

## Mainstreaming Second Language Vocabulary Acquisition

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### Abstract

Once seen as a neglected area, second language vocabulary research has come into its own in recent years. But classroom implementations have been slow to follow. One potentially very useful research finding is the impressive coverage power of a relatively small number of words: analyses of large corpora of language show that with knowledge of the 2,000 most frequent word families of a language, learners will be familiar with around 80% of the words they encounter. This position paper argues for refocusing language pedagogy to improve learners' opportunities to acquire knowledge of these important words. The rationale is based on empirical studies showing how knowledge of vocabulary generally and 2,000 high frequency families in particular impact proficiency. Research also shows that "normal" classroom input does not support the acquisition of the words learners most need to know.

### Résumé

Autrefois vue comme négligée, la recherche sur les connaissances en vocabulaire en langue seconde s'est imposée depuis quelques années. La mise en oeuvre dans les classes n'a suivi que lentement. Un résultat des recherches avec du potentiel est la couverture impressionnante que donne un nombre de mots relativement restreint. Des analyses de grands corpus démontrent qu'avec la connaissance des 2 000 familles de mots les plus fréquentes d'une langue, les apprenants seront familiers avec environ 80% des mots qu'ils rencontreront. Cet exposé de position plaide en faveur de recentrer la pédagogie des langues afin d'améliorer les possibilités pour les apprenants d'acquérir la connaissance de ces mots importants. La justification est fondée sur des études empiriques qui démontrent que les connaissances en vocabulaire en général et des 2 000 familles les plus fréquentes en particulier donnent l'avantage dans la maîtrise d'une langue. Les recherches démontrent aussi que l'apport des activités ordinaires dans les classes n'est pas suffisant pour acquérir les mots dont les apprenants ont besoin.

## Introduction

If students or researchers in the area of Applied Linguistics were asked to identify the key priorities in second language acquisition (SLA) research today, would the answer include the study of lexis? I suspect that for many, second language (L2) vocabulary acquisition is still not seen as “mainstream” SLA. Admittedly, this picture is changing. Lexis has come into its own since the early 1980s when Meara famously referred to it as a neglected area; in recent years many important books, articles and special journal issues have been published on vocabulary-related topics. But in this paper I argue for a renewed emphasis on lexis because I observe that it continues to be undervalued, perhaps in less obvious ways than Meara mentioned. Although vocabulary gets more research attention than it once did, it remains on the sidelines in language teaching and in programs that train language teachers. It appears that in the minds of many learners, teachers and applied linguists, “real” language learning has more to do with the acquisition of grammar systems—even though vocabulary knowledge clearly underpins all language proficiency and is the foundation upon which any acquisition of syntax, pragmatics, and other aspects of language crucially depends. An important argument for giving vocabulary a more central place comes from recent corpus-based research that shows just how important it is to know the most frequent words of a new language. In this paper, I review this work as well as research that identifies vocabulary knowledge as the key determinant in developing L2 proficiency. A study by Stæhr (2008) illustrates the remarkable empowerment that knowledge of the 2,000 most frequent word families can bring learners. But this good news is followed by a look at input studies showing that the acquisition of full sets of frequent word families (e.g., the 2,000) is not well supported in communicatively-oriented language classrooms. I end by outlining ideas for a vocabulary-centred pedagogy that addresses these deficits. But first I turn to some formative life experiences that have made championing vocabulary a personal mission.

## A Vocabulary Journey

Upon graduating with a Masters degree in English literature in 1975, I found work as a volunteer teacher at an English-medium girls school in Cairo, Egypt. Though I had no relevant training or teaching experience, a graduate degree in English literature and native-speaker ability were considered qualifications enough to teach Shakespeare plays and American short stories to secondary-level Egyptian girls. Initially the purpose of this literature curriculum was not obvious, but I eventually realized that parents hoped that with years of education in English, their daughters would score high on the English proficiency tests that were gateways to prestige faculties such as medicine and engineering at Egyptian universities.

Shakespeare seemed a circuitous route to the language knowledge needed to read university texts in English, and I was hardly alone in thinking that a needs-centred approach might be more effective. With the rise of Middle Eastern oil economies in the 1970s came pressure to focus English teaching more closely on the goals of learners seeking to develop technological skills and knowledge of specific (usually scientific) areas of expertise—all of which required knowledge of English. The result was the English for Specific Purposes (ESP) movement pioneered by Strevens (1971), Swales (1971) and others. When I arrived to teach English to pre-medical students at King Saud University in Riyadh in 1982, I found

the ESP syllabus well ensconced there. Students in the classes I taught using the *Exploring Functions* reading textbook (Widdowson, 1980) encountered academic passages on topics that were far more closely aligned with their future medical studies than *Antony and Cleopatra* could ever be. But like the Egyptian learners labouring over their literary texts, the Saudi Arabian pre-medical students were hardly fluent readers. Although *Exploring Functions* was designed to promote “top down” reading skills such as identifying main ideas and outlining cause-and-effect sequences, I found that most of my time in class was spent explaining and simplifying the lexis of the reading passages. It was evident that the students could not identify the structure of a passage or explore its functions—as the textbook’s title enjoins—if they could not understand the meanings of the words. Perhaps the course planners assumed that these students had already learned the vocabulary they needed to know somewhere else; in any case, the requisite word recognition skills were clearly missing.

To get a better picture of the vocabulary obstacles our students were facing, colleague Tom Cobb and I typed the entire text of *Exploring Functions* manually into a computer (an early model by the now defunct Osborne company). This electronic version (a de facto mini-corpus) allowed us to generate a frequency list showing which words occurred in the textbook and crucially, whether there was any payoff for our students’ huge investment in looking up, understanding and trying to remember all this vocabulary. In other words, would they ever meet any of the vocabulary again? Our analysis showed that many potentially useful medical words occurred (e.g., *deficiency*, *device*, *external*, *extremity*) in the book, but as we suspected and the corpus count showed, few of these ever recurred. To remedy this, we created a bank of supplementary medicine-themed readings and “wrote in” as many words from the *Exploring Functions* list as the constraints of natural-sounding text would allow. Interestingly, around the same time, but unbeknownst to us, researchers Xue and Nation were also engaged in a corpus-informed academic vocabulary project of a slightly different type. In 1984 they published the *University Word List* (UWL), a list of 836 English word families that occurred frequently in university textbooks across a variety of academic disciplines.

The importance of identifying frequent vocabulary and devising effective methodologies to teach it was dramatically reinforced by experiences in the early 1990s at Sultan Qaboos University in Oman. In 1993, the university inaugurated a new college of commerce with high expectations for training young entrepreneurs to diversify the nation’s oil-based economy. But it soon became clear students were vastly underprepared for the challenges of studying business content using university textbooks designed for native speakers of English. Even the Cambridge Preliminary English Test, or PET (Cambridge English Language Assessment, 2013), a measure of lower- intermediate-level proficiency used as a gateway to enter content courses, proved discouragingly difficult for students to pass. Many failed repeatedly and the initial optimism that accompanied the opening of the new college rapidly dissipated. One student’s despair is reflected in a classroom activity that involved writing a letter to a friend:

Dear Nawal

I heard that you are going to join the College of Commerce after you finish your high school. I have a lot to tell you about this college. The first and important thing is the PET test. You must pass this test so you can continue your studies in the

College. The PET test is not as easy as it seems. It is so difficult and we have to do a lot to pass it....

The English that we learned at school is too easy and it is nothing compared with the English in the University. Let me tell you about myself as an example. I thought that I knew English and really in the school, I was from the three best students in the class in English. But here my English is nothing, then I thought I learned nine years English in the school but I don't have any knowledge and I don't know anything about real English. I really don't know the fault from who....

A solution was urgently needed and one was found with the discovery that the PET was based on a limited and available list of frequent English words. Test specifications indicated that with knowledge of 2,000 frequent word families (Hindmarsh, 1980), almost all of the families in reading passages and test questions would be familiar. (A family is the base form of a word such as *happy* and its basic inflected and transparently derived forms such as *happier*, *happily*, and *unhappy*.) The following excerpt from a sample PET reading passage illustrates the usefulness of knowing these basic word families. The eight underlined items are the only words that would not be familiar to a learner who knew all of the 2,000 most frequent word families and a few (presumably transparent) place names like *Arctic* and *Scotland*. It is clear that with knowledge of 2,000-level vocabulary, the text becomes comprehensible.

#### Exploring the Arctic

The Arctic is one of the few places in the world untouched by pollution where you can see nature at its wildest and most beautiful. Join our ship The Northern Star from 2 to 18 July, for a 17-day journey to the Arctic. During the journey, you are able to relax and get away from it all. There are no parties or film-shows to attend, quizzes to enter, or entertainers to watch. However, we do have specialists on board who are willing to answer any of your questions about the Arctic and who will talk about the animals and birds that you see on the trip.

After setting off from Scotland, we go north along the coast of Norway to Bear Island. Along the way, you'll see thousands of sea birds and wonderful scenery, with rivers of ice and huge cliffs. You will have the chance to see reindeer, polar bears, and other Arctic animals. Although we have a timetable, experience has shown that we may have to change our direction a little, depending on the weather and on which animals appear.

Analysis of the passage above using *Vocabprofile* software available at the *Lextutor* website (Cobb, n.d.) indicates that with knowledge of 2,000 frequent families, readers will know 96% (or 24 in 25) of the words that occur in the text, and so have a reasonably sound basis for guessing the remaining unknown words from context. Though the 96% does not quite match the 98% known word coverage level that research by Nation (2006) has shown to be a reliable predictor of successful reading comprehension, it was evident that mastery of 2,000 frequent English word families represented a manageable teaching goal that would offer students at the College of Commerce an important advantage. We immediately introduced a program of intensive study of these words. Innovative tasks on computer were created to ensure that the vocabulary was learned in meaningful and richly varied contexts (for details see Cobb, 1997, 1999). Failure rates on the PET soon decreased, and students

were able to move ahead with their studies. The next step was to use a similar approach to teaching words on the UWL (Xue & Nation, 1984) to support students' comprehension of the unsimplified academic texts they would soon encounter in their business studies.

In this paper I have opted to focus on the 2,000 most frequent word families as an important entryway into a new language. However, it is worth noting that other pedagogically useful lists of frequent words have been derived from corpora. Most notably, the UWL and more recently, Coxhead's (2000) streamlined and updated *Academic Word List* (AWL) offer university-bound learners of English an important advantage in comprehending university texts across a variety of subject areas.

### **The Power of 2,000 Frequent Words**

The potential efficiency of a frequency-informed approach came as a new and striking revelation to many in the 1990s, but in fact, the coverage powers of the most frequent word families of a language had been observed by Zipf and others decades earlier (Milton, 2009). The mathematical formula underpinning this linguistic reality is Zipf's law: This law states that in a corpus of natural language, the frequency of a word is inversely proportional to its frequency rank. By way of illustration, consider the word *the*, which is the most frequent word in any sizable corpus of English, and therefore has the rank of one, while the second ranked word is *of*. According to the law, the first ranked word, *the*, should occur twice as often as *of* in the corpus and three times as often as the third ranked word and so on. This pattern has been found to hold true. In more general terms, Zipf's law states that a relatively small number of words are hugely used in a language, and the rest rarely. This relationship is illustrated in Table 1, where the first row shows that with knowledge of just 10 words—in this case, the 10 most frequent words of English—the reader will be able to recognize almost a quarter (24%) of all the words he or she meets in the written language. And, as the second row indicates, with knowledge of 100 words, the coverage increases to almost half (49%). These are mostly function words like *have*, *you* and *the*, and while knowing them is obviously important, there is clearly a limit on what can be expressed or understood with knowledge of just 100 families. The picture becomes more interesting in the third and fourth rows where it can be seen that with knowledge of 1,000 frequent words, learners will recognize almost three quarters of the English vocabulary they encounter in their reading, and with 2,000, coverage increases to over 80%. These are clearly very important words for learners of English to know. The table also shows that after this point, rewards diminish such that one could study and learn many more thousands of English words and still not have complete coverage of the entire language.

Table 1

*Coverage figures for frequent English words from Carroll, Davies and Richman (1971, as cited in Nation, 2001)*

Number of words	Text coverage in %
10	24
100	49
1,000	74
2,000	81
.....	.....
44,000	99

Although the illustration of Zipf's law in Table 1 pertains to English, this frequency/coverage relationship appears to hold for most languages. A study by Cobb and Horst (2004) confirmed the finding for French with the 2,000 most frequent words of that language proving to have (slightly) larger coverage powers than the English 2,000. As a rough rule of thumb, a list of the 2,000 most frequent words captures the main core vocabulary of a language and offers an efficient way of getting over the initial acquisition hump. Research is clear on the point that knowing the English 2,000 in a normal written text consistently enables the learner to recognize about 80% of the words. With the additional knowledge of (usually transparent) proper nouns, coverage reaches about 85%. In spoken language, which is less lexically dense than writing, knowledge of 2,000 words and proper nouns is even more powerful, typically providing 95% coverage (Nation, 2001). The fact that dictionaries designed for learners of English use defining vocabularies of around 2,000 frequent words is a further argument for prioritizing the study of this vocabulary. It is also worth pointing out that 2,000 is a manageable figure: designing instruction to promote the acquisition of this number of words has the feel of a feasible undertaking.

Vocabulary researchers see the power of the 2,000 as a pedagogical imperative. Meara (1980) proposed that school language programs simply put all else aside and target the learning of 50 words per week for 40 weeks in the first year. Nation (2001) is no less emphatic; with reference to the 2,000 most frequent families, he observed: "high-frequency frequent words are so important that almost anything that can be done to make sure that they are learned is worth doing" (p. 16). But despite these compelling arguments and widespread recognition of the linguistic facts that underlie them, documented attempts to systematically implement such a syllabus are surprisingly few. So while the neglect of vocabulary that Meara noted in 1980 no longer applies to research, the great expectations for a new vocabulary-centred pedagogy raised by that research remain largely unfulfilled.

### **Issues in Acquiring Frequent Vocabulary**

One explanation for the under-implementation of a frequency-informed vocabulary syllabus may be that L2 teachers and course designers suppose that frequent words do not need to be taught. It is certainly reasonable to assume that by virtue of being frequent, they would be met often enough in classroom input to be acquired incidentally. While some

incidental “picking up” of frequent vocabulary certainly occurs, research shows that it is hardly efficient or complete. Rates of incidental vocabulary acquisition are known to be low (e.g., Horst, Cobb, & Meara, 1998), and even in the case of frequent words, learning is likely to be surprisingly uneven (Cobb, 2010). The figures in Table 2 illustrate this point. The totals shown represent mean performance on a measure of receptive vocabulary size administered in a variety of English as a foreign language (EFL) contexts where integrated language skills were taught and there was no special emphasis on vocabulary. The English vocabulary sizes shown in Table 2 are quite small. While educated native speakers of English may know about 17,000 families (Goulden, Nation, & Read, 1990) and advanced learners may know around 5,000, these learners know on the order of 1,000 or 2,000 families, even though they have spent hundreds of hours in English class. Such findings are hardly unique to learners of English; investigations of classroom learners of French (Milton, 2006) and German (Häcker, 2008) report comparably low figures.

Table 2

*Receptive vocabulary sizes of instructed learners in EFL settings (Laufer, 2000)*

EFL Context	Total Vocabulary Size	Hours of Instruction
Japan university	2,000	800-1,200
Indonesia university	1,220	900
Oman university	2,000	1,350
France high school	1,000	400
Greece high school	1,680	660
Germany high school	1,200	400
China English majors	4,000	1,800-2,400

In interpreting Table 2, it is important to note that although the mean in the first row amounts to 2,000 families, a figure I have suggested is important, this is a total that may well represent words from a range of frequencies. While it is likely to include some words from the 2,000 list, it is highly unlikely to include all of them. Instead, it includes some 3,000-, 4,000-, 5,000-, and perhaps even a few 10,000-level words. Investigations of learners’ receptive vocabulary size in classrooms where there is no systematic instruction of high frequency vocabulary consistently show knowledge is spread over a wide range of frequencies (Cobb & Horst, 2011; Horst, White, & Cobb, 2011). Knowledge of all (or even the majority) of the families on the 2,000 list is usually incomplete. Thus a low intermediate-level learner’s vocabulary knowledge typically resembles the mixed profile shown in Table 3.

Table 3

*A typical “mixed” learner profile (based on data from Cobb & Horst, 2011)*

Frequency band	Number of words known	Number unknown
1 <sup>st</sup> 1,000	633	367
2 <sup>nd</sup> 1,000	503	497
3 <sup>rd</sup> 1,000	413	587
4 <sup>th</sup> 1,000	100	900
5 <sup>th</sup> 1,000	487	513
6 <sup>th</sup> 1,000	273	727
TOTAL	2,409	3,591

The gaps in knowledge of words in the 1<sup>st</sup> and 2<sup>nd</sup> most frequent bands shown in Table 3 may seem inconsequential since the learner knows more than half of the words at these two levels, but the gaps have important implications for text comprehension. Without knowledge of the full contingent of 2,000, coverage of the PET passage shown earlier decreases dramatically, as can be seen in the passage below (produced using *VocabCloze*<sup>1</sup>), where the blanks represent words that would not be recognized by a learner with the incomplete profile shown in Table 3. Known word coverage for this learner is 83% rather than the 96% shown in the earlier version. Instead of one unfamiliar word in 25 in the earlier version, one word in about every six is unfamiliar here. The student in Table 3 knows over 2,000 words but since many of these are low frequency, they provide low coverage. The impact on readability of the text is clear.

The Arctic is \_\_\_\_ of the \_\_\_\_ \_\_\_\_s in the \_\_\_\_ untouched by pollution where you can \_\_\_\_ \_\_\_\_ at its \_\_\_\_ and most beautiful. Join our \_\_\_\_ The Northern Star from 2 to 18 \_\_\_\_, for a 17-day journey to the Arctic. \_\_\_\_ the journey, you are able to relax and \_\_\_\_ away from it all. There are \_\_\_\_ parties or film-shows to \_\_\_\_, quizzes to \_\_\_\_, or entertainers to watch. However, we do have \_\_\_\_s on board \_\_\_\_ are willing to answer any of your questions about the Arctic and \_\_\_\_ will \_\_\_\_ about the animals and birds that you \_\_\_\_ on the \_\_\_\_.

After setting off from Scotland, we go north \_\_\_\_ the coast of Norway to \_\_\_\_ \_\_\_\_\_. \_\_\_\_ the way, you'll see \_\_\_\_s of sea birds and \_\_\_\_ scenery, with rivers of ice and huge \_\_\_\_s. You will have the chance to see reindeer, polar bears, and \_\_\_\_ Arctic \_\_\_\_s. Although we have a timetable, experience has shown that we may have to \_\_\_\_ our direction a little, depending on the \_\_\_\_ and on which animals appear.

In the discussion above, I have set out to make three main points. The first pertains to the primary importance of lexis in language development. My experiences with Arabic-

<sup>1</sup> Available on the *Lextutor* website (Cobb, n.d.) at <http://www.lexutor.ca/cloze/>



speaking learners facing the challenges of university studies in English led to a personal realization of the central role vocabulary knowledge plays. Secondly, I have emphasized the importance of knowing high frequency vocabulary. Corpus research shows that learning the 2,000 most frequent families of a language is a manageable investment with a high return. The efficacy of instruction that focused on the learning of high frequency vocabulary was made dramatically clear in the experience of working with university learners in Oman who needed to boost their L2 proficiency substantially in a short time. Thirdly, I have argued that the full coverage power of knowing 2,000 frequent families is unlikely to be available to most instructed learners. I reported vocabulary size data indicating that many hours of exposure to normal classroom input (even with some possible hit-or-miss vocabulary instruction) does not lead to knowledge of all 2,000 families. Achieving that goal appears to require instruction that is specifically designed to target the 2,000 in a planned and systematic way.

So far, the evidence marshalled in support of these three points has been anecdotal or else based on what corpus analyses and vocabulary size testing suggest must be the case. In the next sections, I present experimental investigations of language learners and studies of instructional contexts that will provide empirical support for each point in turn. I begin with a famous study of young learners' developing language proficiency.

### **1. The Primacy of Vocabulary**

In 1984, Saville-Troike published a landmark experiment with a provocative question as its title: "What really matters in second language learning for academic achievement?" (p. 199). Given the theme of this paper, it will come as no surprise that the answer to the question is vocabulary knowledge. But the design of Saville-Troike's study allowed for a host of other contenders: The participants (19 young learners with little prior knowledge of English who had been placed in an English-medium American elementary school) completed measures of syntax and morphology at the end of the school year and were interviewed at length to assess oral proficiency and attitudes towards learning. Close classroom and playground observations of each child had also been made, and these were examined to assess levels of social interaction and communicative competence. The goal was to determine which of the many factors the researchers assessed was most closely associated with performance on a standardized end-of-school-year test with subtests for reading, mathematics, science and other school subjects. The analyses identified strong correlations between productive vocabulary size (counts of numbers of word types produced in the oral interviews) and scores on the school tests. By contrast, both grammatical accuracy and communicative competence were found to have little relation to academic achievement. Saville-Troike stated the finding unequivocally: "Vocabulary knowledge is the single most important area of second language (L2) competence when learning content through that language..." (p. 199).

The study clearly speaks to the centrality of L2 vocabulary knowledge in achieving proficiency goals and is often cited by those who advocate a stronger role for the teaching of lexis in L2 classrooms. But the study's "more is better" finding may leave some readers wondering how vocabulary knowledge underpins proficient performance. How do learners actually deploy lexical knowledge as they attempt to read or speak their new language, and what can those with larger L2 lexicons do that makes them more successful? One answer to this question has been suggested already in the discussion of L2 reading comprehension

and the *Arctic* passage above: Learners with larger L2 lexicons are able to recognize more of the words in a specific passage, and as a result, are more able to comprehend the passage's informational content. A reader's ability to draw on large, rapidly accessed L2 lexicon means that mental resources are freed up to work on constructing a text's message; readers who must pause frequently to consider the meanings of unfamiliar words rapidly lose the gist (e.g., Grabe & Stoller, 2011). The connection between vocabulary knowledge and reading comprehension is well established in both first language (L1) and L2 research literature. A recent example is a study by Schmitt, Jiang and Grabe (2011) who found a linear relationship between the percentages of words in a passage that were known to readers and their reading comprehension scores. The large contribution of lexis to reading success explains why standardized proficiency tests such as the Test of English of as a Foreign Language (TOEFL) no longer include separate, discrete-point measures of vocabulary: reading comprehension tasks already do the job.

A further insight on how vocabulary underpins proficient language use comes from an interesting study by Hilton (2008) that took a close look at the character of fluent speaking. The data Hilton explored were descriptions of a video sequence produced by 56 university language learners of English, French and Italian with varying levels of L2 proficiency; the L2 speech samples are part of a larger corpus of learner speech called *PAROLE* (PARallèle, Oral en Langue Etrangère). The samples were transcribed and analyzed using CHILDES software (MacWhinney & Spector, 1995-present). This allows for a close description of each speaker's performance complete with hesitations, pauses, sighs, reformulations, and other fluency phenomena. Importantly, it also allows the researcher to examine the sources of disfluency. To illustrate, here is a transcribed segment produced by a learner of English:

he's uh wearing the same <u:h #&=bouche> [#2\_146] sweat [\*lexical error for sweater] than [...] when he was a child. (Hilton, 2008, p. 159)

The symbols and numbers in this sample show that after the speaker said, *he's uh wearing the same*, there was a disruption in the flow of speech that began with something like *uh* again followed by a sigh of frustration or similar noise (indicated by the notation #&=bouche). Then after a 2,146 millisecond pause, the speaker finally produced *sweat*, in a context where the intended word was *sweater*. Hilton looked closely at the reasons for such disruptions. Why were the L2 speakers hesitating, reformulating and sometimes breaking down completely? In her examination of 88 clause internal hesitations that were three seconds or longer, she found some instances where the learners paused to correct grammar morphology as in the following example produced by a learner of English. (The error is underlined; some transcription symbols have been removed.):

the elephant actually slap [short pause] slaps him in the face. (Hilton, 2008, p. 160)

But overwhelmingly, the disfluencies were ascribed to lexical difficulties. In fact, over 78% were found to be associated with word errors or else searches for unknown lexis. The *sweat* segment above is an example of a disfluency followed by a lexical error. The segment below shows a French-speaking learner of English searching in vain for the English equivalent of *monter* (to lift). (Again, I have simplified the original transcriptions for clarity.):

a fridge which [sigh, long pause] cause I I don't know uh how how we say uh *monter*. (Hilton, 2008, p. 159)

Hilton found that pauses related to lexis were lengthy and breakdowns due to inability to retrieve sought-for words were frequent; by contrast, grammar-related pauses were shorter and reformulations tended to not disrupt the flow of speech. She concluded that lexical deficits are “the greatest impediment to spoken L2 fluency” (Hilton, 2008, p. 163). While a few participants proved able to laboriously explain their way around unknown words, she saw such laborious circumlocutions as a poor substitute for “a solid L2 mental lexicon—with lots of words readily accessible for online language processing” (Hilton, 2008, p. 161).

In this section, I described studies that point to L2 vocabulary knowledge as the main factor underlying success in school subjects (Saville-Troike, 1984), reading comprehension (Schmitt, Jiang, & Grabe, 2011), and fluent speech (Hilton, 2008). Other studies might have been chosen; these represent a range of research contexts and L2 skills. But before moving to research that focuses more narrowly on the importance of knowing 2,000 frequent word families, it is worth noting that Saville-Troike (1984) found performance on grammar measures was not closely associated with performance on the school tests. Similarly, in the study by Hilton (2008), grammar knowledge played a relatively minor role in the speech disfluencies. My intention is not to discount the importance of knowing L2 syntax and morphology; however, these findings do suggest that there is a disproportionate emphasis on grammar in perceptions of what is important for language learners to work on. This bias is certainly reflected in the design of teacher training programs, which typically place a strong emphasis on trainees' ability to explain points of grammar. In Canadian university programs for teachers of English that I am aware of, courses in pedagogical grammar (and phonology) are the norm, but I know of only one with a dedicated course in pedagogical vocabulary (Université du Québec à Montréal). Hopefully, this will change, and as L2 vocabulary acquisition studies join the SLA research mainstream, an increase in research-informed implementations such as vocabulary-focused language textbooks and training courses in pedagogical vocabulary will follow.

## 2. The Importance of Knowing 2,000 Frequent Families

Several well-designed and reliable measures of receptive vocabulary size are available to teachers and researchers interested in investigating the numbers of word families learners of English are able to recognize. A well-known example is the Vocabulary Levels Test (VLT), originally devised by Nation in 1990 and improved by Schmitt, Schmitt and Clapham in 2001. The test samples word families from corpus-based frequency lists at the 2,000, 3,000, 5,000 and 10,000 levels. Test-takers indicate their ability to recognize the meanings of the test words by matching them to simple definitions. A student's score in a particular frequency band can then be extrapolated to all of the words in that band. Thus a learner who supplies correct answers to 20 of the 30 test items that sample the 1,001 to 2,000 most frequent families (67%) is assumed to know 667 of these families ( $20/30 \times 1,000 = 667$ ). A sample multiple-choice question cluster from the 2,000 frequency level of this widely used instrument is shown below.

- |             |                      |
|-------------|----------------------|
| 1 ancient   |                      |
| 2 curious   | _____ not easy       |
| 3 difficult | _____ very old       |
| 4 entire    | _____ related to God |
| 5 holy      |                      |
| 6 social    |                      |

This instrument was used by in a study by Stæhr (2008) to investigate 88 Danish secondary learners of English. In addition to the VLT, these students completed a battery of standardized school tests of L2 proficiency consisting of listening and reading comprehension measures and an essay writing task. The vocabulary size testing revealed a picture similar to Tables 2 and 3 above: A large proportion of the students (68 of the 88) had not mastered the 2,000 most frequent English words (even after a total of 570 hours of English as a second language [ESL] instruction during their school years), and their profiles appeared to be mixed, with knowledge of words scattered over various frequency zones.

Stæhr (2008) wanted to know how much vocabulary was needed to perform adequately on the school tests: Was there a minimum, make-or-break vocabulary size needed to score above average? He found that all 20 of the students whose scores indicated they knew the full set of 2,000 families scored well above average on all three tests. Although some of the students who did not know 2,000 families also scored above average on one or more of the tests, not knowing the 2,000 most frequent families was shown to be a strong predictor of below-average performance on the reading and writing measures. The results for listening were less conclusive, possibly because the VLT assesses written forms; perhaps performance on a phonological vocabulary size measure such as Milton and Hopkins' *Aural Lex* (2005) would have revealed a closer connection to listening comprehension. In any case, the study clearly identified knowledge of the 2,000 most frequent English word families as a key proficiency threshold for L2 reading and writing skills. On the basis of these findings, Stæhr concluded that "the 2000 vocabulary level is a crucial learning goal for low-level ESL learners" (p. 139) and he strongly advocated explicit classroom teaching of these words. The research discussed in the next section provides insights as to why instruction that is specially designed to provide systematic attention to frequent vocabulary is needed. As we will see, investigations of "normal" classroom input show that it does not offer adequate support for the acquisition of this key vocabulary.

### 3. Vocabulary Learning Opportunities in Classroom Input

This section explores the opportunities available for word learning in instructional contexts that are not specially designed to target frequent vocabulary, with a view to showing why a planned approach is needed. First, I discuss studies that examine the lexis available for learning in textbooks. Then I report a study of classroom discourse. In assessing the potential for learning vocabulary incidentally through attending to input—be it through exposure to textbook materials or listening to teacher talk—there are two key considerations. First, the target vocabulary (e.g., the 2,000 most frequent English word families) must occur in the input, and secondly, the words should occur repeatedly. The question of how often a word needs to be met in order for it to be learned has been

investigated extensively with answers depending on the nature of the “meeting”. For instance, Hulstijn and Laufer (2001) have shown that cognitively demanding encounters involving production (look *scribble* up in a dictionary and use it in a sentence) are much more powerful than comprehension-focused reading encounters (get the gist of this passage that happens to contain the word *scribble*). While ways in which new words are met clearly vary, there is consistent research evidence to the effect that multiple encounters are needed to ensure effective learning and many repetitions are better than few (see Nation, 2001, for an overview). A number of investigations of L2 vocabulary acquisition have shown that 10 exposures is a reasonable guarantee that a new word will be retained (e.g., Webb, 2007), and for the purposes of the discussion here, I will use that figure.

To what extent do textbooks contain frequent families and recycle them 10 times or more? Matsuoka and Hirsh (2010) analyzed the vocabulary in a communicatively-oriented textbook designed for upper intermediate learners of English, with particular attention to the second 1,000 of the 2,000 most frequent families. They found that about 400 of these families did not occur in the textbook at all; of the 603 that were found, about a third occurred only once and another third were repeated five times or more. Only 73 met the criterion of 10 or more repetitions. Clearly, these materials do not support acquisition of the full set. A similar result was found in a study by Martini (2012) that examined a series of three communicative textbooks designed for secondary learners of English in Quebec. Since the materials targeted more advanced learners, Martini focused on words at the next level of frequency (the third most frequent 1,000). She found that while almost all of the 3,000-level words occurred at least once in the entire series, most were not systematically recycled. Only 27% were recycled 10 times or more. Interestingly, Martini also asked teachers about their use of textbooks; her survey revealed that few of them used any one textbook in its entirety and tended instead to select favourite themes and tasks from a variety of sources. So even if the books she investigated had been explicitly designed to present and recycle a set of high frequency words (which they were not), the needed systematic exposure and review opportunities would not have been available. This suggests that any implementation of a frequency-informed vocabulary syllabus will need to convince teachers as well as textbook designers of the usefulness of the approach.

The opportunities available through attending to spoken input in class were investigated in a study by Horst, Collins, White and Cardoso (2010). They analyzed a 120,000-word corpus consisting of teacher speech addressed to high intermediate and advanced learners in a communicatively-oriented ESL class in Montreal; the corpus represents an entire 9-week course (about 32 hours of classroom input). They found that the teacher devoted a surprising amount of attention to vocabulary. Of the 1,326 teaching episodes identified in the corpus, 1,046 (almost 80%) pertained to lexis. Other aspects such as grammar or spelling were given far less attention. Some of the interventions were brief; for instance, the teacher quickly supplied, “Oh, you mean green (traffic) *light*,” when a student had produced “green *fire*”. Others such as the treatment of the expression *going Dutch* included extended examples and went on for many transcribed lines. It seemed clear that there were rich opportunities to learn new words in this class. But there was little evidence of prioritizing frequent words. In fact, the study showed that the words that were attended to came from a wide range of frequencies; over a quarter were infrequent and of somewhat questionable usefulness. Examples are *charlatan*, *cummerbund*, and *grungy*, from the 11,000, 17,000 and 19,000 bands respectively (according to frequency lists based on the British National Corpus by Nation, 2006). As for repetitions, the analyses revealed

that most of the items—about 78%—were explained once and never returned to again. Twenty-two words were attended to three times or more; none were reviewed 10 times.

In this section, we have seen that textbooks following a communicative approach cannot be counted upon to provide exposure to complete sets of high frequency words or to recycle them often. In materials where the goal is typically to familiarize learners with language functions such as planning vacations and ordering food in restaurants, it is perhaps not so surprising that some of these words are missing. It is easy to see how words like *popular*, *fan*, *famous*, and *image* (all among the second most frequent 1,000) might be found in such materials as part of an entertainment theme, while others like *valid*, *prospect*, *overall* and *minimum* (also from second most frequent 1,000) are less likely to be included unless there is special planning. Given these realities, it is also not surprising that learners such as those investigated by Stæhr (2008) have deficits in their knowledge of 2,000 frequent words (see also Tables 2 and 3).

In theory, these deficits could be addressed by principled teaching that devotes more time and attention to frequent words than to infrequent ones, makes sure that any words missing in course materials get attention, and builds in regular review. In the teacher talk study discussed above that did not appear to happen. Attention was given to both frequent and infrequent vocabulary, and the considerable investment made in teaching hundreds of new words and expressions was probably lost because opportunities for learners to review the new vocabulary and build on any knowledge acquired in initial encounters were not available. The intention here is not to fault the work of the teacher, who was clearly committed to her students' learning, and it is possible, of course, that some additional recycling of new words occurred in learner interactions or in the texts of activity sheets. The point is that current conceptualizations of the communicative method appear to be incompatible with a program of instruction that targets the presentation and review of large sets of specific words (such as the 2,000 most frequent families). In the next section, I argue that this need not be the case.

### **Implementing a Frequency-Informed Vocabulary Pedagogy**

What might a frequency-informed vocabulary syllabus look like? In my view, it should be possible to devise attractive language teaching materials that draw on the strengths of current communicative and task-based approaches and at the same time ensure that learners have repeated exposures to large sets of high frequency vocabulary. Textbook writers can continue to create materials that feature interesting topics and motivating interactive tasks with a focus on useful language functions, all the while guided by frequency lists to ensure the materials also provide multiple and varied exposures to the “right” words. User-friendly software tools such as *Vocabprofile* at the *Lextutor* website (Cobb, n.d.) make it easy to see which of the words in a particular reading passage are 1,000-level, which are 2,000-level and so on. *Vocabprofile* also features a VP-negative feature that shows which words of a particular frequency level are missing in a passage, activity sheet or even an entire electronically scanned textbook. *Range* software, also available at the *Lextutor* website (Cobb, n.d.), makes it easy to see which words are recycled (or not) over a series of activities or chapters.

The goal is a sequence of materials that introduce and systematically recycle all of the first 1,000 and eventually all of the second 1,000 most frequent words such that by the time students have reached an intermediate level of proficiency, they will be familiar with

the core vocabulary of the language—about 85% of all of the words they meet. The notion of a frequency-informed lexical syllabus is not new. Many of the ideas discussed here were implemented in the 1989 *Collins COBUILD English Course* by Willis and Willis. A more recent step in this direction is the Cambridge *Touchstone* series by McCarthy, McCarten, and Sandiford (2005). McCarthy (2004) showed how *Touchstone* uses corpus-based frequency information in its design and also incorporates examples of real language taken from a large corpus of North American spoken English. Hopefully, many more textbooks of this type will follow so that learners of other languages will have access to the remarkable coverage powers afforded by the knowledge high frequency words.

Ideally, course books that systematically include and recycle the 2,000 most frequent families in materials for learners in the early stages of acquisition will become the norm. In the meantime, teachers can use the software tools described above to supplement existing materials and to ensure that learners have good opportunities to meet and review the high frequency words they need to know. Readers in doubt as to whether there is enough time for teachers to give regular attention to large numbers of frequent words along with all the other things that are important to do in a limited amount of class time are reminded of the teacher in the speech corpus study by Horst, Collins, White and Cardoso (2010) above: Dozens of focus-on-vocabulary episodes occurred in an hour of communicative language teaching without disrupting the interactive speaking activities that were the main focus of the class. With teacher education that emphasizes the importance of giving more systematic attention to frequent words (and less to words like *cummerbund*) and raises awareness of the necessity for frequent review, there is no reason why communicative language teaching cannot be adjusted to implement a frequency-informed vocabulary syllabus effectively. Good sources for familiarizing teacher trainees with the frequency approach to vocabulary include books by Thornbury (2002), Folse (2004), Nation (2001), and Schmitt (2004). Finally, there is also a useful role for learner initiative; with information about the specific vocabulary goals for say, a particular week, learners can train themselves on computer using online learning games and activities.

### Conclusion

The journey described in this paper was guided by a concern for meeting learner needs. Early intuitions told me that reading Shakespeare was probably not the most efficient way to acquire the language skills needed to read medical texts in English. Later in Oman, I saw how useful the knowledge of 2,000 high frequency words could be in meeting L2 learners' academic goals. This experience was confirmed by the findings of corpus-informed vocabulary research that emerged around this time after the period of neglect noted by Meara (1980). This early work identified the potential of knowing the 2,000 most frequent families; the study by Stæhr (2008) confirmed that potential in the case of L2 reading and writing in English. No doubt further confirmation will follow with investigations of learning frequent words in other languages and its impact on other aspects of language development. As vocabulary acquisition research plays an increasing role in mainstream SLA research, this is likely. It is also likely that the corpus methodology that revolutionized vocabulary research will continue to identify efficient paths to learning features other than single words. Work on phrasal verbs by Gardner and Davies (2007) is promising in this regard; another example is Simpson-Vlach and Ellis's (2010) list of academic formulas. But are the benefits of this corpus-based research program reaching

learners in the form of a frequency-informed language syllabus? There are some signs that the textbook implementations are finally coming. With them will come challenges to current conceptualizations of communicative language teaching, but I am confident that the adjustments are worth making and that the large rewards of studying frequent vocabulary will rapidly become apparent to students and their teachers.

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