnings	生涯所得	
33	target	目標	a sales target	販売目標	a target market	目標市場	
34	acquisition	買収,取得	merger and acquisition	企業の合併・買収	an acquisition of a company	会社の取得	
35	delivery	配達	a delivery date	受け渡し日	a delivery service	配達サービス	
36	procedure	手順,手続き	a new procedure	新しい手順	a procedures manual	手続き便覧	
37	recession	景気後退	an economic recession	景気後退	recession proof	景気後退の影響を受けない	
38	expenditure	支出	capital expenditure	設備投資	government expenditure	財政支出	
39	option	選択,選択権	a share option	(英)自社株購入選択権	a soft option	楽な選択,無難な方	
40	pension	年金	a pension fund	年金基金	a pension plan	年金制度	

	Top 40 Spoken Business Vocabulary						
No.	o. Word		Phrase 1		Phrase 2		
1	motion	動議	support the motion	動議をサポートする	propose a motion	動議を出す	
2	region	地域	a different region	異なる地域	in the region of \$2,000	2,000ドル付近に	
3	colleague	同僚	a former colleague	かつての同僚	male colleagues	同僚の男性	
4	conference	会議	a conference call	電話会議	hold a conference	会議を開く	
5	file	ファイル	a data file	データのファイル	a file name	ファイルの名前	
6	composite	複合の	a composite material	複合材料	a composite tax rate	総合税率	
7	delegate	代表者,委任する	a conference delegate	会議の代表者	delegate authority to	権限を委譲する	
8	spreadsheet	スプレッドシート	a spreadsheet program	スプレッドシート プログラム	a spreadsheet file	スプレッドシートファイル	
9	activist	活動家	an environmental activist	環境保護活動家	a human rights activist	人権保護活動家	
10	feedback	感想や意見	positive feedback	正のフィ ー ドバック	get feedback	反響を調べる	
11	formally	正式に	a formally agreed price	正式に同意された価格	It's formally seconded.	正式に支持されました	
12	voluntary	任意の	a voluntary organization	ボランティア組織	a voluntary worker	ボランティア	
13	manual	人力の,手引き	a manual worker	作業員	an instruction manual	操作マニュアル,取扱説明書	
14	membership	会員(地位)	a membership fee	会費	a full membership	正会員	
15	workplace	職場	safety in the workplace	職場の安全	his former workplace	彼の以前の職場	
16	assertive	断定的な	assertive behavior	自己主張の強い振る舞い	an assertive person	自分に自信を持った人	
17	regional	地域の	regional development	地域開発	a regional office	地域事務所	
18	resolution	決議	adopt a resolution	決議を可決する	pass a resolution	決議を可決する	
19	directory	住所氏名録	a telephone directory	電話帳	a data file directory	データファイルディレクトリ	
20	rep	代理人	a sales rep	セールスマン, 販売員, 販売代理店	a safety rep	保安職員	
21	formula	式,公式	use a formula	定式を使う	a standard formula	標準式	
22	appraisal	評価	an appraisal system	評価システム	an appraisal report	評価報告	
23	secretary	秘書	a company secretary	(会社の)秘書	a private secretary	個人秘書	
24	print	印刷	the small print	(契約書の)細字部分(不利な条件)	in print	発売中,出版されて	
25	description	記述,説明書	a job description	職務内容記述書,職務,職種	a trade description	(英)取引表示(法)	
26	referral	紹介	make a referral	(求人先に,専門医に)紹介する	a referral service	参照サービス	
27	waiver	権利の放棄	a collision damage waiver	(レンタカー)車両保険,免責軽減制度	a waiver of the premium	保険料払い込み免除	
28	diary	日誌	a personal diary	私的な日誌	a desk diary	卓上日記	
29	task	課せられた仕事,タスク	a task force	機動部隊、プロジェクトチーム	a task group	タスクグループ,任務群	
30	self-employed	自家営業の	a self-employed person	自家営業者	a self-employed builder	自家営業の建設業者	
31	review	(再)調査	under review	調査の対象となっている	a review committee	調査委員会	
32	agenda	議題	on the agenda	協議事項となって	an agenda item	協議事項	
33	session	開会していること,課業	a training session	訓練期間	in session	開会中,会議中	
34	aggressive	攻撃的な,積極的な	aggressive behavior	攻撃的な行動	an aggressive marketing campaign	積極的な販促	
35	consignment	委託(販売)	a consignment of goods	商品の委託販売	a consignment note	受託書	
36	setup	セットアップ , 準備 , 設定	a setup program	セットアッププログラム	a setup screen	セットアップ画面	
37	investigator	調査者	a private investigator	私立探偵	an accident investigator	事故取調官	
38	salesman	セールスマン	a car salesman	車の外交員	an insurance salesman	保険勧誘員	
39	sponsor	スポンサー , 広告主	a major sponsor of the Olympics	オリンピックの主要スポンサー	an official sponsor form	公式スポンサー用紙	
40	binder	バインダー	a ring binder	リングバインダー	a loose-leaf binder	ルーズリーフバインダー	

	Top 40 Written Business Vocabulary						
No.	We	ord	Phrase	1	Phrase 2		
1	tax	税	a local tax	地方税	a sales tax	売上税	
2	income	所得	an income tax	所得税	a net income	純所得	
3	asset	資産	net assets	純資産	fixed assets	固定資産	
4	investor	投資家	individual investors	個人投資家	overseas investors	海外投資家	
5	credit	信用貸し	a credit card	クレジットカード	a tax credit	税額控除	
6	finance	財務,金融	corporate finance	法人金融	international finance	国際金融	
7	dividend	配当	a final dividend	年度末配当,最終配当	an interim dividend	中間配当	
8	transaction	取引	a commercial transaction	商取引	a financial transaction	金融取引	
9	seller	売れる物	a goods seller	売れ行きの良い商品	direct sellers	直販業者	
10	clause	条項	an exclusion clause	除外条項	a penalty clause	違約条項	
11	bond	債券	a government bond	国債	a bond market	債券市場	
12	debt	負債	a bad debt	不良債権	the national debt	国債	
13	equity	財産物件の純粋価格	equity finance	株式発行による資本調達	equity capital	自己資本	
14	auditor	監査役	the company's auditors	会社の監査役	an auditor's report	監査報告書	
15	inflation	インフレーション	the inflation rate	インフレ率	the high inflation	高いインフレ率	
16	revenue	歳入,収入	a tax revenue	税収	a sales revenue	総売上高	
17	currency	通貨	a foreign currency	外貨	a single currency	(複数の国の)単一通貨	
18	property	財産	an intellectual property	知的財産権	a commercial property	営業用不動産(店舗,事務所など)	
19	merger	合併	a merger agreement	合併の同意	a merger plan	合併案	
20	requirement	必要条件,要件	a legal requirement	法的な必要条件	a safety requirement	安全要求事項	
21	discount	割引	a cash discount	現金割引	a discount rate	値引率	
22	mortgage	住宅ローン	a mortgage rate	住宅ローン金利	a mortgage payment	住宅ローン支払い	
23	purchaser	購買者	a potential purchaser	潜在購買者	a prospective purchaser	見込み客	
24	competition	競争	an international competition	国際的な競争	a price competition	価格競争	
25	takeover	買収	a hostile takeover	敵対的買収	a takeover bid	株式公開買付け(TOB)	
26	marginal	限界の	a marginal cost	限界費用	a marginal tax rate	限界税率	
27	portfolio	所有有価証券,金融資産	a portfolio investment	証券投資	a portfolio manager	資産管理担当者	
28	monetary	通貨の	a monetary policy	通貨(金融)政策	the international monetary system	国際通貨制度	
29	chairman	議長	a committee chairman	委員長	a board chairman	取締役会長	
30	valuation	評価	a property valuation	財産評価	a stock valuation	在庫品評価	
31	dealer	売買人	a car dealer	車の販売業者	a wholesale dealer	卸売商	
32	retailer	小売業者	a food retailer	食料品店	a small retailer	小規模小売店	
33	overseas	海外の	an overseas market	海外市場	an overseas branch	海外支店	
34	lender	貸し手	a money lender	金貸し,金融業	lenders and borrowers	貸し手と借り手	
35	breach	違反	a breach of contract	契約不履行	a breach of trust	背任	
36	sterling	英貨の , ポンドの	a pound sterling	英貨1ポンド	a sterling balance	ポンド残高	
37	accountancy	会計士	an accountancy firm	会計事務所	an accountancy service	会計監査業務	
38	provision	供給	a provision of services	サービスの供給	the provision of appropriate training	適切な訓練の供給	
39	equilibrium	均衡	the market equiibrium	市場の均衡状態	an equilibrium price	均衡価格	
40	liquidity	流動性	the international liquidity	国際流動性	a liquidity ratio	流動性比率	