

Studying Lexical Input from English Textbooks for Primary and Junior Secondary Students in Hong Kong

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This paper reports a study on English textbooks which serve as the major source of lexical input for acquisition in an ESL setting. A corpus of English words available for acquisition in the major local English textbooks for primary and junior secondary school students was compiled to generate textbook frequency lists in order to find out the richness and nature of lexical input. The lexical variation (type-token) ratio was calculated, using WordSmith Tools (Scott, 1998). The textbook word lists were then compared with General Service List (West, 1953), VocabProfile (Nation, 1996) and Academic Word List (Coxhead, 1998) to determine the nature of words that Hong Kong students encounter after nine years of English learning. Results have shown that the Hong Kong students are exposed to an impoverished lexical environment which is reflected by the lexical variation ratio, nature of vocabulary, and variety of words.

Key words: lexical input, English textbooks

INTRODUCTION

Although there are only a limited number of studies on vocabulary size of ESL learners, findings of these studies are noteworthy. In Hong Kong, studies on vocabulary size had been carried out at different times, at different

levels of schooling and by different researchers. However, consistent results were observed. Tang (2006) conducted a research on the Hong Kong primary and junior secondary school students who learn English as a compulsory subject at school. She found that these ESL young learners had small vocabulary size. The majority of the young learners did not know enough basic and simple words and that students at higher level of schooling, i.e. with longer English learning experience, did not necessarily possess a larger vocabulary size than those at junior levels. The poor vocabulary performance of ESL learners was further supported by McNeill (2007) who studied the students who were about to complete the secondary school education. He found a low attainment of these students beyond the high frequency word level in the vocabulary levels test. In other studies, Cobb and Horst (2000) and Fan (2001) found that university students in Hong Kong performed well between 3,000 and 5,000 frequency word-levels but not at the academic word level, implying that they might not have enough academic words to read texts effectively for their study. The overall performance of the ESL learners in Hong Kong seems to suggest that there is a need for a systematical vocabulary development in order to meet the vocabulary needs when they progress.

When there is a growing number of work to recognize the close relationship between vocabulary size and English competence (see Carter & McCarthy, 1988; Ellis et al., 1995; Laufer, 1986, 1997; Nation 1990, 2001; Richards, 1976; Schmitt, 2000; Wesche & Paribakht, 1999), the belief that vocabulary is “picked up” indirectly while engaged in grammatical or communicative activities or while reading does not encourage an explicit inclusion of vocabulary in the curriculum (Manguashca, 1993). In Hong Kong, all students start to learn English as a compulsory school subject at primary 1. The English syllabuses for primary and secondary levels (Curriculum Development Council (CDC), 1997; CDC, 1999a; CDC, 1999b) provide the official views on the directions of language development and their philosophy of teaching and learning. In these documents, vocabulary is presented as one aspect of the language system together with text-types,

communicative functions and language items. Under the section ‘vocabulary’, only general considerations on learners’ needs, cultural factors, passive and active vocabulary, and vocabulary building strategies are discussed. There is no direction or target for vocabulary growth. There is no indication of the vocabulary needs of the Hong Kong students. The quantity of words and the nature of words to be introduced to students, therefore, rest solely on the judgment of the textbook writers. However, it is always unsure how textbook writers come up with the pedagogical decision of ‘how many’ and ‘what’ words to be included for acquisition.

Most work on second language vocabulary teaching seemed to agree that language learners should first concentrate on the high frequency words of the language. Nation and Newton (1997, p. 239) suggested that “the 2,000 high-frequency words of English should receive attention first because without these it is not possible to use English in any normal way”. Beyond the 2,000 high frequency words, Nation and Waring (1997) suggested that second language learners who go on to academic study would have a need for general academic vocabulary. If the high frequency words and academic words are what the second language learners need, these words should be readily available to the learners. In Hong Kong, the major source of lexical input for acquisition is from the English textbooks. It can, therefore, be argued that the lexical input from the English textbooks will have direct impact on the vocabulary size of the students. However, research work in this area is limited. Tang (2002) studied the nature of vocabulary input from the glossary of the College English textbooks in China. There is no study on vocabulary input at the basic education level which is of paramount importance to the whole ESL or EFL learning process.

In this paper, I will report a study on lexical input from English textbooks for primary and junior secondary school students in Hong Kong. The purpose of this study was to compile an English textbook corpus for primary and junior secondary school students in Hong Kong in order to examine the richness and nature of lexical input available for acquisition. It is hoped that the results will shed lights to the importance of vocabulary development and

vocabulary growth at the early stage of ESL or EFL education.

METHODOLOGY

To determine the kind of words that Hong Kong students encounter after receiving nine years of formal English teaching and learning, at the age of 15, major local English textbooks were processed to generate textbook frequency lists. Two sets of major English textbooks for the six levels (P1 to P6) of primary education and four sets of major English textbooks for the three levels (S1 to S3) of junior secondary level were selected (see Table 1). At primary level, publishers A and B had one set of textbooks. At secondary level, publishers A and B produced two sets of textbooks (thereafter ‘version 1’ and ‘version 2’). According to some experienced English teachers consulted in this study, ‘version 2’ seemed to be easier and simpler in terms of the length of the texts, complexity of the sentences and level of lexical difficulties.

TABLE 1
English Textbooks Corpus

	Book	Level	Sub-total
Primary	PA	1a-b, 2a-b, 3a-b, 4a-b, 5a-b, 6a-b	12
	PB	1a-d, 2a-d, 3a-d, 4a-d, 5a-d, 6a-d	24
Secondary	SA1	1a-b, 2a-b, 3a-b	6
	SA2	1a-b, 2a-b, 3a-b	6
	SB1	1a-b, 2a-b, 3a-b	6
	SB2	1a-b, 2a-b, 3a-b	6
Total			60

In order to compile the textbooks corpus, all pages of the textbooks were scanned and saved as text file format. Careful spell checking and editing were done before they were transferred to the computer program called WordSmith Tools (Scott, 1998) to generate frequency counts.

To assess lexical richness provided by the textbooks, the type-token ratio

was calculated using the same computer program and was analysed using the measure of lexical variation (LV) adopted by Meara, Lightbown and Halter (1997) and Brown, Sagers, and LaPorte (1999). It was assumed that if a high LV was found, it indicated that a rich lexical environment existed. Finally, the textbook word lists were then compared with *General Service List*¹ (West, 1953), *VocabProfile*² (Nation, 1996) and *Academic Word List*³ (Coxhead, 1998) in order to find out the nature of words available for acquisition. The wordlist files were compared to check for the common and different words, using “compare two lists” from WordSmith Tools 3.0.

FINDINGS

Textbook Word Lists

A total of sixty word lists with frequency counts were generated from each single textbook. Word lists from the same series were then combined to form another six textbook wordlists. A comparison of the textbooks between publishers A and B showed that their books had 58% to 66% of words in common (see Table 2a). Take an example of the two sets of primary textbooks PA and PB. PA has 37.57% words which cannot be found in PB. In other words, about 63% of the words appear in PA can also be found in PB.

¹ Nation (2001) claimed that this classic list of 2,000 high frequency words is still the best available list which covers 80% of the running words in spoken and written texts in all kinds of uses of the language.

² Nation (1996) divided the most frequent words in English into the first, second and third 1,000 word lists. The three lists of words can be found in the computer programme *VocabProfile*. The first list (VP1) includes the most frequent 1,000 words of English; the second (VP2) includes the second 1,000 most frequent words, and the third (VP3) includes words not in the first 2,000 words of English, but frequent in upper secondary school and university texts from a wide range of subjects.

³ Coxhead (1998) replaced *University Word List (UWL)* with an *Academic Word List (AWL)* containing 570 word families.

Thus, the lexical input for students using textbooks from PA should not be significantly different from students using textbooks from PB.

TABLE 2a
Comparison of Textbooks in Terms of Lexical Input (Between Publishers A and B)

Publisher A	Common words	Publisher B
PA (1,140 / 37.57%)	1,894	PB (1,201 / 39.26%)
SA1 (2,559 / 41.64%)	3,587	SB1 (2,438 / 40.47%)
SA2 (1,563 / 34.55%)	2,961	SB2 (2,229 / 42.95%)

At secondary level, each publisher had two versions of textbooks. The textbook word lists revealed that ‘version 1’ and ‘version 2’ shared a lot of common words (Table 2b). For example, ‘version 2’ from SA was 80% identical to SA1 in terms of types of words. However, SA1 was a bit more different from SA2 as it contained more different words. About 41.21% of words in SA1 could not be found in SA2. This could probably affirm the observation of the English teachers that ‘version 2’ is easier and simpler than ‘version 1’.

TABLE 2b
Comparison of Textbooks in Terms of Lexical Input (Between ‘Version 1’ and ‘Version 2’)

Version 1	Common Words	Version 2
SA1 (2,533 / 41.21%)	3,613	SA2 (911 / 20.14%)
SB1 (2,579 / 42.81%)	3,446	SB2 (1,744 / 33.60%)

Lexical Input from Textbooks

The overall picture of the lexical richness provided by the textbooks was viewed by examining the LV ratio in three different ways: i) the lexical variation of individual textbook; ii) the lexical variation of textbook series at primary and junior secondary levels; iii) the lexical variation of textbook series from primary to junior secondary.

At individual textbook level, the tokens increased with the years of English education. Students are expected to read more when they progress. They are

also exposed to more different words as the types of words grow too. However, the LV ratio was low (see Table 3 below). It ranged from 5.60% to 16.57%, suggesting that students were exposed to very few different words each year. LV ratio observed in primary English textbooks was comparatively higher than that in the secondary English textbooks. It is likely that students come across the same word more often at junior secondary level than at primary level.

When comparing the two versions of textbooks, both the tokens and types of words reduced in 'version 2'. In other words, 'version 2' had fewer different words and probably shorter texts than 'version 1'. While it seems that 'version 2' is an easier or simpler copy of 'version 1', the LV ratio of 'version 2' was not significantly lower than that in 'version 1'. It is interesting to find out that 'version 2' from publisher B had a even higher LV ratio than 'version 1', implying that the simpler and easier version has a richer lexical input for acquisition.

TABLE 3
Lexical Variation of Individual Textbook

Level	PA			PB		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>
<i>P1</i>	3,294	476	14.45	4,890	510	10.43
<i>P2</i>	4,589	628	13.68	6,497	816	12.56
<i>P3</i>	5,462	905	16.57	8,140	1,036	12.73
<i>P4</i>	9,863	1,320	13.38	16,476	1,429	8.67
<i>P5</i>	11,255	1,492	13.26	15,802	1,539	9.74
<i>P6</i>	14,196	1,819	12.81	18,979	1,834	9.66
Level	SA1			SB1		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>
<i>S1</i>	37,249	2,849	7.65	50,509	3,237	6.41
<i>S2</i>	45,149	3,821	8.46	59,221	3,316	5.60
<i>S3</i>	43,541	3,543	8.14	63,926	3,932	6.15
Level	SA2			SB2		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio (%)</i>
<i>S1</i>	29,173	2,160	7.40	34,364	2,571	7.48
<i>S2</i>	31,518	2,609	8.28	42,242	3,037	7.19
<i>S3</i>	36,159	2,890	7.99	44,837	3,412	7.61

When the LV ratio of individual textbooks was not high already, the ratio dropped considerably when it was calculated across cumulative levels at primary and junior secondary levels (Table 4). At individual textbook level, the LV ratio for most textbooks at primary level reached or almost reached a 2-digit number. However, when these textbooks were examined as a whole series, there were only 4.37 to 6.24 different words within 100 running words. It further substantiated the fact that the lexical environment from print is disappointingly impoverished.

TABLE 4
Lexical Variation of Textbook Series (Primary and Junior Secondary)

	PA			PB		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>
<i>P1 – P6</i>	48,659	3,034	6.24	70,766	3,094	4.37
	SA1			SB1		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>
<i>S1 – S3</i>	125,939	6,146	4.88	173,656	6,025	3.47
	SA2			SB2		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>
<i>S1 – S3</i>	96,850	4,511	4.66	121,603	5,190	4.27

The final analysis is to find out the lexical variation of textbook series from primary to junior secondary. This helps to understand how many different words an ESL student would know after nine years of English education using the textbooks from the same publisher. When the whole textbook series were examined, the LV ratio dropped even further (Table 5). There were only about 2.79 to 4 different words in a text of 100 words. The LV ratio was consistently low at each level of study in primary and secondary. Within the nine years of English education, students are not provided with a lexically rich environment for the principal source of input.

TABLE 5
Lexical Variation of Textbook Series (From Primary to Junior Secondary)

	PA + SA1			PB + SB1		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>
<i>PI – S3</i>	174,374	6,968	4.00	244,442	6,823	2.79
	PA + SA2			PB + SB2		
	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>	<i>Tokens</i>	<i>Types</i>	<i>LV ratio</i>
<i>PI – S3</i>	145,237	5,547	3.82	192,413	6,103	3.17

The low LV ratio could have suggested that these words reoccurred frequently in individual textbook and across levels and years of study. As Krashen (1982) puts it, repeated exposure to the words creates a favorable condition for successful vocabulary acquisition as acquisition is a gradual and incremental process. Coxhead (2000) reaffirms that the density of unknown words should not be too high in a text, and the opportunities for repeated exposure should be optimized. As in L1 vocabulary acquisition, it requires multiple exposures to a word in various collocations and in various situations. Saragi, Nation and Meister (1978) suggested that at least ten exposures are needed while Nation (1990) proposes five to sixteen. In the study of difficulty in learning words from textual context, Nagy, Herman and Anderson (1985) estimated that the chance of learning a word after only one encounter is between 10 and 15 percent. If successful acquisition requires a minimum exposure of five times, more than half of the words appeared in the textbook corpus did not recur more than five times in the 6 years of primary or in the 3 years of junior secondary education (Table 6). Even worse, about a quarter of the words appeared only once in the whole primary or junior secondary education. The textbooks do not seem to provide a favorable condition with ample exposure for successful acquisition of words.

TABLE 6
A Frequency Count of Recursive Occurrences of Individual Word

	PA	PB	SA1	SA2	SB1	SB2
≥ 5	1,306	1,482	2,487	1,991	2,675	2,250
times	(43.05%)	(47.90%)	(40.47%)	(44.14%)	(44.40%)	(43.35%)
< 5	1,728	1,612	3,659	2,520	3,350	2,940

times	(56.95%)	(52.10%)	(59.53%)	(55.86%)	(55.60%)	(56.65%)
1 time	832	712	1,633	1,032	1,678	1,454
only	(27.42%)	(23.01%)	(26.57%)	(22.88%)	(27.85%)	(28.02%)

Nature of Lexical Input from Textbooks

When the textbook word lists matched with *GSL*, *VP3* and *AWL*, a comparatively higher percentage was observed in *GSL*. The result was not surprising as these basic words should be given priority in sequencing. Table 7 below displays the distribution of words in the English textbooks.

TABLE 7
The Distribution of Words in the English Textbooks

	PA		PB		SA1		SA2		SB1		SB2	
	No.	%										
GSL	962	32	964	31	1299	21	1139	25	1328	22	1278	25
VP3	33	1	27	1	261	4	167	4	205	3	162	3
AWL	25	1	23	1	247	4	160	4	177	3	157	3
other	2014	66	2080	67	4339	71	3045	67	4315	72	3593	69
Total	3034	100	3094	100	6146	100	4511	100	6025	100	5190	100

It was also noted that the largest proportion of words fell into the category of 'other'. A quick and brief look of the 'other' words revealed that there were:

- proper nouns, e.g. Brian, Spanish, Delifrance;
- borrowed words, e.g. shabu shabu, karaoke, croissants;
- words related to science and technology, e.g. ion, toxic, download, multimedia, websites;
- spoken expressions, e.g. oops, ok, er;
- words related to Chinese or local culture, e.g. chopsticks, McMug, minibus;
- food, e.g. mussels, spaghetti, brownie, stew, durians;
- words related to the classroom and living environment, e.g. literacy, habitat, indoor, blackboard;
- animals and birds, e.g. parrots, claws, hare;

- words related to language learning, e.g. dyslexia, semantic, suffix.

When the *GSL* is considered as the most useful words for all ESL learners, by the age of 15 or after nine years of English education, Hong Kong students learn slightly more than half of these basic words only (Table 8). Both textbook series from the two publishers were able to cover half of the most frequent 2,000 words. The coverage of these basic words did not increase greatly at junior secondary level. It is also not surprising to find that 'version 2' from both publishers had fewer increase. At junior secondary level, one can expect a bigger inclusion of VP3 and AWL as they are useful words for academic study. However, both publishers offered students with minimal exposure to the general academic words too. The result implies that these students might encounter problems both in daily communication and future academic study.

TABLE 8
The Percentage of Words in the Selected ESL Wordlists

	GSL	VP3	AWL
PA	50.53%	0.90%	0.80%
PB	50.63%	0.73%	0.74%
SA1	68.22%	7.10%	7.94%
SA2	59.82%	4.54%	5.14%
SB1	69.75%	5.58%	5.69%
SB2	67.12%	4.41%	5.05%

DISCUSSION

This study was designed to shed lights to vocabulary development and vocabulary growth in an ESL or EFL environment where English textbooks are major sources of lexical input. Results have shown that Hong Kong students are exposed to an impoverished lexical environment in terms of the richness of lexical input from the textbooks and the nature of words. The low LV ratio at each school level in primary and junior secondary and across the

nine years of English study suggested that limited variety of words was available for acquisition. It is, therefore, not surprising to find a small vocabulary size of Hong Kong young learners as reported in Tang (2006) and thereafter (Cobb & Horst, 2000; Fan, 2001; McNeill, 2007) as the lexical input from textbooks is not conducive to vocabulary growth.

Success in acquiring new words relies heavily on the opportunities for recursive encounters. So far, no agreement over the number of exposures has been reached, but design initiatives should include the adaptation of texts to provide optimal conditions for both meeting and learning new words and to provide an opportunity for transforming the receptive vocabulary to a productive one if teachers are aware of the known words to the learners and if appropriate teaching methods are adopted. However, in this study, the frequency count of recursive occurrences did not seem to suggest that optimal conditions were provided for acquisition. The majority of the words did not recur frequent enough for successful acquisition.

Since textbook is the major source of English lexical input, the selection and sequencing of words are of pedagogical importance. However, the textbooks could only cover slightly more than half of the 2,000 most frequent words after nine years of English study. This finding is helpful to explain why these ESL students showed low attainment in the vocabulary levels test at the end of secondary education. Furthermore, there was limited coverage of academic words which students need in order to move on to their study. The finding is consistent with vocabulary levels test conducted by Cobbs and Horst (2000) and Fan (2001) that these ESL students were particularly poor at academic word level. With inadequate input of high frequency words and academic words, it can be predicted that students will not have a variety of vocabulary to perform effectively with the language in any communicative contexts.

In this study, it was found that these English textbooks provide a large number of “other” words for acquisition. However, the nature and choice of these “other” words are difficult to be systematically categorized. It is also not sure about the perception of the textbook writers on the vocabulary needs

and vocabulary input for the ESL students. Further and in-depth examination is required to identify patterns and usefulness of these “other” words and the vocabulary demand of the students.

CONCLUSION

In an ESL or EFL context where language input is “poor” or not so readily available outside the classroom, the chance of acquainting with a rich lexical environment for incidental “pick-up” is minimal. Lexical input for vocabulary acquisition and vocabulary growth in such a context relies heavily on the English textbooks. If the immediate source cannot provide a rich lexical environment in terms of variety and nature and if the selection and inclusion of these words cannot provide favourable conditions for acquisition, vocabulary will still remain the biggest hurdle for improving English competence and performance among ESL or EFL learners.

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