Vocabulary acquisition

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BACKGROUND

Vocabulary is an essential component of any language, and thus it is a critical part of second language (L2) acquisition (e.g., Nation, 2013; Willis & Ohashi, 2012). Vocabulary knowledge influences both productive skills (speaking and writing) and receptive skills (reading and listening), and is considered a key predictor of general language proficiency (Alderson, 2007; Laufer & Goldstein, 2004). L2 learners often acknowledge that the lack of or poor vocabulary knowledge is the main reason for their difficulties in acquiring, comprehending and using a L2 (Nation, 2013). This chapter will focus on the key principles of vocabulary acquisition, and how they guide current vocabulary pedagogy. Some of these issues include the overall inattention to vocabulary instruction during different eras, the importance of learning a large number of words, the necessity of learning various aspects about these words, receptive and productive mastery, knowledge of formulaic language, the incremental nature of vocabulary acquisition, and the need for multiple incidental and intentional exposures to a word in order to develop a proficient enough mastery to be able to use it appropriately in all situations.

**Key concepts**

* Vocabulary acquisition: all the processes involved in learning lexical items (i.e. single words and formulaic language) in sufficient depth to be able to use them both productively and receptively, by means of multiple incidental and intentional encounters with these items in varied contexts.

HISTORICAL BACKGROUND

Grammar translation method

The grammar translation method dominated from the end of the eighteenth century, all the way throughout the nineteenth and twentieth centuries, and is still used in many foreign language teaching contexts today. The focus of instruction was mainly grammar, and vocabulary was largely disregarded, attended to in the form of bilingual lists of archaic words to be used in the translation of literary texts (Zimmerman, 1997).

Vocabulary control movement (VCM)

The early twentieth century was characterized by the vocabulary control movement (VCM) (especially in the British sphere of influence), which attempted to raise the status of vocabulary in L2 learning. For the first time, vocabulary was considered the crucial element in language teaching. Similar to the grammar translation method, the VCM was based on the use of vocabulary lists. However, unlike in the previous period, during the VCM researchers focused on using innovative and systematic criteria to select the most useful vocabulary for language learning, such as the use of word frequency. The most famous list derived from this movement was the *General Service List* (GSL) (West, 1953), which presented the most useful 2,000 words of English.

Audio-lingual method and Chomsky

In America, the audio-lingual method was developed during World War II, with a rationale based on behaviorism. The main focus of this method was the acquisition of grammatical patterns through repetition, and the acquisition of vocabulary was downplayed. Therefore, only a very few simple and familiar words were explicitly taught, as it was assumed that vocabulary would be picked up incidentally through exposure to the language without the need for explicit instruction (Zimmerman, 1997). Subsequently, Chomsky’s (1957) views shifted the field’s theoretical understanding of language acquisition, but his notion of Universal Grammar did not change the relative neglect of vocabulary pedagogically, and the VCM that was taking place in Britain at the time was largely ignored.

Communicative language teaching

In the communicative language teaching method (1970s), language teaching focused on the acquisition of functional language (e.g., how to make a request, how to apologize), and the focus changed from using grammar accurately to using the L2 fluently and appropriately in real, meaningful communication, where the attention was on the message (Larsen-Freeman, 2000). Despite this meaning-based, communicative approach, however, once again vocabulary occupied a secondary place in language teaching. Vocabulary items were thought to be acquired incidentally by exposure, without the need of explicit instruction, and thus there was a lack of a principled approach for vocabulary teaching.

Reemergence of vocabulary

In 1980, Paul Meara highlighted the striking neglect of vocabulary acquisition as part of L2 learning, despite its crucial importance for language use. Indeed, around the time of Meara’s observation, there began an increasing emphasis on the role of vocabulary in language teaching, and some researchers started to draw attention to the need of studying the processes of vocabulary acquisition (e.g., Levenston, 1979; Richards, 1976). However, it was not until 1990 when Paul Nation provided the key impetus to study vocabulary, with his book *Teaching and Learning Vocabulary*, which nearly singlehandedly inspired a renewed interest both in vocabulary research and teaching. He proposed for the first time a principled, systematic approach to vocabulary instruction, bringing back some of the ideas of the VCM. He argued that a frequency-based approach is the best way of selecting and organizing the vocabulary to be taught in a language course, hence emphasizing the value of corpus studies.

The new millennium

Vocabulary acquisition now has a central role in the field of Instructed Second Language Acquisition (ISLA), and there has been an explosion in the amount of vocabulary research taking place. Nation, writing in 2013, estimated that over 30% of all the research on vocabulary since 1900 was published in the previous eleven years. This wealth of research has been very informative, and the following section will distill some of the major insights gained about vocabulary knowledge and acquisition.

To sum up, this overview shows how despite the importance of vocabulary, its role in language instruction has an uneven past, being undervalued/disregarded at some points in time and emphasized at others.

CURRENT ISSUES AND EMPIRICAL EVIDENCE

The nature of the lexicon

Research has found that L2 learners’ vocabulary knowledge comprises not only knowing a multitude of words, but also gaining various types of knowledge about each word, and establishing connections between multiple lexical items to create semantic networks (Cremer, Dingshoff, Beer, & Schoonen, 2010). However, it is still unclear how vocabulary is stored and processed in the mental lexicon. It is known that words are not unrelated and independent from each other, but rather they are linked in multiple ways to the rest of the words stored in the lexicon, so that learning one lexical item has some effect on learning others (Meara & Wolter, 2004). Therefore, to develop full knowledge of a word it is necessary to build a rich and densely interrelated mental lexicon, which favors more rapid, comprehensive, and accurate networks between words (Cremer et al.*,* 2010). However, examining the links among words is proving a very complex and challenging task.

It seems that, as in the L1, L2 learners develop their mental lexicon by adding and reorganizing the connections between words. Williams and Cheung (2011), in a semantic priming study on L1 Chinese learners of French, found that newly learned words did not simply adopt the L1 meanings. Rather, the new words automatically acquired their own semantic representations, which were associated with the contexts and meaning situations in which the words were learned. For example, when encountering a new word in a L2 (e.g. *écureuil* in French) and learning that its equivalent in the L1 is *squirrel*, one would expect that if the student knows that the word in the L1 (*squirrel*) is semantically associated with the word *nut*, then the new L2 word *écureuil* would also be. However, these authors found that the new word created its own associations based on the context in which it was learnt (e.g. a bushy tail based on a fairy tale character), and not on the meaning of the L1 word.

Therefore, L2 vocabulary learning is not seen as simply the integration of new knowledge into the existing L1 system, but as establishing connections between aspects of word knowledge through exposure to the word in varying contexts. That is, word knowledge develops from experiences and encounters with the language and connections between previous word knowledge and the new information, which will develop further with more and more varied exposures to a word (Perfetti, Wlotko, & Hart, 2005).

Since word knowledge is acquired through multiple and varied language experiences (e.g., through both explicit instruction and incidental exposure: Schmitt, 2008), the acquisition of words is not a fixed process. Rather, word knowledge is a dynamic system that develops and changes over time, so that the acquisition of a word goes through different stages until all the word knowledge aspects needed to employ a word accurately in different situations (such as form-meaning mapping, collocational information and word parts, see Table 1) are acquired (Fitzpatrick, 2012). This variable process makes it difficult to examine the links between words in the lexicon, and is one reason for the lack of a generally accepted theory of how the mental lexicon functions and vocabulary is acquired.

**Key concepts**

* Mental lexicon: the mental dictionary where humans store the words they have some knowledge of. Those words are not stored individually, but appear to be highly organized and connected to each other in an intricate system. A rich and densely interrelated mental lexicon favors the development of depth of word knowledge.

Breadth and depth of word knowledge

The terms *breadth* or *size* of vocabulary knowledge refer to the quantity of words a person has some knowledge of, and *depth* indicates the quality of that knowledge, i.e., how well those words are known (Anderson & Freebody, 1981). It has been suggested that size and depth do not always grow in a parallel manner, since it is possible to learn a lot about a small number of words or a little about a large number of words (Schmitt, 2014). Nevertheless, the two dimensions are interrelated and contribute to one another (Li & Kirby, 2014; Qian, 2002; Schmitt, 2014; Tannenbaum, Torgesen, & Wagner*,* 2006). For example, the more words a learner knows (i.e., size), the more examples of word parts like prefixes and suffixes they will have in their mental lexicon, which in turn makes it easier for the learner to acquire the morphological aspects of vocabulary (i.e., depth). It is generally agreed that the development of depth of word knowledge is more problematic for learners and thus lags behind vocabulary size, regardless of the learners’ proficiency level (see Schmitt, 2014). For example, Webb (2007) found that size (as represented by the form-meaning link) was generally learned earlier than depth (e.g., syntagmatic associations, paradigmatic associations and word class). This gap is problematic because learners need to acquire depth of word knowledge to be able to use the words correctly, fluently, and appropriately in real situations.

**Key concepts**

* Word families: Lexical units that include all forms which share the same root plus all their inflectional and derivational affixes that (might) change the word’s class (e.g., *do, does, did, redo, undo, doable*). The core meaning remains the same, although the form changes. This concept is used as a unit of vocabulary measurement, and gives lower numbers than research using individual words as vocabulary units.
* Breadth and depth of word knowledge: In simple terms, *breadth* refers to how many words a person has some knowledge of (even if it is limited), and *depth* relates to the quality in which those words are known. Breadth has generally been conceptualized as knowledge of the form-meaning link of words (i.e., mapping a given L2 form to its meaning and/or an existing meaning to the appropriate L2 form). Depth, however, includes learning aspects such as the word class, collocations and grammatical functions, polysemous meanings, associations, and constraints on use.

Receptive and productive knowledge

Receptive knowledge refers to the learner being able to understand words encountered while reading or listening, and productive knowledge refers to using words in speaking or writing. Receptive mastery is typically reached before productive mastery, partly because productive mastery requires knowledge of more word knowledge aspects. Schmitt (2014) suggests that knowing the form-meaning link of a word might be enough for a receptive understanding of that word (although, of course, the more lexical aspects known, the better the comprehension is likely to be). In this situation, the user only needs to recall the meaning attached to the form that has been perceived, since all the other word knowledge aspects (e.g., word class, collocations, grammatical functions) are provided in the context. However, in order to produce a lexical item accurately and appropriately in a specific context, the user needs to know all (or as many as possible) of these aspects. That is, productive knowledge is more advanced than receptive knowledge (Read, 2000).

Different studies testing receptive and productive mastery of just the form-meaning link (e.g. Laufer & Paribakht, 1998; Tshirner, 2004) found that receptive mastery was higher than productive mastery (sometimes even five times higher: Nemati, 2010), and that, overall, when learners encounter higher frequency words, they are likely to both recognize and recall their form, whereas with low frequency words they can only recognize their form. Webb (2007), using non-words, studied the acquisition of receptive and productive mastery of various word knowledge aspects. He found that participants experienced gains in both receptive and productive knowledge, although the receptive knowledge of all the word knowledge aspects was always larger than the productive knowledge. This study was replicated by Chen and Truscott (2010) using real words, and the results were consistent. Therefore, the receptive knowledge of the different word knowledge aspects seems to be more robust and be acquired earlier than productive knowledge.

**Learners need a large vocabulary size to use a language**

One of the key issues in vocabulary teaching and learning is the amount of vocabulary L2 learners need to communicate. Research suggests that in order to communicate orally in basic, everyday informal situations, a vocabulary of between 2,000-3,000 word families in English is needed (if knowledge of roughly 95% of the vocabulary in the conversation is sufficient), or between 6,000 and 7,000 (assuming 98% coverage is needed) (Nation, 2006). There is not enough research to determine which of these coverage figures is sufficient, although van Zeeland and Schmitt (2013a) found that 95% was adequate for understanding informal narratives. The vocabulary requirements for reading are clearer, as by far the most research has been done in this area. Studies suggest that 8,000-9,000 word families (including proper nouns) provide 98% coverage, and are needed for L2 learners to read authentic texts (e.g., novels, newspapers) on a wide variety of topics in an independent manner. Knowledge of 4,000–5,000 families (with proper nouns) provides 95% coverage, which should enable initial engagement with these texts, albeit probably with the need for teacher support (Laufer & Ravenhorst-Kalovski, 2010; Nation, 2006). It is very difficult to set size requirements for writing, as different writers are able to use the vocabulary they possess to better or worse effect (e.g., a person with a relatively smaller vocabulary may still be able to write convincingly if they use that vocabulary well).

These figures are for individual lexical items, and do not take into account lexical phrases or formulaic language. Consequently, they underestimate the true number of lexical items of various types that are necessary to communicate effectively. Thus, it is clear that, at least for reading and listening, learners need to acquire a large vocabulary to comprehend language efficiently.

Conceptualizing depth: Aspects of word knowledge

Given its complexity, researchers have found it difficult to provide satisfactory descriptions of vocabulary depth. The most common framework is the components approach (Read, 2000), which describes the various components/aspects of word knowledge (e.g., form, meanings, word parts, collocations, and register) that make up the overall knowledge of a lexical item. This approach began as far back as 1942, when Cronbach recognized the multidimensional nature of word knowledge. In 1976, Jack Richards presented a list of eight assumptions involved in knowing a word, which was further developed by Nation in 1990. Nation’s 2013 list is the most detailed and comprehensive conceptualization of word knowledge components to date (Table 1). In order to *fully* know a lexical item, the nine different aspects of word knowledge listed in Table 1 should be mastered, both receptively and productively.

Table 1. Nation’s (2013) framework of the dimensions involved in knowing a word.

|  |  |  |  |
| --- | --- | --- | --- |
| FORM | Spoken | [R] | What does the word sound like? |
| [P] | How is the word pronounced? |
| Written | [R] | What does the word look like? |
| [P] | How is the word written and spelled? |
| Word parts | [R] | What parts are recognizable in this word? |
| [P] | What word parts are needed to express the meaning? |
| MEANING | Form and meaning | [R] | What meaning does this word form signal? |
| [P] | What word form can be used to express this meaning? |
| Concept and referents | [R] | What is included in the concept? |
| [P] | What items can the concept refer to? |
| Associations | [R] | What other words does this make us think of? |
| [P] | What other words could we use instead of this one? |
| USE | Grammatical functions | [R] | In what patterns does the word occur? |
| [P] | In what patterns must we use this word? |
| Collocations | [R] | What words or types of words occur with this one? |
| [P] | What words or types of words must we use with this one? |
| Constraints on use | [R] | Where, when and how often would we expect to meet this word? |
| [P] | Where, when, and how often can we use this word? |

Note: [R] = receptive, [P] = productive

Nation’s conceptualization is currently widely used both by researchers examining the depth of knowledge construct, to select and describe the aspects of vocabulary knowledge to be assessed, and by teachers, since it can be applied to vocabulary learning in the classroom in a way that is relatively easy for both teachers and learners to understand.

Nation’s framework is a maximal specification of lexical knowledge, and not even native speakers will have mastered all of these aspects for all the words they (partially) know. Therefore, L2 learners should not be expected to learn all their words in such depth. Nevertheless, gaining knowledge of even some of these aspects pushes students forward on the learning path (Schmitt, 2014).

**Key concepts**

* Components approach: One approach for the description of word knowledge. It enumerates the different components of what it means to fully know a word, for example, form, meaning, grammatical characteristics, and constraints of use. The various components have been most fully specified by Paul Nation.

Vocabulary acquisition is incremental in nature

According to Schmitt (2010), vocabulary acquisition is incremental in many different ways. Firstly, the various word knowledge aspects are not necessarily learned at the same rate. Rather, some aspects are learned before others and at different rates, although it is still very difficult to suggest an overall pattern, since few studies have examined the acquisition of multiple aspects concurrently. However, there have been some notable exceptions. Schmitt (1998) studied how different word knowledge aspects of 11 words (spelling, derivative information, associations and polysemy) were acquired longitudinally. He found that as one of the aspects increased, so did the others, which suggests that the four word knowledge dimensions he explored were learned gradually and in a parallel manner. Webb (2007) used a battery of tests to examine the acquisition of five aspects of word knowledge productively and receptively (orthography, form-meaning link, syntax, grammatical functions and associations). Overall, he found parallel gains in all the different aspects although at different rates. Chen and Truscott (2010), following Webb’s (2007) study, investigated the effect of repeated encounters on the acquisition of four word knowledge aspects (orthography, parts of speech, and associations both receptively and productively, and form-meaning link receptively), and found that increasing repetitions lead to better knowledge in all the different aspects, although the gains in knowledge varied depending on each aspect. In general, it has been found that the form-meaning link is one of the first aspects to be acquired in the process of vocabulary learning, and thus this aspect should be the initial target of L2 instruction (Schmitt, 2010). Aspects such as constraints of use or collocational knowledge have been found to be acquired later and require more time and many more exposures to develop.

Secondly, the development of each word knowledge aspect occurs incrementally. That is, these aspects are not learned in a dichotomous known/unknown fashion, but rather along a continuum, ranging from zero knowledge, to some partial knowledge to precise knowledge (Henriksen, 1999). For example, the knowledge of the spelling of a word can go from not knowing anything at all, to knowing just a few letters, then knowing some words with similar spelling, to finally acquiring the fully correct spelling.

Finally, the incremental nature of vocabulary acquisition is seen in the development of receptive and productive mastery. Research shows that learners’ knowledge of vocabulary generally develops from receptive mastery to productive mastery (i.e. moving from ability to understand a word when listening or reading, to being able to produce it in speech or writing) (Tshirner, 2004; Nemati, 2010). Similarly, each aspect of word knowledge typically moves from receptive to productive mastery. The gradual transition from receptive to productive knowledge requires time and multiple exposures to a word, making this acquisition process incremental in nature.

However, Fitzpatrick (2012) warns that vocabulary acquisition does not always develop in a consistently upwards trend. Rather, the process of vocabulary acquisition is somewhat unpredictable, and the knowledge of individual words and their word knowledge aspects will sometimes regress as well as move forward. For example, she found that the knowledge of the written form of a word tested at different points in time would move from generally correct spelling but with minor mistakes (\**ture* instead of *true*) during the first testing period, to correct spelling (*true*) in subsequent periods, and then back to some minor spelling mistakes at a later point (\**ture*), ending with correct spelling during the final test (*true*).

Formulaic language is important

Vocabulary had traditionally been conceptualized as single words that were strung together by syntactical rules (Schmitt, 2010; Wray 2002). However, corpus research has demonstrated that vocabulary consists not only of individual words, but also of large amounts of formulaic language (Biber, Johansson, Leech, Conrad, & Finegan, 1999; Sinclair, 1991). *Formulaic language* is an overarching term used for various types of vocabulary (e.g., idioms, lexical bundles, collocations) which operate as multi-word units. Formulaic language has been shown to be common in a range of languages, with estimates generally ranging from one-third to one-half of discourse for English (Conklin & Schmitt, 2012). It is so widespread because it carries out key communicative functions, such as in social interaction (*I understand*, *how nice*), for functional use (*how can I…,* *I am sorry to hear that*, *I´d be happy to*…), and in organizing discourse (*on the other hand*, *in other words*). Formulaic language also has a key part in facilitating fluency, as it eases the processing and production of language, with less cognitive load for both the speaker and the interlocutor (Conklin & Schmitt, 2008; Pawley & Syder, 1983).

The diversity of formulaic language types makes it very difficult to define the concept and teach formulaic language, which is one reason why vocabulary instruction has traditionally focused mainly on teaching individual words, although with some exceptions, such as teaching basic functional phrases (e.g. for introductions, requests). But because formulaic language is central in language use, and because it has been found to pose problems for even advanced L2 learners (Levitzky-Aviad & Laufer, 2013; Nesselhauf, 2005; Paquot & Granger, 2012), it is important to incorporate formulaic language into vocabulary instruction.

PEDAGOGICAL IMPLICATIONS

Vocabulary is an essential aspect of language, but in many L2 classroom contexts, not much time is allocated to vocabulary teaching and learning. This lack of attention to vocabulary is a problem, because as Laufer and Nation (2011) point out, learning vocabulary entails the acquisition of thousands of items with many different aspects per item, and requires multiple encounters and considerable time. Laufer and Nation argue that vocabulary should thus be prioritized in the classroom. Since learners need to acquire a very large vocabulary to use a language well and because vocabulary is a complex construct of multi-dimensional nature, language practitioners cannot assume that sufficient vocabulary can be acquired by simple exposure to grammatical or communicative activities. Rather, a comprehensive and principled vocabulary plan that involves explicit teaching in addition to exposure to large amounts of language needs to be implemented (Nation, 2013). Graves (2006) describes four main facets that must be included in any comprehensive approach to vocabulary instruction:

1. *Provide rich and varied language experiences*. Words have to be encountered by learners in listening, speaking, reading and writing activities, in a variety of topics and genres. These activities require the involvement and independent work of students outside the classroom.
2. *Instruction of words*. New words need to be taught through direct instruction and explicit methods, using clear explanations and simple definitions first, and then providing more information when the words are recycled and encountered again in varied contexts. Different teaching methods should be used depending on the characteristics of the words to be learned, and the stage of learning.
3. *Teaching strategies for autonomous vocabulary learning*. Learners need to be taught how to infer words from context or morpheme clues, to use dictionaries, and to connect the knowledge of new words with previously known words.
4. *Foster the active engagement of students in vocabulary learning*. Use activities that promote the interest and involvement of learners, and motivate them to learn more about words. Based on a Structural Equation Model, Tseng and Schmitt (2008) demonstrate that learners’ motivation is involved in all stages of vocabulary learning, and thus is crucial to a beneficial vocabulary learning process.

Grave’s approach involves both intentional and incidental learning, which will be the next issues addressed in this section.

Incidental learning of vocabulary

Incidental vocabulary learning refers to the process of acquiring vocabulary knowledge when the specific lexical item being learned is not the main focus of either the teaching or learning activity (Ender, 2014). The learners’ purpose is enjoying the task or understanding a specific message, but in this process they acquire some words without making a conscious effort (Ellis, 1994; Hulstijn, 2001). It is clear that substantial vocabulary can accrue incidentally through reading or other activities (Chen & Truscott, 2010; Ender, 2014; Gass, 1999; Hulstijn 2013), although the uptake rate is generally slower and more uneven than with intentional learning.

A key issue is the number of exposures necessary to learn vocabulary incidentally from context. Study results vary widely depending on what aspects of vocabulary are measured, but as a rule of thumb, 8-10 exposures from reading seem sufficient for learners to be able to answer form-meaning multiple-choice vocabulary items correctly in subsequent tests (Schmitt, 2008), or to read new words as quickly and accurately as previously known words as evidenced by eye-tracking (Pellicer-Sánchez, 2015). However, some researchers have suggested that as few as 3 encounters are enough for learners to acquire the meaning of a target word if the reading is important and interesting for the students (Reynolds, Wu, Liu, Kuo, & Yen, 2015). There is little research on incidental learning from listening, but one study suggests that for listening to be a valuable source for vocabulary learning (specifically of form and meaning), considerably more than 15 exposures may be needed (van Zeeland & Schmitt, 2013b). This finding implies that durable and meaningful incidental vocabulary acquisition from listening seems to require more exposures than from reading.

In order to ensure this repeated contact with words, teachers need to find ways to increase students’ L2 exposure inside and outside the classroom, and one of the most common ways of doing this is by extensive reading, which is considered a very positive way of increasing and improving learners’ L2 vocabulary (Uden, Schmitt, & Schmitt, 2014). However, even in extensive reading, frequency plays a big role in learnability; while high-frequency words appear often enough to have a good chance of being acquired, lower frequency words do not. Cobb (2007), in a corpus-based study, found that words beyond the most frequent 2,000 level will be met rarely, if at all, in the period of a year even with relatively large amounts of reading exposure. Thus, to learn new vocabulary, incidental learning is not enough: explicit instruction that may lead to intentional learning is also required.

**Teaching tips**

* Include an extensive reading (e.g. graded readers) component to your language curriculum to maximize the amount of incidental vocabulary learning.
* Vocabulary knowledge aspects such as constraints of use or collocations have been found to require many more exposures than aspects such as form and meaning. Thus, such aspects are good candidates for incidental learning from massive exposure.

**Intentional vocabulary learning**

Intentional vocabulary learning refers to the deliberate attempt to learn new words (Hulstijn, 2005), and it involves acquiring new vocabulary through direct instruction and the use of personalized vocabulary learning strategies. Examples of learning activities include word flashcards, multiple-choice activities, matching words, and fill-in-the-gap exercises. Research shows that deliberate, intentional vocabulary teaching and learning can increase vocabulary knowledge quickly and effectively (e.g., Webb, 2007). Intentional learning has also been found to lead to better results than incidental learning (Cobb, 2007; Horst et al., 2005; Joyce, 2015). Laufer and [Rozovski-Roitblat](http://ltr.sagepub.com/search?author1=Bella+Rozovski-Roitblat&sortspec=date&submit=Submit) (2011) investigated how intentional and incidental activities influenced the acquisition of new words. They found that intentional activities (i.e. practicing decontextualized vocabulary by matching written word forms with their definitions, synonyms and antonyms; selecting the correct meaning from various options; and writing target words in sentences) were more effective than incidental tasks for vocabulary learning regarding recognition of meaning and form, and moreover, such activities lead to long-term retention.

There are an almost unlimited number of potential vocabulary learning activities, and we do not have a clear idea of their relative effectiveness. However, virtually any activity that leads to more exposure, attention, manipulation, or time spent on lexical items seems to facilitate learning (Schmitt, 2008). Even vocabulary testing and other activities that some would consider old-fashioned and out of date can be effective. Bilingual word lists or word cards, for example, have been found to be effective in the acquisition and retention of newly learned words, both productively and receptively (Yamamoto, 2014). One of the under-researched, but promising, vocabulary learning activities involves meaning-focused output, in which learners are encouraged to use vocabulary in new contexts. Meaning-focused output is beneficial to vocabulary acquisition in three ways: it encourages the use of new vocabulary, the negotiation of the meaning of unknown vocabulary and strengthens learners’ knowledge of partially known items by using them in language production (Nation & Meara, 2002).

**Teaching tips:**

* Learners can learn much vocabulary on their own. Look at your materials in advance and determine the words your students are unlikely to know. Fix these to a word list and have your students study them before the class. Then when you use the words in readings and examples, your students will be better able to understand them in their contextualized settings.

Intentional, word-focused vocabulary acquisition is effective in increasing learners’ vocabulary size and depth (Yamamoto, 2014), but intentional activities need to be combined with incidental, contextualized, message-focused activities, since the latter help consolidate the previous knowledge (often initially learned through direct study), as well as develop further depth of word knowledge (Joyce, 2015; Laufer & Nation, 2011). Also, some word knowledge aspects are better learned through explicit study (e.g., form-meaning link, word parts), while others require exposure to many instances in a variety of contexts (e.g., collocations, register). Thus, the current best-practice approach to vocabulary instruction combines both intentional and incidental learning (Nation, 2013).

Multiple encounters with a word are necessary

In vocabulary instruction, the form-meaning link is considered the most important component, since it is the first one to be developed and is the minimum aspect needed for communication. Thus, the central focus of vocabulary teaching in the first instance must be the form-meaning link. However, it must not be forgotten that knowing vocabulary involves more than just being able to make that link. If L2 learners are to be able to use the target language appropriately, vocabulary instruction must also subsequently focus on enhancing as many aspects of word knowledge as possible, which requires many and varied encounters with a word.

Recycling of a target word has been found to improve knowledge of the various aspects of word knowledge for that word, both productively and receptively. Webb (2007) examined how Japanese EFL students acquired non-words from different exposures (1, 3, 7 and 10). He measured five aspects of word knowledge (orthography, form-meaning link, syntax, grammatical functions and associations). Overall, he found that the more exposures to a word, the better the gains in all the different aspects. Chen and Truscott (2010) studied the effect of repeated encounters (1, 3 and 7) on the acquisition of four word knowledge aspects (orthography, parts of speech, associations and form-meaning link). Similarly, they found that increasing repetitions lead to better knowledge in all the different aspects, although the effect of repetition varied depending on the aspect.

From even one encounter with a word, learners can pick up initial information about the form-meaning link, and thus increase their vocabulary size (Webb, 2007). However, more repetitions are needed for that knowledge to settle, and with those repetitions other aspects of word knowledge develop. Pellicer-Sánchez & Schmitt (2010) found that at 10 or more encounters with a word, substantial gains occurred in word form recognition, word class recall and meaning recognition and recall. Thus, as vocabulary size increases, so does vocabulary depth (although usually with a time lag), and exposure to the L2 not only allows the learning of new words, but also reinforces and increases the depth of knowledge of other words (Qian, 1999).

Multiple encounters with a word also help student’s knowledge develop from receptive to productive mastery; furthermore, language practitioners need to understand that their learners’ receptive/productive profile is likely to vary considerably according to the number of exposures to those words (Webb, 2007; Chen & Truscott, 2010).

Overall, recycling is fundamental to effective vocabulary instruction, and teachers should provide opportunities/activities that allow students to encounter a word repeatedly and in varied contexts, to both consolidate and enhance their understanding of it.

**Teaching tips:**

* Textbooks usually do not recycle words to any great extent. The creation of supplementary materials (e.g. word games, speaking activities with a target word list) focusing on already-taught words will aid in their retention and elaboration.

Selection of words

In order to decide what vocabulary to focus on in language teaching, there are some principles that L2 teachers can follow.

Because the vocabulary of L2 learners is limited, teachers should teach those words which are as useful as possible for the learners. This criteria means that the selection of words for instruction should be based on: frequent words that students will encounter often, generalizable words that are useful for various purposes, words that are less frequent but attend to the students’ personal needs, and learnability of words (i.e., words considered easier or more difficult for students; for example cognates (words similar in form and meaning between two languages) and concrete words seem to be easier for students than false cognates (words similar in form but different in meaning) or abstract words) (Graves, 2006; Laufer & Nation, 2011).

Frequency counts are considered one of the best ways of selecting the vocabulary that will be most valuable for learning. From a cost-benefit perspective (Nation, 2013), high-frequency words give a better return for learning than low-frequency words in any language, and therefore are the ones teachers should focus on. This strategy seems to be particularly true for the earliest learning stages, since it has been suggested that the most frequent 3,000 words are essential in English, and thus students benefit greatly from knowing them. High-frequency vocabulary allows learners to understand most of the words they are exposed to, since they account for around 90% of written and spoken English (Nation, 2006).

However, learning the first 3,000 high-frequency word families in English is only the beginning, and teachers and learners need to focus on other words beyond this level. Schmitt and Schmitt (2014) argue that learners also need large amounts of mid-frequency vocabulary (3,000-9,000) to function well in English. Beyond this, Nation (2013) believes that low-frequency words (9,000+) occur too rarely to warrant the cost of teaching them. For these words, teachers should focus on instructing and encouraging students to use learning strategies (e.g., guessing from context or morphology, mnemonics, etc.) so that they can acquire these low-frequency words on their own.

Nevertheless, frequency is not the only criterion for the selection of words in language teaching. Teachers also need to focus on the particular needs of learners (e.g., spoken vocabulary) and words that are useful in specific contexts (e.g., technical vocabulary). In fact, Schmitt (2010) suggests that mastering technical vocabulary is the logical next step after a person knows the first 5,000 word families. Teachers can also consider the learnability of words. Cognateness (having similar form/meaning in the L1) is one of the best predictors of learning (Willis & Ohashi, 2012), and so cognates can be good candidates for attention. Teaching cognates could either entail explicit instruction, or awareness-raising which could facilitate learners recognizing and understanding L2 cognate items (Bahns, 1993).

Teachers can use word lists to guide their vocabulary selection, as long as the lists match the teachers’ specific pedagogical purposes. Some useful lists available include two New General Service Lists, for general high-frequency vocabulary (Brezina & Gablasova, 2015; Browne, 2013), the Academic Vocabulary List for academic vocabulary (Gardner & Davies, 2014), the PHRASE (PHRASal Expressions) List for frequent formulaic sequences (Martinez & Schmitt, 2012), and the PHaVE (PHrasal VErb) List for phrasal verbs (Garnier & Schmitt, 2014).

**Teaching tips:**

* There are some very useful, freely available vocabulary lists that can support vocabulary teaching, such as the PHaVE, PHRASE, NGSL, and NAWL lists.

Nation’s four strands of vocabulary instruction

To sum up, this review has argued that vocabulary is a complex construct with different aspects and characteristics that require various approaches and techniques to be acquired. Therefore, a good vocabulary instruction program should take into account and balance all these different methods to lead to a comprehensive vocabulary experience. With this view, Nation (2007) suggests a four-strand approach to a well-balanced vocabulary course.

1. *Learning from comprehensible, meaning-focused input*. This refers to learning vocabulary through reading and listening activities, where the main focus is on understanding, gaining information or enjoying the activity. This strand is directly connected to incidental learning, and the receptive use of language, where learners acquire some knowledge of new words through context. Some common activities include watching TV or films, extensive reading, teacher’s input in the classroom and role-play conversations. However, in order for this approach to be effective, learners need to know (at least to the form-meaning level of mastery) most of the words used in the readings or listening activities (around 95-98%) and need to be interested and motivated to do the activity.
2. *Learning from meaning-focused output.* In this strand, learning occurs through speaking and writing, where the main focus of attention is not accuracy or correction, but using the language for communication to convey a specific message. Some typical activities would be conversations, writing a letter, telling or writing a story, or giving a talk. The use of this message-focused output provides learners with different learning opportunities than those provided by input. For example, output activities can help learners notice gaps in their productive vocabulary knowledge (i.e., being conscious of their lack of productive mastery of certain words), as well as take the risk of using words they are not completely sure about, which will confirm or change what they previously knew about the use of those words (Swain, 1995, 2005). Speaking and writing activities help learners focus on the productive aspect of words they know receptively.
3. *Learning from language-focused or form-focused instruction.* This strand involves the direct teaching and learning of vocabulary and its different aspects, such as spelling, pronunciation, grammatical features or discourse features. Some typical activities are matching or filling-the-blank tasks (Laufer & [Rozovski-Roitblat](http://ltr.sagepub.com/search?author1=Bella+Rozovski-Roitblat&sortspec=date&submit=Submit), 2011), using word cards or word lists to learn vocabulary (Elgort, 2011), practicing pronunciation (de la Fuente, 2002), translation (Laufer & Girsai, 2008; Joyce, 2015), and explicitly using glosses (Hulstijn, Hollander, & Greidanus, 1996) or dictionaries (Scholfield, 1997) to learn new words.
4. *Fluency development.* This strand is connected with the four skills (listening, reading, writing and speaking), where the focus is to receive and convey messages, without worrying about accuracy. It entails having learners use their previously (but partially) learned vocabulary in timed activities in order to develop and enhance fluency of use, that is, the ability to utilize vocabulary in real-time use. Some common activities include skimming and scanning, speed reading, and timed writing. In this strand, all the vocabulary the learners are using or exposed to must be known, because the focus is using the language they already (partially) know more fluently, not learning new words. In this sense, fluency of use could be considered part of depth of word knowledge.

Nation (2007) suggests that, in a well-designed language course, these four strands should be given equal amounts of time, about 25% of the course time. This way, an appropriate balance of learning opportunities is provided, covering both receptive and productive skills. However, this ratio will depend on the teaching context. For example, beginners are likely to benefit from a greater proportion of language- and form-focused instruction, while intermediate/advanced learners should have a larger vocabulary size, which enables learning from meaning-focused input and output activities.

**Teaching tips:**

* Use of Nation’s four strands can ensure that learners receive a well-rounded range of input and output opportunities to learn and use vocabulary.

FUTURE RESEARCH

Despite the large amount of research conducted in vocabulary acquisition during the past 30 years, there are still many issues for which little or nothing is known, and thus, require further research.

**Theoretical issues**

Due to the complexity of the vocabulary construct, research has not focused enough on the networks between words and the links between different aspects of knowledge of an individual word. As a consequence, there is a lack of a generally accepted theory of vocabulary acquisition. Research should focus on assessing the various aspects of word knowledge concurrently with a battery of tests in order to better understand their relationships and development. An example of this approach would be developing a series of both productive and receptive tests specifically designed to assess the knowledge of various aspects of word knowledge, and submit the results to statistical analyses that show causal connections between the different components (i.e., Structural Equation Modelling) (González-Fernández & Schmitt, in preparation). Knowledge of these connections between aspects would shed light on the overall process and nature of vocabulary acquisition and would allow the development of a multidimensional theory of L2 vocabulary learning, and the principled and systematic teaching of vocabulary.

**Assessment issues**

In order to examine the acquisition of vocabulary, it is necessary to develop measurement instruments targeted at the different aspects of word knowledge at different levels of sensitivity. Some aspects, like the form-meaning link (especially in the written mode), have been well-researched. However, there are other components that have hardly been studied (e.g., constraints on use), and thus no commonly-accepted measures have been developed. Therefore, research needs to focus more on the creation of standardized tests to assess various aspects of depth of vocabulary knowledge.

**Instruction issues**

Regarding vocabulary instruction, there are certain issues that need to be addressed. It is now clear that some teaching activities are more effective than others for vocabulary instruction. For example, reading activities combined with learning from cards, matching words, multiple-choice activities and writing unrelated sentences yield better learning outcomes than using dictionaries while reading (Laufer & [Rozovski-Roitblat](http://ltr.sagepub.com/search?author1=Bella+Rozovski-Roitblat&sortspec=date&submit=Submit), 2011). Similarly, oral tasks where learners attend to unknown words by asking for clarification usually yield better retention of the target words than when learners do not draw attention to the words (de la Fuente, 2002). However, this effectiveness depends on many factors such as level of engagement, amount of time spent, and proficiency level. Thus, it is still unclear which specific characteristics of explicit teaching activities make them more effective. Research could be usefully done to identify the most important features of effective activities and how they relate to the teaching of the different aspects of depth of word knowledge.

There is also little understanding about how the different types of formulaic language are learned and retrieved from memory. This insufficient knowledge has resulted in a lack of a principled approach to teaching formulaic language. Since formulaic language is a key component of language use, further research on how to best teach it is necessary.

**CONCLUSION**

A large vocabulary is necessary to use an L2 well. Given the number of lexical items which need to be learned (both words and formulaic language), only a principled approach to teaching these items will be successful. Firstly, a sensible selection of the vocabulary to be taught, based on the learnability and frequency of words, but also learners’ needs. Secondly, once the vocabulary for instruction is decided, teachers need to draw attention to the acquisition of not only size of vocabulary, but also depth. This involves learners gaining a range of word knowledge aspects (e.g., collocations, word parts, grammar) to receptive and productive mastery. Finally, this approach needs to provide a variety of learning opportunities by combining and balancing the best of explicit teaching and the benefits of incidental learning from recycling vocabulary through varied and very large amounts of language exposure.

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