Introduction

This chapter begins with a discussion of critical issues in relation to two of the key terms in the title, learning and single-word items. First it discusses the status of single-word items and their implications for learning resources. Second it discusses vocabulary learning in relation to three different types of vocabulary knowledge. These components are then brought together in an overview of resources for learning single words. Finally, we suggest ways that teachers and learners can assess particular resources in terms of the type of learning targeted.

Critical Issues and Topics

Single-Word Items

The idea of a single-word vocabulary item may seem transparent, but for applied linguists working in vocabulary the problem of providing an exact definition of what to count as a word is well-established (Hanks, 2013; Kilgarriff, 2015; Nation, 2016; Wray, 2015). The problem is not only theoretical but has practical ramifications for language teachers. In brief, the concept of word is made problematic by inflected and derived forms of words (are medicine and medicinal the same word?); polysemy (do all the meanings of get add up to a single word?); homonyms, homographs, and homophones (is bank = money and bank = river one word or two?); variation in orthographic or phonological form (are color and colour the same word?); and ambiguity over the status of multiword lexical items that can be decomposed into smaller, single-word items (is look into = investigate two words or one?; see Wood, this volume). For teachers, the issue involves whether a multiword item can be taught without focusing on each one of its components (rice krispies without rice and crisp), or whether one of the meanings of a homoform can be taught apart from others (bank = money apart from bank = river), or to what degree comprehension of polysemes is generalizable (is frosty reception inferable from frosty morning?). Such issues are compounded by the common second language (L2) learners’ assumption that words should present stable correspondences between particular forms and particular meanings, as they typically believe they
do in their first languages (L1s). Unfortunately, on examination this assumption frequently fails to hold true, and a number of corpus linguists and lexicographers are now casting doubt on the status of the word as the primary carrier of linguistic meaning, or even a reliable unit of analysis (Hanks, 2013; Sinclair, 2010; Wray, 2015).

But while the discussion above implies an unmarked continuum between sub-word, single-word, and multiword vocabulary unit, this does not quite amount to a rejection of the word as a pedagogically useful unit. We propose that the idea of “word” as a discrete meaning-carrying item be retained on two conditions, first that not all single-word items will conform to this prototypical idea of the word, and second that the meaning of many words will be fuzzy, with their exact semantic import determined by both their semantic contexts and the other words they are used with (Hanks, 2013; Murphy, 2010; Wray, 2015). This position has much in common with the monosemic approach to word meaning proposed by Nation (2016) and Ruhl (1989). From this perspective, the vast majority of single-word items correspond to basic, underlying, unparaphrasable root-meanings, notwithstanding that communication requires their interpretation in both particular contexts of use and in relation to the other words they are used with. Empirical support for monosemism comes from Beretta, Fiorentino, and Poeppel (2005) who show that seemingly polysemous items are processed through computation from a single entry in the mental lexicon. That is, “look up”, “look into”, “good looking” and “have a look” are all processed via the underlying monoseme “look”, such that there is one basic learning act behind the acquisition of at least recognition knowledge of these several manifestations.

The precise status of single words may be debatable, but the pedagogical value of placing a high importance on single-word learning is not. First, the vast majority of learners assume that words are the basic units of a language and the main thing to be learned. There is probably no reason to try and convince learners of the problems with this assumption; teachers are better advised to work with it. Second, despite the undoubted importance in any language of units other than single words, such as multiword units, research by Bogaards (2001) has shown that knowledge of the single words that make up such units strongly facilitates their acquisition, even when the multiword unit is metaphorical or idiomatic. Bogaards had two groups of learners process idiomatic multiword units, one of whom had previously learned the single-word meanings composing the units and one that had not. Those who knew the constituent words were significantly better able to comprehend and retain the multiword units (while incidentally the inverse was not the case). In other words, knowing look facilitates learning look into, lending support to both monoseme theory and the typical learners’ attitude to learning single-word items.

Another important issue in learning single-word items is the extent to which cognate word-forms between the L1 and L2 allow single-word items to transfer fairly reliably between languages. Although learners rarely assume that multiword units such as eye for an eye or look forward to will have direct translations (Kellerman, 1986), virtually all learners view cognate word-forms, if available, as an essential bridge to creating the second lexicon. Many linguists, on the other hand, are skeptical of naïve transfer theories (e.g., Granger, 1993) in view of the likelihood of false friends in some of the pairings. However, the failure to recognize cognates is almost certainly a greater danger for learners than false friends (White & Horst, 2011). For instance, Ringbom (2007) notes that virtually all Swedes learn English successfully while most Finns struggle, the main difference between them being the degree of lexical similarity between their L1s and English, despite the usual number of false friends. Hence, teachers are probably best advised to exploit any available cognate forms, at least as a starting strategy. In relation to learning languages that share few cognate forms with the L1, the situation is more complex.
Swan (1997) argues that virtually all learners assume that single-word items in their L1 will have translation equivalents in their target language, and to a greater extent such an assumption provides another bridge to the second language (L2) lexicon. Not only learners, but also pedagogically oriented researchers such as Nation (2013) see L1 vocabulary knowledge as having the potential to reduce the learning burden of L2 vocabulary items. Clearly, however, when learners are confronted with vocabulary in use, they will encounter places where the L2 translation equivalent diverges in use from the L1 word-form, and the learners will need to adjust their L2 lexicons appropriately (Swan, 1997). Still, the most radical of these adjustments will not involve wholesale departure from the form-meaning link established via the translation equivalent, but rather the addition or removal of particular senses of a word, the other words that it is commonly used with (collocations), the grammatical patterns they typically occur in (colligation), the frequency with which they are used, or the contexts they are typically employed in, including such notions such as register, connotation and the semantic space a word occupies vis-à-vis other words within the same language (synonyms, antonyms, hypernyms, and hyponyms).

A final reason to learn single words is the generalizability of such knowledge. When a frequent, single word is learned it will be seen often and may help to unlock a good number of related meanings, but this cannot normally be said of multiword units. *Look* is used frequently both as a single word and in numerous multiword units, so knowledge of this word is highly valuable. For example, the core sense of the single-word item *look* contributes to the overall meaning of the multiword expression *look forward to*. However, although the multiword expression *look forward to* also carries with it the sense of *pleasurable anticipation*, this sense is not activated in otherwise comparable VB+forward items such as *think forward to*, *bring forward*, or especially *push (oneself) forward*. In this way, single-word items are more productive than multiword items, which tend to be one-offs. While single-word items frequently contribute their senses to the overall sense activated by larger multiword items, multiword items are rarely productive in this way. In fact, what productivity multiword items possess appears to depend on knowledge of single-word lexical sets that can be substituted for others within the structure – e.g., *pour/throw cold water on* something (see Hanks, 2013, for an in-depth discussion).

In sum, there are at least three important reasons to value the learning of single-word items and to be interested in the resources available for doing so. Learners expect to be learning single-word items; they expect their knowledge of single words to transfer between related languages; and knowledge of single words is highly productive compared to knowledge of multiword items. While the role of multiword items was undoubtedly neglected in many traditional linguistic analyses, recognizing their importance does not imply neglecting the value of single-word items.

**Types of Vocabulary Learning**

The materials available to teachers and learners for learning single-word items can be categorized in relation to the types of vocabulary learning they target. It is common in applied linguistics research to distinguish three types of vocabulary knowledge (cf. Henriksen, 1999): Type 1, knowledge of form-meaning relationships; Type 2, knowledge of how words are used in sentences and texts, including considerations of connotation, register, pragmatics, and collocational and colligational preferences and restrictions; and Type 3, the skill of accessing knowledge of single-word items quickly, with automatized access the ultimate goal (Meara, 1996; Schmitt, 2010; see also Nation, this volume, for a different perspective).
Traditionally, single-word learning mainly involves developing knowledge in a receptive context that relates to Types 1 and 3—in other words, form-meaning links, with regard to both spoken and written form, and the speed or fluidity of accessing one from the other (meaning from form, and form from meaning). This framework allows us to be quite precise about whether a particular resource introduces or practices spoken word recognition, written word recognition, or how either of these links to meaning. It also allows us to temporarily set aside resources for interpretation and production of words in combination. In the early stages of language learning at least, the learner has enough to do in each of these three areas without mixing them together, despite the fact they will eventually come together in language use.

**Examples of Resources for Single-Word Learning**

This section discusses paper or computer-based word lists, dictionaries, flash cards, textbooks, written and audio texts, and some resources that are only computer based, focusing primarily on Type 1 and Type 3 learning, but suggesting implications for Type 2 learning where these are not fully separable.

**Word Lists**

The most common resource for anyone wishing to learn a set of words is almost certainly a simple word list, whether made by learners themselves or by someone else on their behalf. The obvious benefits of a word list are ease of construction, portability, equality of focus on each word, and decontextualization. The benefit of decontextualization is that all of the learner’s attention is focused on learning the form-meaning link. In contrast, when words are encountered in context, the learner’s attention may move from the form-meaning connection of the word to comprehension of other aspects of the sentence, which can reduce learning of the single word *per se* (Mondria & Wit-de Boer, 1991). Hence, word lists can be seen as facilitating Type 1 learning through decontextualization, although from the perspective of Type 2 learning decontextualization could also be seen as a drawback. Two further drawbacks of word lists just from the perspective of Type 1 learning are the fixed order of the words and the limitations of a written and non-audible representation.

Computer-based lists offer several additional benefits over paper lists. One is randomization, so that words need not be learned in a fixed order such that each primes the next. Another is potential completeness. If the list has been generated from a text or corpus, as is increasingly the case, every word of the text will be equally represented and none will get lost. Another is morphological grouping, which can be achieved through simple alphabetization of the words in a text or corpus (e.g., “cat” and “cats” will appear together), or through software that is able to groups words in relation to lists of word families, lemmas or the like. Another is utility grouping; if the words are ranked by frequency of occurrence in a text, then their importance for handling that text is made clear through the display of their frequencies, such as when software pitches list against texts or other learning resources (as in RANGE, Antprofiler, or Vocabprofile). Alternatively, if the words are ranked by range and frequency in a large reference corpus, then their importance in the language as a whole is clear. Indeed, list-building projects by West (1953; the General Service List, GSL, of 2,000 headwords), Nation (2006, the British National Corpus, BNC, list of 14,000 word families; and 2016, the BNC-Corpus of Contemporary American English, BNC-COCA, list of 20,000 word families), and many others are major contributions to the resource stock available for learning the single-word lexicon of English. These corpus-based lists combine the advantages of
completeness, grouping, randomization, and utility, and Nation (2016) has set down guidelines for developing further word lists based on his own extensive experience. Such lists let us expand utility to a broader category, something like curriculum design, where whole programs of study can be sequenced in part or in whole according to the words that are needed at different stages of learning. This curriculum-design role can apply to a language as a whole (frequency lists) or specific parts of it (for example, Coxhead’s, 2000, Academic Word List that supplements the GSL). Importantly, in their role as curriculum shapers, corpus-based word lists help us to identify which single-word items are of most value to learners (see also Dang, Liu and Lei, Vilkaitė-Lozdienė and Schmitt, and Coxhead’s chapters in this volume).

Further affordances of computer-based word lists can no doubt be supplied by readers in their areas of interest, but a general affordance worth mentioning is linkability: the ease of linking computer word lists to other digital and non-digital resources. Text-to-speech (TTS) links, where a clicked word will produce its spoken form with reasonable accuracy, strongly reduces one negative affordance of traditional word lists, but the possibilities are endless (pictures, example sentences, L1 glosses, L2 glosses, and others). Pedagogy can even be incorporated into lists. Learners have often written little definitions beside, over, or under the items on their lists and found ways to fold and bend them to quiz themselves or each other, and computer technology can multiply this dimension.

**Flash Cards**

Another variant of learning from word lists is flash cards, or word cards, which can incorporate all the benefits of word lists but integrate further pedagogical advantages in relation to Type 3 learning. (See Nakata, this volume, for a fuller account of flash cards). Importantly, Elgort (2011) found that learning new words with paper word cards could create lasting word knowledge that could be accessed so quickly that it attained the psycholinguistic criteria of automaticity, and Krashen’s (1989) criteria for “acquired learning”, which is distinct from “learned learning”. Hence, flash cards are an extremely important resource for learning single-word items.

It was mentioned in the context of word lists that learners often make a list of parallel glosses or synonyms and quiz themselves or each other by folding the paper in half – look at the word, produce the meaning, or vice versa, and check. This practice fosters both Type 1 and Type 3 learning because it involves form-meaning retrieval. The flash card basically focuses and formalizes this particular use of the word list. Flash cards divide a word list into a set of word cards each with a word on one side of the card and its meaning on the other, so that retrieval can be practiced.

An extensive body of psychological research has demonstrated that the practice of retrieving word information from memory, as compared to simply seeing the form and meaning together, leads to improved retention (for an overview, see Nation, 2013). Admittedly, retrieval of a word’s meaning is practiced every time a word is encountered, but the extra advantage of flash cards is the option of reversing the sequence and retrieving the L2 word when cued by its meaning. Meaning-to-word retrieval is essentially what happens in production (we have a meaning in mind and we look for an L2 word to express it), and flash cards make it possible to engage extensively in this more complex lexical operation at a learning stage when production is limited. (This is also labeled “active recall practice” in Laufer & Goldstein’s, 2004, framework.) It is important to practice retrieval in both directions because, as research by Webb (2009) has shown, word knowledge reflects the way that words were learned. Learning words only receptively (recalling or recognizing the meaning when presented with the form) may not develop all the knowledge necessary for productive
use. Productive lexicons in an L2 are almost always some fraction of the size of their receptive counterparts (Laufer, 1998), but regular practice of productive retrieval (retrieving the L2 form of the word when presented with its meaning) may help reduce this difference.

Flash cards deploy all of the original benefits of word lists (completeness, decontextualization, presentational equality, etc.) and further facilitate randomization (cards can be shuffled, as words on a list cannot) and retrieval (either the word or the meaning is out of sight when the other is visible). In their turn, phone/computer flash cards deploy all the benefits of paper ones, improve on some of them (more perfect randomization, tighter record keeping) as well as introducing some new advantages. For example, many flash card apps allow meaning to be represented via multimedia clues like pictures or speech, and in addition have a quiz option (either in the productive direction, from meaning clue to a list of candidate words, or the receptive direction, from word to list of candidate definitions). When learners use the quiz option, they will get every word either right or wrong, which the app can record, and this allows the app to engage in some on-the-fly instructional design. With this information, the app can focus more on the words learners need to work on, potentially increasing the efficiency of the learning operation.

Another advantage of electronic flash cards is that when the dimension of timing is included, and a higher speed of retrieval is encouraged in a game or competitive setting, their value is intensified as a Type 3 learning resource. Single-word lexical access (or word recognition speed) has often been shown (first by Perfetti, 1985) to be the strongest predictor of L1 reading ability, sometimes in interaction with listening comprehension ability (Gough & Tunmer, 1986). Meara (1996) made the pioneering argument for bringing processing speed into L2 research on vocabulary, emphasizing the importance of word processing as a dimension of L2 lexical knowledge. Twenty years later, however, few studies in applied linguistics have looked at ways this type of knowledge could be pedagogically facilitated or created. Timed, record-keeping flash cards would appear to be an excellent candidate.

One study that has looked at the possibility of improving word recognition speed pedagogically is Cobb and Horst’s (2011) study of the Nintendo game My Word Coach, which is a set of video games that are mainly variations of flash card learning. My Word Coach also includes timing and record keeping. Francophone learners of English who practiced retrieving both form and meaning with a focus on increasing their rate of retrievals, not only significantly improved their word recognition speed, but also their general ability in English on a series of broader measures including production.

Whether high-tech or paper, the flash card format can be adapted into a number of other game-like resources for building single-word fluency. The form side of a flash card can be used to play a game called Word Snap where learners draw cards from a stack of cards containing duplicates and quickly decide if they are the same or different. This simple game may help to develop receptive fluency for simple word-form recognition. Alternatively, the meaning side of a flash card can be replaced with other lexical information and learners can play Word Ping-Pong. This involves “batting” a word to an opponent who must return relevant lexical information such as a synonym, antonym, or a word in the same word class, as determined by a teacher. This not only gives practice in productive fluency, but can also extend flash card learning to Type 2 vocabulary knowledge.

Dictionaries

A dictionary is fundamentally a type of word list, a list of forms and associated meanings in the form of definitions or glosses. It is not, however, primarily intended as a resource for word learning; few learners will attempt to learn all the words serially in even a smallish dictionary.
Owing to its typical size, it is primarily a resource to reveal the meanings of words encountered elsewhere (e.g., in a text), or in the case of the bilingual dictionary, a resource for finding the L2 forms of words and their meanings. Many researchers view dictionaries as the most used resource by language learners (Nesi, 2014; Scholfield, 1997) and how they use them and to what effect are interesting issues that we do not know enough about. Consequently, despite occasional fears that definitions and glosses may lead to the development of superficial form-meaning connections (e.g., Cobb, 2012; Webb, 2007), a good deal of effort was invested in the 1980s and 90s into improving the quality of dictionaries for the purposes of L2 learners.

COBUILD (Sinclair, 1987) developed the “sentence definition” where, e.g., the everyday meaning of a word such as drive was defined not as “propel a four-wheeled vehicle forward in a controlled manner”, in the classic genus and distinguishers format, but in a comprehensible, mini-scenario such as, “When you drive somewhere, you operate a car or other vehicle and control its movement and direction” (from COBUILD online, consulted May 10, 2019, at https://www.collinsdictionary.com/dictionary/english/drive).

Longman’s Learners Dictionary of Contemporary English (LDOCE, 1987) wrote its definitions in a constrained defining vocabulary of 3,000 high-frequency words, whereby most look-up words would be defined in words more frequent than that word itself. Dictionaries of this type also provided explicit information of interest to learners rather than native speakers, such as extensive unpacking of different senses and plentiful grammatical information (exemplification, countability, frequency in speech and writing, register). Much of this information aims at supporting productive use of words in speaking or writing, thus pushing the resource towards Type 2 learning, with at least one variant of the genre designated as a “production dictionary” (the Longman Language Activator, 2005).

The effect of these learner dictionary modifications, however, remains unknown. Looking into these modifications was a narrow but important strand of applied linguistics research in the 1990s (e.g., Hulstijn, Hollander, & Greidanus, 1996; Knight, 1994) but since then it has fallen off. A search for “language learners use of dictionary features” on Google Scholar yields few studies more recent than those discussed in Nesi’s (2014) timeline of research in this area which ends at 2012. Nesi concurs that this fall-off has occurred (personal communication, July 26, 2016) and offers two plausible reasons: “since e-dictionaries became more prevalent it is much more difficult to get a group of research participants together who are all using the same dictionary”, and that “it is more difficult to find out exactly what dictionaries people are using (they often use portals or aggregators, where queries might be directed to one of a number of dictionaries)”.

There are several reasons for the waning interest in dictionaries. One is that research findings on dictionary use (including Cobb, 2012), or glosses in general (Webb, 2007) suggest that because information in a gloss or definition is limited, it may result in superficial learning, and so learners may need further supplementation from exposure to language in use or other Type 2 focused resources to gain more comprehensive vocabulary knowledge. However, the potential benefits of dictionaries for Type 1 learning are considerable, and when added to those of mobile technologies, they are more so.

Willingness on the part of learners to use dictionaries is in itself a major feature of dictionaries. Lewis (1993, p. 25) attributes to Krashen the famous observation that, “When students travel, they don’t carry grammar books, they carry dictionaries”. Indeed a major affordance of dictionaries is their portability, and this has only increased with the widespread use of smartphones that include system-level look-up links to every word of the texts they contain. The user/learner is of course free to choose from several dictionaries on the smartphone and only some of the choices available will be learning-adapted dictionaries such as those
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mentioned earlier. In fact, often learners will choose bilingual dictionaries. A bilingual dictionary entry typically offers information in L1 about an L2 word. Nesi (2014) reports that the bilingual dictionary is the resource of preference for the vast majority of learners, despite the fact that monolingual dictionaries are generally believed to be superior because they do not encourage learners to believe in simplistic L1–L2 word equivalence and as mentioned have been extensively adapted to learner needs. However, one strand in the 1990s work with adaptations that received less research but was actually quite promising (as shown by Laufer & Hadar, 1997) was the bilingualized dictionary, where some amount of L1 is used in the definition of the L2 word but also enough target-language exemplification and explanation to discourage simple L1–L2 word matching, and many of the smartphone dictionaries have extensively developed this feature. For example, the WordReference.com entry for *gum* bilingualized for French readers or learners is shown in in Figure 21.1. The English word

![Figure 21.1](https://example.com/gum.png)

**Figure 21.1** Bilingualized definition of *gum* for French readers from WordReference.com
Oliver Ballance and Tom Cobb

gum is translated into several French equivalents (gomme, gencive, colle) and the distinctions between them explained in both English and French (made from gum, for gluing, etc.) such that a simplistic gum–gomme equivalence is unlikely to be established in the learner’s inter-lexicon. Virtually all e-format dictionaries offer text-to-speech sound renditions of the word (qua single word) and many also offer Type 2 resources like an extensive listing of the multiword units the headword is involved in, with translation and exemplification.

This pick-up of research-indicated features by an agency of mass distribution, though probably unintentional, is nevertheless fortuitous and should be exploited. ESL and EFL instructors are well advised to encourage bilingual dictionary use early in the learning process, in line with suggestions made earlier, and then later give their learners the training and access information they will need to use a bilingualized and then monolingual dictionary.

Course Books

From a vocabulary learning perspective, there are two types of course books or textbooks. One is dedicated specifically to vocabulary learning; the other is a more general course book with a vocabulary element as one of its parts. Dedicated vocabulary expansion course books focus directly on word learning and might be called expanded word lists. The best known of these remains Barnard’s (1972) four-workbook set of Advanced English Vocabulary, which was designed for three months of self-study in the aim of preparing learners for academic work in English, and included target vocabulary from West’s GSL. Each volume put about 400 high-frequency GSL word families through the same set of five exercises (introduction, dictation, word study, encounter in a text, word completion exercise) in each unit. This type of treatment is eminently suitable for computer adaptation. In fact, Tom Cobb’s List_Learn suite (http://lextutor.ca/list_learn) is based on Barnard’s treatment. In List_Learn, several lists in addition to the GSL can be called up, and each word in each list is linked to a dictionary, a personal glossary-building routine, a dictation routine, a word recognition routine, and a meaning inference routine, all employing randomization. Barnard’s pioneering work has been followed by several vocabulary book sets, including the multiple volumes of McCarthy and O’Dell’s (1997 onward) English Vocabulary In Use.

The other type of course book is a multi-skills book with some focus on vocabulary. It should be noted that traditionally, not all language course books had a significant focus on vocabulary, but assumed that unknown words would be explained by a teacher or looked up in a dictionary. Most such works in the lexically aware post-1980s era however do claim a specific focus on vocabulary. Once again the word list is key to how vocabulary is treated in modern course books. Typically, novel lexical items from a reading passage or grammar exercise are pulled out and given focus in the form of a list, often with in-context glossing, thereby addressing Type 1 learning. These same words are often then met again later in the unit in either a matching activity or cloze passage related to the original reading passage for retrieval practice. Occasionally further lexical development is encouraged through the inclusion of morphology tables, semantic maps, or comprehension questions that require use of the target words, expanding such resources to Type 2 learning. Some course books also offer vocabulary strategy training, such as instruction on how to keep a vocabulary notebook or ways to devise mnemonics for hard-to-remember words. External (for example corpus based) word lists can also feature in course books as a source of selection for the vocabulary used and targeted in the book. For example, the Collins COBUILD English Course (Willis & Willis, 1988) focused on the 700 most frequent word families in Book 1 and a further 850 word families in Book 2. The benefit provided by word lists in this case was to assure
exposure to the most used words of the language a sufficient number of times for learning to occur.

Texts

Texts in the target language other than course books are also potential resources for single-word learning (see Webb, this volume, on incidental vocabulary learning). Research has shown that while the Type 1 learning rate from reading an L2 text is quite slow (Horst, Cobb, & Meara, 1998), it is nonetheless possible for learners to acquire vocabulary simply from repeated encounters with a new word in comprehensible contexts (Webb & Chang, 2015) in L2 as in L1. In fact, the Type 1 learning rate from reading is quite slow in both L2 and L1, but in L1 the much larger amount of input means that L1 reading can play a greater role in the building of a lexicon, especially for the many words that appear mainly in text but rarely in speech. It is not clear whether reading can play the same role in L2 lexical development (Cobb, 2016), at least in the early stages of learning. Problems with lexical growth from L2 reading include the relatively infrequent appearance of all but the most common words (in the amount of text that learners are able to read); the dispersion of the encounters, such that words are forgotten by the time they are re-encountered; the lack of opportunities for using learned words after reading; and the general density of unknown words in texts written for native speakers. Some of these problems can be solved by having learners read graded readers, which are texts written within a controlled vocabulary. However, a problem with learning new words from reading that applies equally to graded and ungraded texts is the one raised earlier with regard to the benefits of decontextualization: when words are encountered in rich, meaningful contexts, the learner’s attention can often be focused on larger linguistic units than just single words which can reduce the learning or even noticing of the single word (Mondria & Wit-de Boer, 1991).

We thus conclude that reading is not particularly rich in affordances for initial Type 1 single-word learning, for which word lists and flash cards are almost certainly faster and more efficient. However, initial word learning is not the whole of word learning, and reading has other advantages for lexical development. First, many of the weaknesses of list-based word learning can be addressed by subsequently meeting words in a variety of novel contexts, and so reading has value for developing Type 2 vocabulary knowledge. Second, reading can be used to build fluency and rapid access for words that learners already know (Type 3 learning). Nation (e.g., 2013) has argued that extensive reading of level appropriate texts should be used to increase fluency, and a study by Horst (2009) provides support for this claim. Horst found that extensive reading had a positive effect on lexical access. Third, in the later stages of learning, reading is almost certainly the only way to expand the lexicon into zones where commercially produced lists, flash cards, or textbooks are no longer of much use, especially since so much of any language’s mid- to low-frequency lexicon appears primarily in text.

Audio texts are also a useful learning resource. However, they may suffer from the same drawbacks as written texts but perhaps in a more extreme form. The real-time process of listening (although this can be controlled with technology), as well as variations in pronunciation, present significant barriers to learning new L2 words (Stahl, 1990, offers evidence in L1 but few studies have investigated this issue in L2). Listening to audio texts, however, almost certainly affords fluency building for words once known. Conversation with native speakers or other learners, on the other hand, while possibly not a resource as traditionally understood, provide several benefits for single-word learning. In conversation, the other
words in the context are normally known, and new words if important are typically focused on through emphasis, and ample opportunities exist for clarification and repetition (see Newton in this volume).

Teachers are well advised to encourage their learners to read and listen a good deal of level appropriate material, and provide them with opportunities and incentives to do so, but not to expect large amounts of new, Type 1 word learning to occur as a result, at least in the short term. Rather, the immediate vocabulary benefits of extensive reading and listening relate to consolidation of learning that has occurred using other resources, and gains in Type 2 and Type 3 knowledge.

Concordancers

Information technology to this point has been considered for what it can add to existing learning resources (e.g., randomization of word lists, timing and scoring of flash cards, sound renditions of dictionary words). It seems fair to say that the computational version of many of the resources we have looked at have effectively replaced the original in most learners’ and teachers’ thinking and have become the principal resource for vocabulary study (Ballance, 2018; Cobb, 2012). Few learners use paper word lists or flash cards any more. However, there also exist computational vocabulary learning resources that deserve discussion in their own right that only had remote precedents in the pre-computational era. One of these is a concordancer, a piece of software that taps into a text or corpus to generate all the examples that exist for any word or phrase. A concordancer thus presents a target single-word item in relation to other words in a context, and so it is primarily thought of as promoting Type 2 learning, but it also has value as a resource for Type 1 learning. Indeed single-word vocabulary learning is one of the principle and most successful uses concordancers were shown to have in Boulton and Cobb’s (2017) meta-analysis of data-driven learning studies. Several studies showed that by working with multiple assembled examples of a word learners developed deep representations of word meaning.

Figure 21.2 is a concordance output for the word family struggle from Lextutor’s English concordancer drawn from the typical school text *Call of the Wild*. The concordance shows various inflections of the item struggle being used in context, and reports the frequency of each. It can also report the words that typically come before and after it in the novel. Also, what cannot be seen is that the program invites several types of collocation search (for example, struggle with any form of desperate on either side).

An important Type 1 word-learning advantage that a concordance provides is the elimination of lexical dispersion. As mentioned in the discussion of learning words from texts, the time between occurrences of unknown words is a negative factor in learning from reading, but the concordance brings all the occurrences of a whole book into a single physical space and time frame. A related advantage is that a concordance creates an opportunity for constructing a complex meaning representation. It was mentioned earlier that while learners are entitled to start building their lexicons through L1 translation equivalents, this strategy will rarely suffice as learning proceeds.

Cobb (1997) showed that concordance lines are more comprehensible to learners than dictionary definitions and that the meanings inferred from multiple examples were more durable, flexible, and transferable to novel contexts than meanings inferred from single contexts or gleaned from bilingual dictionaries. A possible reason for this could be that by providing several examples, concordancers increase the potential that at least one or two examples will be comprehensible such that an informed inference can be made. Moreover,
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when several examples are partially comprehensible, it may be that some sense of a word’s range of meanings becomes apparent. Another reason that concordance lines may lead to durable learning of form and meaning is that a concordancer appears to provide a kind of automatized simplification of the ambient contexts that words are being inferred from. Bal-lance and Coxhead (under review) found that the average lexical difficulty of the examples assembled by a concordancer is considerably lower than the average level of the corpus or texts it is drawn from, such that the technology enables learners to work with texts that are beyond their current vocabulary level. Technology can also amplify this useful feature of concordances. Sketch Engine for Language Learning (SKEL; at https://skell.sketchengine.co.uk/run.cgi/skell) uses algorithms to select the easiest example sentences in its corpus and present these at the top of the output (Kilgarriff, Marcowitz, Smith, & Thomas, 2015). Similarly, Lextutor’s concordancer allows output to be sorted by average VP (or VocabProfile, i.e., frequency) of the words surrounding the keyword, with more comprehensible contexts at the top. Figure 21.3 shows examples of \textit{diagnose} ranging from easy (averaging level 1 or most frequent 1,000 words) to difficult (level 4) from a corpus of Dr. House television scripts (available from www.springfieldspringfield.co.uk/ under a “fair use” agreement).

Thus for single-word learning of the Type 1 variety, the concordancer may function as a kind of reading assistant, making up for some of the drawbacks of natural text: the elimination of natural amounts of lexical dispersion and the provision of good conditions for inferring complex word meanings. It is thus natural that concordance programs have been teamed with texts through click-on interfaces. Of course, by providing ready access to concentrated exemplification, it can also provide a wealth of information about how a word is used, facilitating Type 2 learning via inductive analysis in a technique generally known as data-driven learning (see Boulton & Cobb, 2017 for more on this topic).
To this point we have argued for the importance of single-word learning; situated this type of learning within three standard types of vocabulary knowledge (form-meaning relationships, ability to use words in context, and speed of access to both these types of knowledge) and argued that resources for single-word learning traditionally focus on the first and third of these. A number of what-to-use-when suggestions for language teachers seeking single-word learning resources for their students can be taken away from the foregoing discussion.

The first takeaway from this chapter is that we should be aware which of the three general types of vocabulary knowledge we are targeting, what resources can be expected to promote that knowledge, and which stage of the learning process the resource mainly applies to. Single-word resources for building form-meaning links will typically help learners amass receptive vocabulary knowledge initially, but are unlikely in themselves to do much for production. (We have all seen or been the teacher that introduces learners to a list of words and then sees them struggle to use the words in sentences.) Resources focused on knowledge of how words are used will help learners with aspects of production, like collocation and word order, but may assume form-meaning knowledge is already in place when it may not be. (We have all seen or been the teacher that introduces learners to grammar patterns composed of words they have never seen before.) Fluency resources will give practice in accessing form-meaning links but are unlikely to do much to create these links in the first place. (We have all seen or been the teacher that launches a fluency game such as Word Snap using words that learners have never seen.) Thinking about resources in terms of the three types framework can help us to be aware of the assumptions in our choices.

A complementary set of suggestions can be built from what was said earlier about the typical benefits of particular single-word resources. If laying an initial lexical base is the goal (as Meara 1995 convincingly argued that it should be), then some sort of list-based approach (e.g., L1–L2 flash cards) with the strong affordances of coverage and completeness are more suitable than reading or fluency building activities, which are better for other purposes. Similarly, instruction in the use of a concordancer as a means of deepening knowledge of L2 meanings would not be appropriate for this goal. On the other hand, for learners who already have basic form-meaning links for the most frequent (say 3,000) word families, resources that build fluency (reading), deepen word meanings (monolingual or bilingualized dictionary), or provide opportunities for contextual inference (reading or concordancer) are more appropriate than flash cards or word lists.

It should be remembered that any what-to-use-when suggestions are about proportions not absolutes. Learners should not be asked to study flash cards for six months before they

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**Future Directions**

To this point we have argued for the importance of single-word learning; situated this type of learning within three standard types of vocabulary knowledge (form-meaning relationships, ability to use words in context, and speed of access to both these types of knowledge) and argued that resources for single-word learning traditionally focus on the first and third of these. A number of what-to-use-when suggestions for language teachers seeking single-word learning resources for their students can be taken away from the foregoing discussion.

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**Figure 21.3** Concordance for word family diagnose with more comprehensible contexts first

<table>
<thead>
<tr>
<th>Concordance extract for family DIAGNOSE</th>
<th>With no associate on EITHER side sorted wds level of key</th>
</tr>
</thead>
<tbody>
<tr>
<td>001. way. Unless we know which ones are which, I can't DIAGNOSE you. I'll take any other tests or treatmen [1.00]</td>
<td></td>
</tr>
<tr>
<td>002. conds later I was blind! How is that difficult to DIAGNOSE? Who the hell knows what else you guys do [1.00]</td>
<td></td>
</tr>
<tr>
<td>003. restenosed to sue us is now heading home completely UNDIAGNOSED. He'll soon be on his way back. He's s [1.00]</td>
<td></td>
</tr>
<tr>
<td>004. lecture. If this thing kills him before we can DIAGNOSE it won't be fun anymore. Okay. You're go [1.00]</td>
<td></td>
</tr>
<tr>
<td>005. eration's gonna take twice as long. Yes. We was DIAGNOSED six months ago. We do a lot of cooking? [1.00]</td>
<td></td>
</tr>
<tr>
<td>101. s gonna cause neurological symptoms. - We can't DIAGNOSE that without a biopsy. - Yes, we can. We [2.00]</td>
<td></td>
</tr>
<tr>
<td>102. No, no. Nothing. - Any relatives who've ever been DIAGNOSED with lupus? I don't even know what that [2.00]</td>
<td></td>
</tr>
<tr>
<td>103. p a diagnosis. You don't seem that upset by it. I DIAGNOSED a guy with adenocarcinoma three months a [2.07]</td>
<td></td>
</tr>
<tr>
<td>104. and mental confusion. Ah, bad sushi is so hard to DIAGNOSE. You're being childish. Look, if his case [2.08]</td>
<td></td>
</tr>
<tr>
<td>119. bilirubin's off the charts. Even fetsuwe lie. We DIAGNOSED a lower urinary tract obstruction because [3.67]</td>
<td></td>
</tr>
<tr>
<td>121. be something to it? Cuddy feels guilty about not DIAGNOSED psittacosis any earlier? I think so. Th [4.15]</td>
<td></td>
</tr>
<tr>
<td>122. ad. It's just slow. Damaged his ulnar nerves. Was UNDIAGNOSED as carpal tunnel. Never trust doctors [4.17]</td>
<td></td>
</tr>
</tbody>
</table>
are allowed to read a text. As Nation (2007) has convincingly argued, every language course at any level should have some representation from all “four strands”. These are meaning focused input (reading, listening), meaning-focused output (speaking, writing), language-focused learning (grammar, vocabulary, multiword units), and fluency development (lexical access, reading speed, fluent production). The resources discussed in this chapter can be used for learning words in all strands. For example, flash cards might be used initially to develop receptive knowledge of form and meaning of 20 target words (language focused learning). This might be followed up by having students encountering these words in a written text (meaning-focused input) and then writing about what they have read (meaning-focused output). They could then do a fluency development activity such as playing Word Snap or doing a timed reading of a text recycling the same words.

Further Reading


This article has a main focus on how technology can support vocabulary study, whether it be the study of single-word items or multiword items. It explores the affordances of technology in relation to vocabulary learning mechanisms such as recall, noticing, and generative use.


This article also discusses technology and vocabulary study, but it illustrates general vocabulary learning principles and the affordances of technology in relation to a particular suite of vocabulary learning resources: Compleat Lexical Tutor (www.lextutor.ca/).


This authoritative book length treatment of L2 vocabulary acquisition not only provides an insightful review of the main findings in the field but also provides summaries of many resources for learning single-word items as well as links to the resources.


Because of the status of dictionaries as a resource for learning single-word items, this summary of the main research findings on second language dictionary use highlights some fundamental pedagogical issues related to learning single-word items.

Related Topics

Factors affecting the learning of single-word items, learning single-word items vs. multiword items, strategies for learning single-word items, word lists, learning words through flash cards and word cards, evaluating exercises for learning vocabulary, key issues in teaching single-word items

References


Resources for Learning Single-Word Items


