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7. RESEARCH IN TEACHING VOCABULARY

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This review surveys research on second language vocabulary teaching and learning since 1999. It first considers the distinction between incidental and intentional vocabulary learning. Although learners certainly acquire word knowledge incidentally while engaged in various language learning activities, more direct and systematic study of vocabulary is also required. There is a discussion of how word frequency counts and information on word meaning from computer corpora can inform the selection of words to be studied, with a particular focus on spoken vocabulary. This leads to a consideration of learner dictionaries and some research evidence on how effectively students can use them to understand the meanings of words. Then classroom research on teaching vocabulary is discussed. Another significant topic is the design of computer-based language learning programs to enhance opportunities for learners to expand their vocabulary knowledge. Finally, a summary of recent work on vocabulary testing is presented.

Second language learners are typically conscious of the extent to which limitations in their vocabulary knowledge hamper their ability to communicate effectively in the target language, since lexical items carry the basic information load of the meanings they wish to comprehend and express. This gives vocabulary study a salience for learners that may be lacking in the acquisition of other features of the language system. However, language teachers are often unsure about how best to incorporate vocabulary learning into their teaching. Traditional techniques of presenting new words in class or requiring students to memorize lists of vocabulary items seem old-fashioned in the context of current task-based language programs. The debate in SLA about the need to focus on form in classroom communication activities (see Doughty & Williams, 1998) has centered almost entirely on the acquisition of grammar, but there are similar issues involved in finding a place for the systematic study of vocabulary in the language curriculum.

There was a boom in second language vocabulary studies in the 1990s and early 2000s, reflected in the number of books published in the last seven years, particularly by Cambridge University Press, which almost seemed to corner the

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market for such publications. Thus, the four volumes in the annotated bibliography at the end of this chapter, along with others such as Coady and Huckin (1997) and Singleton (1999), give comprehensive coverage of theory, research, and practice related to second language vocabulary teaching and learning up to the end of the decade. This review, then, will concentrate somewhat selectively on work that has appeared since 1999, with particular attention to interesting new developments.[1]

Incidental and Intentional Learning

One distinction that has been influential in vocabulary studies is that between incidental and intentional learning. The basic issue is the extent to which learners can acquire word knowledge incidentally, in the sense of being a by-product of their main learning activity inside or outside the classroom, rather than through activity that is primarily intended to enhance their vocabulary knowledge. Thus, as applied in the literature, the distinction involves both where the learner's attention is concentrated and the pedagogical context in which the opportunity for learning is available. There is no doubt that incidental learning occurs, particularly through extensive reading in input-rich environments, albeit at a rather slow rate. In the heyday of the communicative approach to language teaching, the concept of incidental learning offered the seductive prospect that, provided the learners had access to sufficient comprehensible input, L2 vocabulary acquisition would largely take care of itself, without the need for any substantial pedagogical intervention. However, the research makes it clear that this strong position is no longer tenable.

A significant collection of papers edited by Wesche and Paribakht (1999) gives a good overview of the research findings and issues, including a representative set of research reports on incidental learning of words in a second language from both written and spoken input. More recent studies involving reading tasks include those by Swanborn and de Glopper (2002), who showed that incidental learning of words was influenced by the readers' purpose and level of reading ability, and by Pulido (2003), who also found a significant effect for reader ability, as well as for topic familiarity and passive sight vocabulary. In the case of spoken input, Vidal (2003) showed that university students in Spain retained knowledge of a small but significant number of words one month after listening to videotaped lectures in English. The words more likely to be retained included technical terms that were central to comprehending the lecture topic and words that were explicitly elaborated by the lecturer by means of naming, definition, or description.

In an important discussion of incidental and intentional vocabulary learning from a psycholinguistic perspective, Hulstijn (2001) points out that, whereas the distinction can be maintained operationally in research studies by directing the participants' attention toward or away from vocabulary, it has little theoretical significance in influencing whether words that learners encounter will be retained in long-term memory. Instead, it "is the quality and frequency of the information processing activities (i.e., elaboration on aspects of a word's form and meaning, plus rehearsal) that determine retention of new information" (Hulstijn, 2001, p. 275). He argues that, in the classroom context, incidental and intentional learning should be

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seen as complementary activities. This leads to two crucial implications for teaching:

1. If learners are to have the automatic access to a rich L2 lexicon that is the foundation of fluent communicative ability, psycholinguistic research indicates that it is necessary to re-visit such unfashionable procedures as regular rehearsal of words, rote learning, and training in automatic word recognition as one component of vocabulary learning, particularly for beginning and intermediate-level learners (Hulstijn, 2001, pp. 275–285). Any gains from incidental learning will be modest for them, when compared with what can be achieved with more "intentional" or direct forms of vocabulary study.

2. Where vocabulary learning is more incidental to classroom activity, Laufer and Hulstijn (2001) argue that learning tasks can be graded according to the level of vocabulary processing that they generate. The authors propose that there are three factors in "task-induced involvement": the learners' *need* to achieve, a requirement that they *search* for information on the meaning or form of the word, and *evaluation* of how the information obtained applied to the particular use of the word in question. From an analysis of previous research, they found that tasks incorporating two or three of the factors led to better retention of the target vocabulary than those with only one factor. Then they obtained confirming evidence from parallel experiments with adult learners in the Netherlands and Israel (Hulstijn & Laufer, 2001). As they predicted, learners who wrote compositions using a set of target words remembered them better than those who encountered the words in a reading comprehension task and, in the Israeli experiment, the learners who wrote the missing words in gaps in the reading text retained more of the words than those who just read marginal glosses.

Vocabulary Selection and Coverage

High-Frequency Words

The first priority in direct vocabulary teaching is to focus on which words are to be studied. A fundamental feature of the lexicon, which governs many decisions about teaching and learning, is the fact that a small proportion of the total number of the words in the language are highly frequent, and vice versa. There is an obvious payoff for learners of English in concentrating initially on the 2000 most frequent words, since they have been repeatedly shown to account for at least 80 percent of the running words in any written or spoken text. As a pedagogical reference work on the most frequent words, West's classic (1953) *General Service List* is yet to be superseded. Although the list can be faulted for being dated in some respects, frequency counts derived from much larger contemporary computer corpora confirm that most of the words would still be included were it to be compiled afresh today.

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The pedagogical value of the *General Service List* lay in the semantic basis of its selection and presentation. First, words were included not purely on the criterion of frequency but also to achieve efficient coverage of the meanings that learners were most likely to need to express. In addition, the vocabulary was listed in word families, comprising stem words together with their inflected and derived forms (see Bauer & Nation, 1993, for a more formal method of determining word families), and the relative frequency of different meanings of the word forms were recorded.

The most comprehensive and usable word frequency lists based on a modern computer corpus are those derived from the British National Corpus (BNC) by Leech, Rayson, and Wilson (2001). The lists, which are available both in book form and on the Lancaster University Web site, cover the whole corpus as well as separate counts for the written and spoken components. There are also frequency counts for the different word classes. In several of the lists, the words are clustered into lemmas (consisting of a base word and its inflected forms), but there is no semantic classification that would allow for identification of the relative frequency of different meanings. For such information the teacher or the more advanced learner can turn to the Web site of the BNC or one of the other sites offering public access to corpus examples of words in context (see Conrad, 2002, pp. 89–90 for annotated addresses). Alternatively, it is necessary to rely on the indirect guidance provided by the entries for polysemous words in one of the major learner dictionaries (see below), which present the meanings as determined by lexicographic analysis of a large corpus.

The Vocabulary of Speech

Reliable data on the occurrence of words in speech remains relatively limited. Although spoken vocabulary is now better represented in corpora and word lists, it still only accounts for 10 percent of the texts in the BNC and correspondingly, specialized spoken corpora tend to be much smaller than those based on written texts. An important spoken corpus is the five-million-word Cambridge and Nottingham Corpus of Discourse in English (CANCODE) (McCarthy, 1998). Not surprisingly, a comparison by McCarthy and Carter (1997) of the most frequent words in CANCODE with those in a comparable corpus of written English revealed noticeable differences in the relative frequency of many words, reflecting among other things the distinctive discourse markers of spoken language.

One commonsense assumption is that the amount of vocabulary learners need for everyday speech is rather less than that for dealing with the written language. A target of 2000 word families has been widely accepted, based in part on the results of a study of Australian workers in the 1950s, which showed that 2000 words covered 99 percent of the vocabulary in their speech. In addition, McCarthy and Carter (2003, p. 5) show in graphic form how the frequency of words in a large sample of the spoken BNC drops quite sharply after about the first 2000. However, a recent analysis of CANCODE data by Adolphs and Schmitt (2003) indicated that a vocabulary of this size gives barely 95 percent coverage of conversational discourse. Although the 95 percent figure may seem a minor shortfall in percentage terms, it

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represents a substantial number of unknown words for a learner with a 2000-word vocabulary, leading Adolphs and Schmitt to suggest that knowledge of 3000 words is a more realistic goal for learners to be able to cope with the lexical demands of everyday conversation.

It should be emphasized that these figures of 2000 and 3000 actually refer to word families rather than individual words. A study by Schmitt and Zimmerman (2002) provided clear evidence that college ESL students have at best partial knowledge of the derived forms of stem words (e.g., *persistent, persistently*, and *persistence* from *persist*). This means that, to some extent, learners are familiar with the other members of a word family, given knowledge of the stem word, but it cannot be assumed. As a result, the 2000- and 3000-word figures considerably understate the actual number of words that need to be learned in some sense.

There has been very little research on the actual ability of learners to cope with listening or speaking tasks, given knowledge of a specific proportion of the vocabulary required. One study of Japanese learners' listening comprehension by Bonk (2000) showed that, although some learners could achieve adequate understanding of short expository texts by knowing as little as 80 percent of the vocabulary, most needed more than 95 percent coverage, and quite a few students could not really understand the texts even though they apparently had some knowledge of all the words. These results are comparable to those obtained by Hu and Nation (2000) in a similarly designed study of the relationship between vocabulary coverage and reading comprehension of fiction texts. Hu and Nation also found that knowledge of 80 percent of the words was the minimum threshold but that most learners needed to know around 98 percent in order to read independently. Thus, while further investigation is necessary, it appears that the vocabulary learning goals for minimum levels of both listening and reading comprehension need to be set somewhat higher than the 95 percent coverage that has been widely recommended until now.

Specific Purpose Vocabulary

When we move beyond the high-frequency vocabulary represented by the first 2000 word families, it is necessary to take into account of the needs and interests of specific groups of learners in selecting words for study. Given the demand for teaching English for academic purposes (EAP) in universities worldwide, particular attention has been paid to academic vocabulary, which can be approached in two ways. One is to focus on subtechnical words occurring frequently across a range of academic texts, and the other is to identify the technical terms associated with particular disciplines.

A major contribution to the former approach is Coxhead's (2000) Academic Word List, a compilation of 570 word families based on a careful analysis of a 3.5 million word corpus of written academic texts assembled specifically for this purpose. There were 28 subject areas represented in the texts, and the words were selected based not only on frequency but also range: they had to occur a minimum

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number of times in more than half of the subject areas. Coxhead's analysis showed that the word list covered 10 percent of the running words in the corpus beyond the 76 percent coverage achieved by the General Service List. The list is of particular value for students in EAP programs preparing for undergraduate study and provides the basis for the development of teaching resources in that context. Like the BNC lists (Leech et al., 2001) discussed above, it does not contain any information about the meanings of the words in academic texts, and here again teachers are reliant on learner dictionaries and concordancing of available corpora, as well as their own judgment, to identify the specific meanings to focus on.

The other approach to academic vocabulary is to identify terms that are specific to a particular discipline. Ward (1999) created a corpus of engineering texts for EAP students in that discipline and found that the 2000 most frequent word families in the corpus achieved 95 percent coverage of the texts, which was a substantially better result than could be obtained from a combination of the General Service List and a general academic word list. At a more conceptual level, Chung and Nation (2003) developed a four-step semantically based procedure for identifying technical terms in academic textbooks. Their analysis showed that one-third of the words in an anatomy textbook and one-fifth of those in an applied linguistics text were technical in nature, in that these words were closely or exclusively related to their respective field of study. The figures were much higher than previously suggested, as in Nation's (2001, p. 12) estimate of 5 percent, and highlight the additional challenge that EAP learners face in learning vocabulary beyond the high-frequency and subtechnical categories.

Ward's (1999) creation of a relatively small corpus of discipline-specific texts is part of a trend in the teaching of language for specific purposes whereby advanced learners are encouraged to access locally compiled corpora to investigate both word frequency and the meanings and uses of particular lexical items in their field of study. Based on her experience with a small corpus of medical research articles, Gavioli (2002) endorses the pedagogical value of such explorations but also advises caution in allowing students to make generalizations about word usage without reference to confirming evidence from a much larger and more general corpus.

Learner Dictionaries

Apart from word lists, the basic reference source for teachers and learners alike is the dictionary, which is now available in a variety of forms. Nesi (1999) noted the increasing use of electronic dictionaries on the Web, on CD-ROMs, in small hand-held units—and most recently in the guise of scanner pens. Small handheld dictionaries are particularly favored by learners in Hong Kong, Taiwan, and Japan for their convenience and relatively low cost. Nevertheless, hard copy versions in book form still hold their own for both classroom and individual use throughout the world.

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Huge resources are devoted to the development, production, and marketing of learner dictionaries, particularly by the five major British publishers that dominate the market, but there is comparatively little evaluation of their effectiveness for vocabulary teaching. As Chan and Taylor (2001) found in their analysis of dictionary reviews published since 1987, the language teachers and applied linguists who review the dictionaries tend to write short descriptive accounts, often without even specifying any criteria for evaluation. A recent example of a review of this general type is Tribble's (2003) comparison of the CD-ROM versions of the five leading advanced learners' dictionaries. From the reviewer's perspective, the electronic editions certainly appeared to have attractive features, such as audible pronunciation of words and hyperlinks both to entries for related words and to a range of reference notes, corpus examples, and practice exercises.

However, as Nesi (2000) points out, the amount of research on *learners'* preferences and their actual use of the dictionaries is remarkably limited. One methodological problem in undertaking such studies in the past has been the difficulty of monitoring dictionary use unobtrusively and obtaining accurate records on which entries were accessed or how much time was spent reading each one. This issue can now be addressed by setting computer-based tasks, although of course it is an open question whether learners access a dictionary electronically in the same way that they consult one manually.

Nesi (2000) conducted a series of studies in which students accessed dictionary entries as they performed either reading comprehension or sentence writing tasks. The results showed that the comprehension scores were not affected by whether the participants looked up words or not. With regard to the relative merits of different dictionary features, Nesi found that neither the particular defining style used by a dictionary nor the inclusion of examples in a dictionary entry had a measurable effect on learners' ability to produce acceptable sentences incorporating the target word. However, nationality was a significant variable in successful dictionary use, in that learners in Portugal performed much better than a comparable group in Malaysia. Nesi attributed the differences to the fact that the Portuguese learners had studied English as a foreign language and thus more experience of using dictionaries, whereas the Malaysians had acquired their much more extensive knowledge of English vocabulary through informal exposure in a second language environment. Another possible factor was the relative linguistic distance of Portuguese and Bahasa Malaysia from English.

In a subsequent study, Nesi and Haill (2002) analyzed how successfully international students at a British university were able to identify the correct meaning of unfamiliar words in a self-selected reading text when they looked them up in a dictionary. The researchers found that more than half of the students failed in the task at least once, most commonly because they chose the wrong dictionary entry or the wrong meaning of a polysemous word. This suggests that there are definite limits on the ability of learners to make full use of the information about words in a dictionary if they consult it independently, without the guidance of a teacher.

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Vocabulary in the Classroom

There is comparatively little research to report on methods of presenting and practicing vocabulary in the classroom. The basic principles of direct vocabulary teaching are well established, and good accounts can be found in Sökmen (1997) and Nation (2001, Chap. 3). As for classroom practice, Burns and de Silva Joyce (2001a) directed an action research project on teaching vocabulary in the Adult Migrant English Program throughout Australia, and have edited a collection of reports by the participating teacher-researchers on the wide range of practical studies that they conducted (Burns & de Silva Joyce, 2001b).

One common task that teachers set for more advanced learners is to select and record their own words to study, based on individual needs or interests. The vocabulary notebook is a useful tool for this purpose (Fowle, 2002). However, Moir and Nation (2002) present a cautionary tale from their research in an intensive ESL class at a New Zealand university, where the students were required to study 30 self-selected words every week. The researchers found that, with one notable exception, the learners tended to choose unsuitable words, which they learned by cramming the night before the weekly test each Friday and then promptly forgot. In this case, negative washback from the test was, among other factors, working against the longer-term vocabulary building goals of the program.

Apart from investigating particular classroom activities, some researchers have focused on the opportunities for vocabulary acquisition offered by classroom talk in general. Lightbown, Meara, and Halter (1998) analyzed transcripts of teacher-centered activities in classes following both the audiolingual and communicative approaches to language teaching. They found that, although the communicative teachers used a wider range of words, the oral input in both types of classroom contained relatively few new words that might contribute to a growth in the learners' vocabulary knowledge. The lexical value of the teacher talk, particularly by the audiolingual teachers, was in providing repeated exposure to the high-frequency vocabulary of English.

In a similar study, Tang and Nesi (2003) compared transcripts from secondary school English classrooms in Hong Kong and Guangzhou. Their results showed the influence of the rather different types of language syllabus and teaching methods in the two administrative divisions of China where these cities are located. The teacher in Hong Kong adopted a more flexible approach, incorporating a range of activities, materials, and topics, which produced more lexical variation and lower-frequency words. In Guangzhou, the treatment of vocabulary was much more systematic, within a strictly controlled lesson plan that left little opportunity for spontaneous interaction between the teacher and students. Although both teachers engaged in explicit teaching of preselected words, using a variety of techniques, the Hong Kong classroom offered more interactionally modified input and opportunities for incidental learning. In that sense, it could be seen as a lexically richer environment for vocabulary acquisition.

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Computer Applications

With the increasing use of computers to deliver language learning programs, there are new opportunities to enhance vocabulary acquisition, either directly through vocabulary learning activities or more incidentally in the context of reading tasks.

As an example of the direct approach, Groot (2000) describes a program called CAVOCA (Computer Assisted Vocabulary Acquisition), which was designed to promote longer-term retention of useful words by presenting each one in numerous carefully selected sentences and short texts. The learners are thus encouraged to induce the meaning(s) of each word and to pay attention to its various properties. In a series of small experiments with Dutch university students learning English, Groot and his associates found evidence of a better retention rate by this method than by paired associate learning, but he concludes that the most efficient approach would be a combination of the two.

In the case of reading tasks undertaken on a computer, learners can readily have access to an electronic dictionary or to hyperlinks providing glosses and other useful information about particular words in the text which they are unlikely to know. Research in this area over the last 10 years has demonstrated that the provision of glosses can assist vocabulary learning from texts, without interfering with the reading process. Recent studies have sought to establish more specifically how best to present the glosses. For instance, in her study of Belgian university students who were advanced learners of French, De Ridder (2002) found that marking glossed words with underlining and a blue font induced more clicking on the link, but it did not improve the learners' retention of the word meaning, as compared to a text in which the links were not visible on the screen.

A second line of investigation has been the relative effectiveness of different forms of multimedia glossing. In a series of studies, Chun, Plass, and their associates found that students who selected both pictorial and written annotations of words, whether it be in reading (Plass, Chun, Mayer, & Leutner, 1998) or listening (Jones & Plass, 2002) tasks on computer, retained more of the vocabulary than students who accessed only one type of gloss or none at all. The researchers argue that the two types of lexical information led to richer mental representations of the words, making them easier to retrieve from memory. Al-Seghayer (2001) looked more specifically at two forms of visual glossing—still pictures and video clips with sound—and found that the video condition led to significantly more vocabulary learning. This contrasted with the results of an earlier study by Chun and Plass (1996), who concluded that still pictures provided a more stable image that facilitated the remembering of the word.

Other researchers have looked at offering various forms of information about the target words. Laufer and Hill (2000) highlighted 12 words in a short L2 text and provided separate buttons for the L2 meaning, the L1 translation, the pronunciation, and additional information on each one. Israeli students mostly chose the Hebrew translation, but there was no significant relationship between their choice

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of button and retention of the words. However, students in Hong Kong, who took the task more seriously overall, tended to access more of the information about each word; for them, poorer retention was associated with looking up the Chinese translation.

A different kind of computer application to vocabulary learning through reading is represented by TextLadder, a program developed by Ghadirian (2002) to select and order a series of texts to allow for multiple exposures to a set of target words in contexts with mostly familiar vocabulary. Given a reasonably large number of simplified texts that are suitable for the learners' interests and needs, the program selects those with a high proportion of the target words overall and a minimum of five repetitions of individual words; it also orders them according to the percentage of high-frequency vocabulary which they contain. There is not yet published evidence as to whether the reading of a series of texts from a program like TextLadder does, in fact, promote efficient learning of the target words. However, it can be seen as potentially an alternative means of achieving what specially written graded readers have traditionally been designed to do. (For investigations of the vocabulary learning potential in graded readers, see Nation & Wang, 1999 and Waring & Takaki, 2003).

Assessing Vocabulary Knowledge

In vocabulary testing, it has become conventional to distinguish between breadth and depth of vocabulary knowledge. Breadth refers to a general estimate of how many words the learner knows, usually by reference to samples of words from specified frequency levels in a vocabulary list. The best-known instrument for this purpose is Nation's Vocabulary Levels Test, which covers the 10,000 most frequent words in English in five bands and involves a simple task of matching words and definitions. Originally developed 20 years ago as a simple diagnostic tool for classroom use, it is now widely used for placement purposes in language teaching programs and as a measure in vocabulary research. For instance, Cameron (2002) reports on the use of the test to identify gaps in the receptive vocabulary knowledge of students from ethnic minority or refugee backgrounds in a secondary school in the United Kingdom. Two studies by Beglar and Hunt (1999) and Schmitt, Schmitt, and Clapham (2001) have produced revised and validated forms of the test.

Depth of knowledge focuses on the idea that for useful higher-frequency words learners need to have more than just a superficial understanding of the meaning; they should develop a rich and specific meaning representation as well as knowledge of the word's formal features, syntactic functioning, collocational possibilities, register characteristics, and so on. One practical measure of depth is Read's (1998) word associates format, which requires learners to identify words that are semantically associated with a given target word. Dutch researchers (Bogaards, 2000; Greidanus & Nienhuis, 2001) have found modified versions of the procedure to be a probing test of the vocabulary knowledge of more advanced foreign language learners. In Canada, Qian (1999, 2002) used the word associates test in his investigation of the relationship between L2 vocabulary knowledge and reading

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comprehension ability. He showed that this depth measure accounted for a significant amount of the variance in the reading scores beyond what was predicted by a vocabulary breadth test.

Conclusion

It is clear from this review that the vigorous research activity in L2 vocabulary teaching and learning during the 1990s is continuing in the present decade. There has been a noticeable increase in articles on vocabulary being published in several of the journals in applied linguistics in recent years. The focus here has been on research with relatively direct applications to the language classroom, but there is a great deal more work that is advancing our understanding of vocabulary acquisition processes and of the nature of vocabulary itself.

Obviously the computer has had a substantial impact on vocabulary studies. Because orthographic words are such readily identifiable and countable units, computerized corpus analysis has revolutionized the study of word frequency, word meanings in context, and the collocational patterns of words. The results of these analyses are being incorporated in course books, dictionaries, and reference works, but in addition, learners can have direct access to corpus evidence themselves through what Johns (2002) has called "data-driven learning." Increasingly, the computer is also an access medium to the second language through local and Web-based electronic resources; here we have described several applications with the potential to enhance vocabulary learning in that environment.

It is important to make one final observation: Virtually all of the literature in the present review has treated vocabulary in terms of individual words. This is not the result of any conscious selection criterion on my part, and it appears to reflect the current state of play. However, I should point out that one impact of corpus analysis on vocabulary study is to highlight the significance of multiword lexical units and indeed to challenge the validity of the traditional division between vocabulary and grammar. Although teachers and learners are certainly aware of the learning difficulties posed by idioms and collocations (see, e.g., Nesselhauf, 2003), the role of multiword units goes much further than that. It is beyond the scope of this review to explore the implications of these fresh insights for vocabulary learning and for language teaching in general, but the work of applied linguists such as Wray (2000, 2002) on formulaic language may yet transform our understanding of vocabulary and the way it is taught.

Note

1. I am grateful to Norbert Schmitt for useful comments on an earlier version of this chapter.

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The most comprehensive and authoritative volume on second language vocabulary learning that is currently available. It covers an impressive range of both previous and contemporary research, including the numerous contributions of the author and his students, as the basis for a wealth of practical advice on promoting effective vocabulary acquisition in second language teaching programs.

Read, J. (2000). *Assessing vocabulary*. Cambridge: Cambridge University Press.

An analysis of various types of vocabulary tests within a broader framework of second language vocabulary assessment. It includes a review of research in both language testing and SLA as well as an analytical approach to the design of vocabulary measures for teaching and research purposes.

Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press.

This book written for classroom teachers covers a similar range of topics to those in Nation's book, but they are treated at a more introductory level. In each chapter, there are practical exercises and a discussion of the implications for teaching.

Schmitt, N., & McCarthy, M. (Eds.). (1997). *Vocabulary: Description, acquisition and pedagogy*. Cambridge: Cambridge University Press.

A major anthology of 15 state-of-the-art papers contributed by many leading figures in vocabulary studies. The section on pedagogy includes chapters on vocabulary teaching methods, vocabulary in syllabus design, vocabulary reference works, and vocabulary testing.

WEB SITES

www.swan.ac.uk/cals/calsres/varga – Vocabulary Acquisition Research Group Archive (VARGA)

The archive, which is maintained by Paul Meara, is a bibliographic record of publications on vocabulary teaching and learning, with separate alphabetically ordered pages for each year since 1984.

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www.vuw.ac.nz/lals/staff/paul_nation/index.html – Paul Nation's home page

This page has a link to Nation's wide-ranging bibliography on vocabulary, built up over many years of scholarship in the field. Items are listed alphabetically by author, as well as being individually coded by topic according to a classification system presented at the top of the list. Another link goes to a downloadable Zip file containing software that can be used to analyze the vocabulary content of texts in terms of the General Service List (most frequent 2000 words) and the Academic Word List.

www.lextutor.ca – The Compleat Lexical Tutor

This Web site established by Tom Cobb has a range of resources of great value to learners, teachers, and researchers for both English and French vocabulary. It includes vocabulary levels tests, information about high-frequency words (audible pronunciation, definitions, corpus examples), lexical analysis of input texts (frequency lists, concordances, statistics), and a program to create cloze passages.

www.vuw.ac.nz/lals/div1/awl/index.html – The Academic Word List online

The complete list, together with background information on its creation and use, has been made available on this page by Averil Coxhead. Numerous texts based on the list, together with gap-fill exercises, are available on Andy Gillett's EAP site at www.uefap.co.uk/vocab/vocfram.htm . Another site developed by Sandra Haywood (www.nottingham.ac.uk/%7Ealzsh3/ acvocab/index.htm) includes two useful tools for teachers: AWL Highlighter, which highlights the AWL words in any input text, and AWL Gapmaker, which creates gap-fill exercises by replacing AWL words in a text with blanks to be completed by the learners.

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