

A framework for developing EFL reading vocabulary

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Abstract

Effective second language vocabulary acquisition is particularly important for English as a foreign language (EFL) learners who frequently acquire impoverished lexicons despite years of formal study. This paper comprehensively reviews and critiques second language (L2) reading vocabulary research and proposes that EFL teachers and administrators adopt a systematic framework in order to speed up lexical development. This framework incorporates two approaches: 1) promoting explicit lexical instruction and learning strategies; and 2) encouraging the use of implicit lexical instruction and learning strategies. The three most crucial explicit lexical instruction and learning strategies are acquiring decontextualized lexis, using dictionaries and inferring from context. Implicit lexical instruction and learning can take many forms including the use of integrated task sets and narrow reading; however, this framework emphasizes extensive reading, which is arguably the primary way that EFL learners can build their reading vocabulary to an advanced level. The principal notion underlying this framework is that the most effective and efficient lexical development will occur in multifaceted curriculums that achieve a pedagogically sound balance between explicit and implicit activities for L2 learners at all levels of their development.

keywords: EFL reading, reading curriculum, vocabulary acquisition, explicit and implicit instruction

Introduction

The past fifteen years have produced both an explosion of research in the field of second language vocabulary acquisition (SLVA) and a blurring of the boundaries between the lexicon and syntax in both cognitive psychology (Bates and Goodman, 1999; Boland and Boehm-Jernigan, 1998; McKoon and Ratcliff, 1999) and SLVA (Lewis, 1997; Nattinger and DeCarrico, 1992; Sinclair, 1991). We believe that this increased emphasis on the lexicon is warranted, given

the recent evidence for the lexical nature of much of aural language processing (Miller and Eimas, 1995; VanPatten, 1996), speech production (Altman, 1997; de Bot, 1992; Levelt, 1989), reading (de Bot, Paribakht, and Wesche, 1997; Durgunoglu, 1997; Laufer, 1997a), and writing (Astika, 1993; Engber, 1995; Laufer and Nation, 1995). Moreover, as teachers and researchers have come to understand the role of the lexicon in language learning and communication, the increased attention to vocabulary teaching has become more important.

In spite of the impressive progress that has been made by SLVA researchers, there is reason for concern. First, SLVA lacks a comprehensive theory of how vocabulary is acquired, although work has begun in this area (Jiang, 2000; Pavlenko, 1999). Second, there is mounting evidence that many learners, particularly those in English as a foreign language (EFL) contexts whose native language is not genetically related to English, are not developing their lexicons to levels which would permit them to function adequately in many English language contexts (Barrow, Nakanishi, and Ishino, 1999; Nurweni and Read, 1999). Compared to English as a second language (ESL) learners, EFL learners often lack an adequate amount of oral or written input; consequently, they need to compensate for their lack of language learning opportunities (Kojic-Sabo and Lightbown, 1999). Third, judging by the limited space devoted to vocabulary acquisition in many second language (L2) acquisition texts and teacher education textbooks, it is still not being accorded a position of importance by the mainstream second language acquisition (SLA) community. We believe that the heart of language comprehension and use is the lexicon, and that Widdowson's (1989: 136) call "...to shift grammar from its preeminence and to allow the rightful claims of lexis" has yet to be implemented. Thus, the primary purpose of this article is to present a systematic framework for the development of reading vocabulary in foreign language contexts based on contemporary SLVA research, while simultaneously highlighting some of the gaps in that research. We believe that this information can benefit curriculum developers, materials writers, teachers, and researchers.

For the pedagogical purposes of this paper, we have chosen to use the terms *vocabulary* and *lexis* interchangeably to refer to individual words, collocations, and fixed and semi-fixed expressions because vocabulary learning should frequently involve learning "chunks" that are longer than individual words. In addition, as a matter of convenience when reporting research, we use the term *word families*, in which base forms (e.g., *know*) and their closely related inflected (e.g., *knows*) and derived (e.g., *unknown*) forms are counted as a single unit;¹ however, we do not assume that learning one member of the word family means that derived and inflected forms have also been acquired.

The two overarching approaches in the framework are explicit lexical instruction and learning strategies and implicit contextualized instruction and learning strategies.² Consequently, before explaining the framework, it is necessary to define explicit and implicit instruction as well as explicit and implicit learning. We agree with Doughty and Williams' (1998: 232 italics in the original) view that "...knowledge can be gained and represented *either* implicitly *or* explicitly" and that both contribute to language learning. We also adopt their pedagogically-oriented position that the goal of explicit teaching is to "*direct* learner attention," whereas the aim of an implicit focus on form is to "*attract* learner attention" while "minimizing any interruption to the communication of meaning" (Doughty and Williams, 1998: 231 italics in the original).

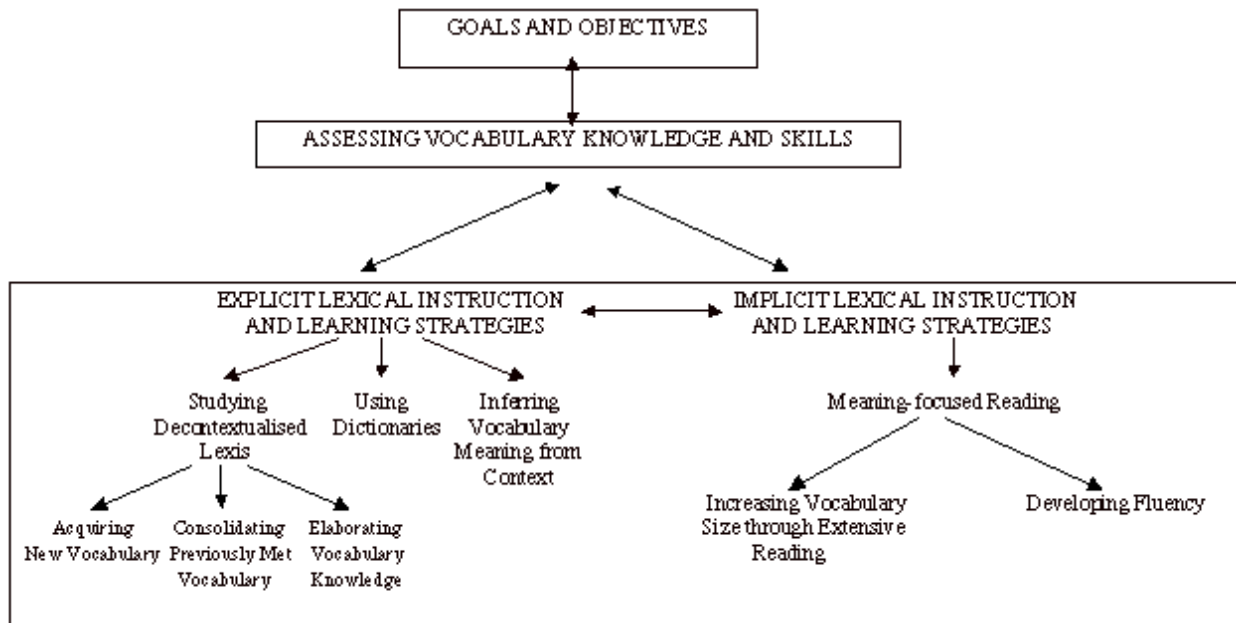
Moreover, individual tasks can be located along an explicit to implicit continuum, and complex tasks may combine both explicit and implicit subtasks.

In addition to distinguishing between explicit and implicit instruction, it is also necessary to define the more elusive concepts of explicit and implicit learning, and to consider which is more effective for promoting the acquisition of different types of vocabulary knowledge. From a general education perspective, Laufer and Hulstijn (2001: 11) have stated that explicit learning can take place both intentionally and incidentally, but that implicit learning can only be incidental, which they define as "without learners' awareness of an upcoming retention test, or without learners' deliberate decision to commit information to memory." Incidental learning, which probably requires learners to attend to and notice input, can also be viewed as a secondary result of the primary goal of communication (Schmidt, 1994a, 1994b, 2001).

From a cognitive psychology perspective, explicit learning can be characterized as a conscious searching, building and testing of hypotheses and assimilating a rule following explicit instruction, whereas implicit learning is characterized by the "automatic abstraction of the structural nature of the material arrived at from experience of instances" (Ellis, 1994a: 214). With regard to vocabulary development, connecting word form and meaning is best learned explicitly, whereas the phonetic and phonological features and articulation of new words is best learned implicitly (Ellis, 1994b). While these definitions begin to clarify explicit and implicit learning, questions remain concerning what features of vocabulary and grammar are best learned explicitly or implicitly and how these processes occur (Laufer and Hulstijn, 2001).

As noted above, the framework set forth in this paper consists of two approaches to vocabulary instruction and learning: promoting explicit lexical instruction and learning strategies; and creating opportunities for engaging in implicit lexical instruction and learning strategies. Explicit lexical instruction and learning strategies includes studying decontextualized lexis, using dictionaries and inferring from context, while the implicit approach primarily involves engaging students in meaning-focused reading. Figure 1 summarizes the framework:

Figure 1: A Framework for Developing EFL Reading Vocabulary



The importance of specific curricular goals and objectives is widely acknowledged, and we view their formulation as being no less important to lexical development than to other aspects of the foreign language curriculum.³ The primary lexical objectives are increasing vocabulary breadth, elaborating vocabulary knowledge and developing fluency with known vocabulary. The means for achieving these objectives are skill-based and include training learners to effectively learn decontextualized lexis, consolidate and elaborate previously met lexis, consult dictionaries, infer from context, and engage in reading for meaning.⁴ In the context of stated goals and objectives, assessment plays a multifaceted role by providing instructors and learners alike with crucial information concerning progress and areas that require further study. As shown by the double-headed arrow connecting goals and objectives with assessing vocabulary knowledge and skills, we view these two aspects of the framework as interdependent and mutually informative. Although goals, objectives and assessment are crucial components of educational curricula, in this paper we will focus on explicit lexical instruction and learning strategies and implicit instruction and learning tasks as a means for achieving the broad lexical goals of developing vocabulary breadth, consolidating and elaborating vocabulary knowledge and building fluency with known vocabulary.

Justifications for explicit lexical instruction and learning

As shown in Figure 1, explicit lexical instruction and learning strategies involve the study of decontextualized lexis, using dictionaries and inferring vocabulary from context. However, in this section, we will focus primarily on justifying the study of decontextualized lexis because some researchers have proposed that it is unnecessary (e.g., Krashen, 1989) or inadequate for helping learners acquire the large numbers of words that they ultimately need to know to achieve advanced levels of proficiency (Nagy, 1997). However, we will argue that when combined with

a large quantity of written input, explicit lexical teaching and learning are valuable for a number of reasons.

First, SLVA research shows that the explicit temporary study of decontextualized vocabulary is valuable in the EFL reading classroom and early studies of decontextualized vocabulary learning (e.g., Anderson and Jordan, 1928; Thorndike, 1908) have been replicated by a variety of contemporary researchers and the results have consistently shown explicit learning to be effective (e.g., Bahrck and Phelps, 1987; Beaton, Grunberg, and Ellis, 1995; Laufer and Shmueli, 1997; Prince, 1996; Webb, 1962). First language (L1) research undertaken in the US from the late 1960s to the 1980s (e.g., Anderson, Heibert, Scott, and Wilkinson, 1985; Chall, 1967; Perfetti, 1985) confirmed that "...an early and explicit emphasis on the medium (on word recognition and decoding) was more effective for reading achievement, not only on tests of word recognition and oral reading, but on silent reading comprehension as well" (Chall, 1987: 10). In addition, programs that incorporate direct vocabulary instruction have been found to be more effective for vocabulary development than those that rely exclusively on indirect means (Folse, 2004; Johnson and Pearson, 1984; Petty, Herold, and Stoll, 1968; Zimmerman, 1997). These positive findings may have occurred because explicit lexical learning strategies enhance noticing and provide opportunities for recycling, two factors that permit learners to integrate newly met vocabulary effectively into long-term memory provided that they attend to form and meaning (Prince, 1996; Schacter and Graf, 1986).

An additional argument for explicit instruction and learning arises from the difficulties of increasing vocabulary size through inferring unknown word meaning, especially for less proficient learners (see Folse, 2004: 71-83 for an informative review of this research). Successfully inferring vocabulary from context is problematic for a variety of reasons. First, the probability of successful inferencing is improved when learners know 98% or more of the surrounding vocabulary, which in many cases amounts to knowing at least 5,000 word families in an authentic text (Hirsh and Nation, 1992; Laufer, 1997a).⁵ For less proficient EFL learners, a lack of high frequency vocabulary may result in the "beginner's paradox," a vicious cycle in which limited lexical knowledge discourages reading and, simultaneously, a lack of reading restricts vocabulary growth (Coady, 1997). Second, vocabulary retention is enhanced when learners temporarily isolate words from their context (Prince, 1996) and elaboratively process them.⁶ The necessity of attending to unknown vocabulary is significant because learners, when reading for comprehension, may simply choose to ignore many of the unknown words or phrases which they encounter (Fraser 1999; Paribakht and Wesche, 1999). Third, numerous linguistic and textual obstacles can lead to partially or fully incorrect inferences and attributes, which can require years to unlearn (Fukkink, Blok, and de Gloppe, 2001). These obstacles include a lack of clues in the immediate or global context, the possibility of more than one plausible inference, deceptive transparency, multiple meanings or faulty word analysis, and failure to use morphological and syntactic clues (Bensoussan and Laufer, 1984; Haynes, 1984; Huckin and Coady, 1999; Laufer, 1997a, 1997b; Parry, 1991). In addition, the difficulty of making correct inferences is influenced by the proximity (Carnine, Kameenui, and Coyle, 1984; Haynes, 1984) and the explicitness of relevant clues as well as their degree of concreteness, the presence and proximity of recurrence, and the importance of unknown vocabulary in understanding the surrounding text (Nation, 2001: 243). In sum, the above research indicates both the effectiveness of explicit instruction and learning and the problems of inferring vocabulary from context; this

supports the view that teachers should provide systematic, explicit vocabulary instruction directed at the expansion, consolidation, and elaboration of their learners' lexicons. Yet, we would emphasize the advantages of rapidly integrating decontextualized lexis into contextualized, meaning-based tasks in order to develop and strengthen connections among individual lexical items. The development of these connections is essential for chunking, which is a key component of increased reading fluency and depth of lexical knowledge.

In this paper, we argue that the most efficient learning involves a carefully selected combination of both explicit and implicit instruction and learning. The double-headed arrow in Figure 1 emphasizes the synergistic and mutually reinforcing interaction between the two approaches.⁷ Although explicit instruction and learning can contribute to achieving the goals of developing vocabulary breadth, elaborating vocabulary and building fluency, we believe that they are most effective for enlarging the learners' knowledge of high frequency, general academic vocabulary and essential technical vocabulary.⁸ On the other hand, implicit instructional and learning tasks – such as narrow reading (i.e., reading different articles on the same topic), task cycles that require learners to approach texts in multiple ways and reading extensively – promote small, incremental gains in vocabulary growth. Although longitudinal studies that track vocabulary growth are lacking (see Schmitt, 1998 for an exception), we hypothesize that reading large amounts of text combined with explicit study results in the most efficient means for expanding vocabulary breadth over the long term. In addition, implicit activities provide the repeated contextualized exposures that are necessary for consolidating and elaborating vocabulary and developing fluency. Well-elaborated semantic knowledge, which includes developing knowledge of usage, collocations and other lexico-grammatical characteristics,⁹ is primarily gained through meeting words in context rather than through explicit instruction. Support for this position is provided by recent conceptions of word meaning proposing that "words become meaningful because of their relation to other words (Kintsch, 1998: 43)."¹⁰ The foremost approach to developing L2 lexis through implicit means is extensive reading, an approach that has affective as well as cognitive benefits as it can be highly motivating, especially for learners with positive attitudes toward reading in their L1 (Yamashita, 2004), and can provide learners with the satisfaction of autonomous reading, which may become a habit (Day and Bamford, 1998: 30). In summary, although longitudinal studies need to be undertaken to understand the process of implicit L2 vocabulary acquisition better, we believe that implicit learning is one means of expanding and consolidating vocabulary breadth, and is probably the primary means of elaborating and developing fluency with vocabulary.

In the following sections, we describe the two approaches that form the basis of our approach to lexical instruction in EFL reading classrooms.

Approach 1: Explicit lexical instruction and learning strategies

In this section we briefly review research in metacognitive and cognitive strategies and then discuss studying decontextualized lexis, using dictionaries and inferring from context. These strategies are important in that students cannot be expected to take a fully active role in their lexical acquisition unless they are aware of various types of word knowledge and productive approaches they can take to acquire that knowledge. Metacognitive and cognitive strategy use is

one key to learners becoming more independent and responsible for their own learning; therefore, learners should be encouraged to individualize their strategy use, which may vary based on ethnic or educational background and learning style (Jones, 1998; Yamato, 2000).

Learners' metacognitive and cognitive strategies

Metacognitive strategies involve regulating, directing, monitoring and evaluating one's language learning; effective learners apply metacognitive knowledge and strategies by planning their approach to the task, monitoring their comprehension and production for overall meaningfulness (Chamot and O'Malley, 1994) and using strategies flexibly (Gu and Johnson, 1996). This requires a "metacognitive awareness of the linkages among strategies, the tasks on which they can be applied, and learning outcomes" (Chamot and O'Malley, 1994: 386). For example, learners need to develop an awareness of when to infer vocabulary meaning, use a dictionary, or ignore lexis (Hulstijn, 1993). This means that learners will need to practice making deliberate decisions about which tasks and vocabulary learning goals are best served by using one strategy or combining several. For instance, if the goal is to acquire a lexical item met in a reading passage, the learners might want to combine inferencing with dictionary use, and possibly follow this by making and reviewing a vocabulary card, using the word productively in original contexts, rereading the passage or applying some combination of these approaches.

Prior to developing metacognitive competence, learners will need to become familiar with a variety of cognitive strategies, which entail manipulating material or applying techniques (Chamot and O'Malley, 1994). While beginning and lower proficiency learners often rely on the repetition of word form and meaning to acquire new lexis, more proficient learners report more frequent and elaborate strategy use (Gu and Johnson, 1996; Lawson and Hogben, 1996; Schmitt, 1997), use a greater variety of strategies and apply them to tasks for which they are well suited (Chamot and O'Malley, 1994). In a study of self-reported strategies by non-English major Chinese university students, Gu and Johnson (1996) found a positive correlation between both proficiency and vocabulary size and such strategies as guessing from context and using dictionaries. They also found that the overuse of visual repetition (repeatedly writing words) as a means of memorizing new vocabulary correlated negatively with proficiency and vocabulary size. Unlike the more successful strategy of memorization and repetition of L1 and L2 word pairs, visual repetition makes no meaning connection. However, learners who overuse or do not expand their strategy repertoire beyond memorizing L1 and L2 word pairs may be doing so as a part of a low effort strategy (Prince, 1996). Based on the self-reports about how learners approach learning L2 vocabulary, Sanaoui (1995) distinguished between unstructured and structured learners. Unstructured learners depended more on class materials, took less initiative and did less regular review. Structured learners were better organized and systematically carried out independent study, self-initiated activities, regularly recorded new words in notebooks and reviewed them, and sought out opportunities to use previously met lexis. Consequently, we would argue that learners should develop a wide variety of strategies that can be appropriately applied and combined to meet the requirements of specific tasks. For the sake of clarity this framework presents and critiques the following strategies in a linear fashion: acquiring new vocabulary, consolidating and elaborating vocabulary knowledge, using dictionaries and inferring from context. However, to become successful, advanced readers, learners will need to

experiment with each of these strategies in a variety of contexts and eventually integrate them into a complex, metacognitive approach that is applied appropriately to specific tasks.

Studying decontextualized lexis

Acquiring new vocabulary. The notion that particular groups of words are of importance has been largely inspired by corpus-based research undertaken in the past by researchers such as West (1953) and Kucera and Francis (1967) and continued in the present in corpuses such as Collins' COBUILD Bank of English Corpus (<http://titania.cobuild.collins.co.uk/>) and the British National Corpus (<http://info.ox.ac.uk.bnc/>). Such corpuses have repeatedly and consistently shown that a relatively small number of words account for a high percentage of the total number of words met receptively and used productively. For instance, the 2,000 high frequency word families (base forms and their derived and inflected forms) as represented by the headwords in West's (1953) *General Service List (GSL)* provide coverage of up to 90% of non-academic texts (Hirsh and Nation, 1992). These high frequency headwords also cover approximately 75-80% of average academic textbooks (Nation, 2001: 13-17), although highly technical texts may have far lower coverage (Chung and Nation, 2003). In addition, the 570 general academic word families included in the Academic Word List (AWL) (Coxhead, 2000) account for an average of about 10% of the running words in academic texts (Coxhead, 2000). Finally, the percentage of a specialized text that consists of technical vocabulary varies depending on the field; for instance, Chung and Nation (2003) found that over 800 word types (about 16%) of an applied linguistics text and over 4000 word types (about 37%) of an anatomy text were technical vocabulary items. The significance of these simple descriptive statistics has rather profound implications for teachers and students; the high frequency, general academic and key technical vocabulary within each learner's field are the best candidates for explicit instruction and learning.

Because a relatively small number of high frequency, general academic and technical vocabulary provides a significant amount of textual coverage, the teacher's initial challenge is to create an environment in which the learners can rapidly acquire these words in the first several years of study. One way in which teachers can encourage the acquisition of new lexis is through the use of pre-reading activities that highlight vocabulary in the text (see Folse, 2004: 143-157 for a discussion of various types of vocabulary activities). Previewing can increase the salience of target vocabulary, ensure more repetition in terms of input and possibly output, and allow learners to meet lexis in both partially decontextualized and fully contextualized settings, a combination which has been found conducive to acquisition (Zimmerman, 1997). Although further research into pre-reading tasks is needed, a move toward activities based on cognitive criteria such as noticing, processing items repeatedly and meaningfully, creating bridges with already known information, and generative use¹¹ may be called for. This would replace the pervasive use of definition-based activities that require relative shallow cognitive processing found in many reading textbooks.¹²

Second, as a supplemental activity, teachers can introduce vocabulary cards as an efficient way to speed up the *initial* process of lexical acquisition. Many learners value the explicit study of vocabulary and vocabulary cards are a potentially self-initiating activity that can promote autonomy. Although we are unaware of research concerning the potential advantages of autonomy and personalization where L2 vocabulary learning is concerned, studies of human

motivation (e.g., Deci and Ryan, 1985) and L1 vocabulary acquisition (e.g., Kamil, Mosenthal, Pearson, and Barr, 2000) strongly suggest that both of these factors can exert positive influences on lexical acquisition; thus, investigating the effects of learner autonomy on explicit vocabulary learning could yield valuable findings. Replications of early studies of this type of decontextualized learning have proven to be consistently positive (e.g., Beaton, Grunberg, and Ellis, 1995; Prince, 1996), and guidelines for making, effectively grouping, and reviewing cards are readily available (e.g., Mondria and Mondria-DeVries, 1994; Schmitt and Schmitt, 1995). However, we strongly suggest that teachers require learners to move beyond the study of individual words and spend more time acquiring multiword units such as collocates (*achieve a goal*), discourse markers (*as a result*), and phrases (*based on the fact that...*) that have been encountered in course readings.

A third way in which new vocabulary can be acquired is when learners negotiate the meaning of unknown lexis during in-class discussions, a communicative act that involves a temporary focus on lexis. During such activities, negotiation may be valuable, particularly for lower proficiency learners, since interactional modifications through negotiated input can lead to vocabulary gains for both those who initiate the negotiation sequence and those who simply listen to the exchange (Ellis, Tanaka, and Yamazaki, 1994; Newton, 1995).

Finally, as learners adopt such techniques as attending to lexis that is made salient (whether by the teacher or from glosses), using vocabulary cards and negotiating vocabulary meaning, they can become more autonomous and can actively take charge of enlarging their vocabulary. Ultimately, it is the learners who are responsible for implementing techniques presented by teachers, regularly reviewing target lexis, and monitoring their own learning.

Consolidating previously met vocabulary. The goal of consolidation activities is to recycle previously met lexis and consolidate it in long-term memory.¹³ However, this goal is easily neglected, unless deliberately addressed by curriculum designers, instructors and materials developers (See Nation 2001: 158-161 for examples of reading-based activities that can be used for consolidation). Time pressures caused by the need to cover a large amount of material specified by a curriculum and the design of many texts in which previously met vocabulary is not systematically reviewed can work against the recycling of previously introduced vocabulary. Another problem that can confront EFL instructors is the relative lack of motivation shown by some learners, particularly in required courses. Learners who have no clear personal goals for acquiring English, no desire to acculturate and no intrinsic interest in foreign language learning are less likely to engage in independent review of previously met lexis; however, learners who do not engage in review activities are likely to forget much previously met new lexis.

Consolidation can be addressed explicitly in numerous ways. Previously met lexical items can be reviewed during post-reading activities. As noted above, in contrast to the vocabulary tasks included in many commercially produced materials, we would suggest that these activities encourage the deep, meaningful processing of the target lexis rather than an over reliance on matching vocabulary items with their L2 definitions because definitional knowledge is not what is needed in the on-line processing of language (Anderson and Nagy, 1992; Prince, 1996). Learners can also generate sentences or semantic maps in which they relate the target items with words and phrases they are already acquainted with. These sentences or semantic maps can be

processed further by having learners, in pairs or small groups, explain the relationships between the lexical items (Pittelman, Levin, and Johnson, 1985). Teachers can promote consolidation through the use of post-reading activities in which learners first notice the target lexis by highlighting, underlining, or circling them, and then processing them by classifying, analyzing, or using the items productively (Willis, 1996).

Vocabulary cards are also invaluable in consolidating initial gains because of their portability, ease of use and the number of communicative activities in which they can be used, as well as their potential for increasing student motivation. Success in learning tends to result in higher degrees of motivation (Dörnyei, 2001: 21, 55-56), and used properly, vocabulary cards can result in rapid, long-term gains. Short, frequent study sessions spread out over time are most efficient, a phenomenon known as the distributed practice effect (Baddeley, 1998). For instance, given one hour to study, six ten-minute study sessions would be more effective than two thirty-minute study sessions. A particularly effective strategy is expanding rehearsal, which combines distributed practice with the retrieval practice effect in which learners study lexis at the longest delay compatible with correct recall (Landauer and Bjork, 1978). For example, after initially meeting a number of new words, learners could review the items the next day, then two days later, then one week later, and extending the delay to around 30 days as this has been shown to maximize retention (Bahrick, 1984; Bahrick and Phelps, 1987). Although 5-10 minutes can be devoted to reviewing vocabulary in most courses, those that only meet once or twice per week will have a long delay between the introduction and the initial review of new vocabulary. Consequently, a greater emphasis will need to be placed on training and requiring learners to review regularly outside the classroom. The learners may benefit from experimenting with and reporting on the effectiveness of different techniques and review schedules. Moreover, allowing learners to self-select the words they study has been found to increase the effectiveness of vocabulary instruction in L1 settings (Haggard, 1982, 1985). Although we hypothesize the same would be true in SLVA, no research is available to confirm this view.

Another means of explicitly consolidating vocabulary is the keyword technique, which involves finding an L1 keyword that sounds similar to an L2 target word and then associating their meanings through an intermediary visual image. Despite controversy over how well vocabulary learned by this technique is retained over time when compared to rote learning (Carney and Levin, 1998; Wang, Thomas and Ouellette, 1992; Wang and Thomas, 1995, 1999), it can be effective (Avila and Sadowski, 1996; Carney and Levin, 1998; Ellis and Beaton, 1993a; Lawson and Hogben, 1997, 1998; Zhang and Schumm, 2000), and some researchers have found that it can promote long-term retention (e.g., Brown and Perry, 1991; Kasper, 1993). Research has shown that it works best for learning imageable nouns and is most effective when the L2 word is phonologically similar to the L1 word (Ellis and Beaton, 1993b). Although the keyword technique is usually associated with learning new vocabulary, given the extra time and effort required to use it when compared to rote learning (Wang, Thomas, and Ouellette, 1992), it may be most efficiently applied to consolidating words that have proven difficult to learn by other approaches (Hulstijn, 1997).

Elaborating vocabulary knowledge. The two previous sections stress that learning the primary meaning of lexis and consolidating that meaning in long-term memory should be emphasised in the initial stages of lexical acquisition. However, the goal of increasing the size of the learners'

lexicon should be pursued in conjunction with a variety of tasks that elaborate their knowledge because what has commonly been called depth of lexical knowledge is a necessary component of reading comprehension (Anderson and Nagy, 1992; Qian, 1999). Because of time limitations inherent in most EFL instructional settings, teachers must prioritize which types of vocabulary knowledge will receive an explicit emphasis at different stages in the curriculum. We propose that knowledge of spelling, word formation through affixation, collocations and lexical phrases, and secondary and abstract meanings are essential if EFL learners are to become highly proficient readers. If these four types of knowledge are developed for the high frequency and general academic words of English, learners will be in a better position to deal successfully with texts from a wide variety of disciplines.

Orthographic decoding. Orthographic decoding has received virtually no attention from SLA researchers, a fact that stands in stark contrast to the vast literature on the topic in L1 learning. Because little is known about how orthographic decoding ability develops in EFL learners, prescribing effective instructional practice will be difficult until the acquisitional processes are better understood. We do, however, feel that it is safe to say that ignoring orthographic decoding is probably unwise as our experience suggests that it is a major source of difficulty for many EFL learners. An explicit emphasis on spelling may be particularly important in the beginning stages of L2 reading (Mathes and Torgesen, 2000; Stanovich, 1998) and when the reader's L1 orthography is not alphabetic (Green and Meara, 1987; Koda, 1996). Recent theories of individual word recognition invariably include the notion that rapid, accurate decoding is a critical factor in skilled reading. Indeed, in L1 reading, the same knowledge appears to underlie the development of spelling and word recognition (Carver, 2000: 103; Ehri, 1997). Although poor readers also scan nearly every word, they process orthography slowly (Foorman, Fletcher, Francis, and Schatschneider 2000; Share and Stanovich, 1995), a fact which may partially explain the tremendous differences between the amount read by more capable and less capable readers.¹⁴ Although increasing the amount of L2 processing experience is the primary way to automatize orthographic processing skills, the explicit teaching of spelling and sound-symbol correspondences can also contribute to developing fluent readings skills (Carver, 2000; Rayner, Foorman, Perfetti, Pesetsky, and Seidenberg, 2002). We would also point out that the relationship between many of the seeming irregularities of the English spelling system and the English morphological system suggest that these two aspects of lexical knowledge could, to some extent, be taught simultaneously (Carlisle, 1995).

Word formation and affixation. Nagy and Anderson (1984) have reported that over 30% of written word types either are inflected or have a derivational affix and that the meaning of the majority of words made up of more than one morpheme are predictable based on the meanings of the parts. In addition, 55% of vocabulary between the 1000 and 2000 most frequent word and at least 58% of academic and low frequency words originate from Latin or Greek (Bird, 1987; Corson, 1997). Consequently, knowledge of morphology can contribute to expanding and elaborating learners' vocabulary knowledge; indeed, learners who are familiar with English morphology are able to recognize more of the words that they encounter in reading passages (Mochizuki and Aizawa, 2000; Schmitt and Meara, 1997). This finding is in agreement with the L1 reading literature that shows that morphological awareness plays a significant role in reading ability (Carlisle, 1995; Nagy, Diakidoy, and Anderson, 1993). Moreover, L1 readers appear to experience a powerful breakthrough in their ability to identify the component morphemes of

words at a certain point in their development. This breakthrough appears to be related to a movement to higher levels of reading ability (Anglin, 1993). To date the existence and importance of such a breakthrough has yet to be researched in the field of SLVA. Although it is often assumed that it will be easier for learners who know one form to learn a morphologically related form, limited empirical evidence suggests that explicit training is required for learners to expand their knowledge of morphology, as EFL learners who know a base form (e.g., *simple*) do not necessarily acquire other forms of the word (e.g., *simplify*) (Schmitt and Meara, 1997).

Although a number of descriptive studies have been conducted on English morphology, empirically, little is known about their acquisitional processes, effective instructional methods, and the timing of instruction. As a result, the following discussion is necessarily based more on supposition than on research findings. Based on the criteria of productivity, frequency, regularity, and predictability, Bauer and Nation (1993) have proposed a series of levels of English affixes for the purpose of reading.¹⁵ Because higher frequency and highly productive, regular and predictable affixes account for the majority of occurrences, these are strong candidates for being directly taught. In particular, teachers should introduce inflectional suffixes early in the language program; however, caution may be called for when introducing derivatives, particularly for lower proficiency EFL learners with small vocabularies, because they are more likely to be misinterpreted. For instance, Laufer (1997b) reported that deceptively transparent words (those that appear to be made of meaningful morphemes but that are not) can easily cause misanalysis (e.g., *outline* being interpreted as *out of line*; Bensoussan and Laufer, 1984). Given this potential pitfall, it may be advisable for teachers to delay word analysis until the learners have had the opportunity to acquire "a substantial number of complex words as unanalysed wholes" (Nation, 2001: 274), which may better allow the learners to analyse and recognise the parts of unfamiliar words based on their knowledge of known words (Tyler and Nagy, 1989). A final issue is that lower proficiency EFL learners may ineffectively apply word analysis by failing to compare their analysis to the surrounding context. Such misinterpretations can undermine the process of inferring word meaning from context; hence, it has been proposed that word analysis be the last step in the procedure for making inferences (Clarke and Nation, 1980; Nation, 1990: 162-165). However, because word analysis promises a quick solution, learners may attempt to apply it immediately. Consequently, teachers may need to emphasise verification and self-inquiry strategies in which learners consider the surrounding context to confirm or contradict their initial analysis because recent research shows that some learners can successfully apply these strategies (Nassaji, 2003).

Collocations and lexical phrases. Although collocational knowledge has often been discussed in terms of productive language skills, we also see a role for such knowledge in reading comprehension. Bottom-up aspects of reading (e.g., orthographic and phonological processing as well as interlexical relations) must proceed in a rapid, accurate fashion if readers are to avoid overwhelming their working memory system. The explicit instruction and learning of collocational knowledge can contribute to greater fluency because rapid, skilled reading can only occur if the relations among sequences of known words do not require conscious thought and analysis. We believe that highly automatized receptive knowledge of how words are sequenced is important regardless of whether the sequence involves the variable use of a collocation (e.g., *spend money, spend time*, etc.) or an invariant fixed expression (e.g., *in order to*).

In the past decade a number of writers have argued that a great deal of linguistic knowledge is based on chunks of language in long-term memory and knowledge of the probability of particular lexis occurring together (Ellis, 1996, 2001; Nattinger and DeCarrico, 1992; Sinclair, 1991). A lexical approach to language views formulas, collocational knowledge, and lexical phrases as a necessary complement to the knowledge of productive grammar rules. Although little is known about the acquisition of L2 collocational knowledge, ultimately, most EFL learners probably develop it through processing large quantities of written input in which most of the vocabulary is known. This contextualized, input-rich approach is necessary in light of the vast number of interrelationships that must ultimately be acquired. However, this approach can be usefully supplemented with deliberate, focused attention on frequent combinations (e.g., *some of the, in order to*) and the common collocates of familiar items, beginning with high frequency vocabulary (e.g., *make a promise; break a promise*) as this will allow for recycling and consolidation.

Secondary and abstract vocabulary meanings. Work on lexical simplification has shown that many learners need to be pushed to process a wide range of lexical items and expressions that are not needed for basic comprehension (Blum and Levenston, 1979; Levenston, 1979). Some learners may overuse high frequency procedural vocabulary (Widdowson, 1983) and avoid using lexis for which direct translation equivalents are unavailable in the L1 (Blum and Levenston, 1979). Moreover, although little empirical research into the acquisition of secondary word meanings has been published by SLVA researchers, the fact that more frequent vocabulary generally has more meanings suggests that many of the difficulties learners experience with secondary word meanings should occur with relatively high frequency lexis. Finally, the acquisition of secondary, more abstract meanings may prove difficult because abstract vocabulary tends to be lower frequency and less imageable than more concrete lexis.¹⁶

In order to assist learners in the acquisition of secondary and abstract lexical meanings, teachers should strive to encourage learners to approach words flexibly (i.e., to expect both subtle and strong shifts in word meaning) and to use dictionaries effectively by actively searching for the meaning that best fits the context in which the word appears because word meaning is nuanced by the context in which it appears. Second, it is useful to initially establish knowledge of the core concept and later illustrate how it fundamentally remains the same or changes in different contexts. For instance, the phrases *the water evaporated* (primary, concrete meaning) and *her doubts evaporated* (secondary, abstract meaning) share the same underlying meaning of *disappearing*. In addition, abstract vocabulary can be made more memorable when it is placed in concrete contexts, such as in semantic maps that use more concrete words and phrases or when placed within the context of a sentence or paragraph (Marschark, 1985; Wattenmaker and Shoben, 1987). Finally, the acquisition of abstract concepts can be enhanced by engaging learners in activities such as sorting target words and phrases into categories or making trees that show the relationships between words and phrases and their superordinates, coordinates, and related terms. In each of these cases, the key is to engage learners in association processing in which connections are made between the abstract item and concrete information that is already known.

Using Dictionaries. The second major strategy is the use of dictionaries, which many learners commonly consult to check spelling, look up the meaning of unfamiliar words and confirm the

meaning of partially known words (Scholfield, 1997; Summers, 1988). Three types of dictionaries are available – bilingual, monolingual, and bilingualized – and these can be found in either paper or electronic form.

Both bilingual and monolingual dictionaries have their unique strengths and weaknesses for developing vocabulary knowledge. The strengths of bilingual dictionaries are: learners value them; they can improve the reading comprehension of lower proficiency L2 learners; and they assist vocabulary learning at all levels of proficiency (Hulstijn, Hollander, and Greidanus, 1996; Knight, 1994). Also, their definitions are usually short and relatively easy to understand. However, with the exception of the better quality, comprehensive bilingual dictionaries, they may include too little information in their entries, and they can contribute to an overreliance on one-to-one word translation (Baxter, 1980; Tang, 1997). In contrast, monolingual learners' dictionaries can be used to build and elaborate learners' vocabulary knowledge using up-to-date and reliable sentence examples drawn from corpus data that provide information about meaning, grammar and usage (Harvey and Yuill, 1997) as well as spoken versus written lexis, frequency, collocations and associations. Their major weakness is that learners must know 2,000 words or more to understand the definitions. In addition, some omit multiword items from frequency counts (Kilgarriff, 1997), and present overly difficult and culturally bound examples drawn from corpus data (Amritavalli, 1999). Given these strengths and weaknesses, providing access to and training for both bilingual and monolingual dictionaries can enable more EFL learners to reach intermediate levels of proficiency or higher. Specifically, teachers can expand many learners' strategy of equating L1 and L2 words by emphasizing how L2 usage and context contributes to the meaning of lexis by focusing the learners' attention on the sentence examples contained in reliable bilingual and monolingual dictionaries.

Good quality bilingualized dictionaries, which combine the advantages of bilingual and monolingual dictionaries, can also assist L2 learners in viewing vocabulary learning as being more than word-pair learning. A bilingualized entry typically includes: L2 definitions, L2 sentence examples and either full L1 translations of the L2 information or L1 synonyms of the headword. Using bilingualized dictionaries is more efficient than using separate bilingual and monolingual dictionaries, and they are more flexible because beginning and intermediate learners can rely on the L1 translation and advanced learners can concentrate more on the L2 part of the entry (Laufer and Hadar, 1997; Laufer and Kimmel, 1997). As with monolingual dictionaries, teachers should increasingly emphasize the L2 information in bilingualized dictionaries as their learners' proficiency improves.

Curriculum planners, teachers and learners may also choose the above types of dictionaries in various electronic forms (software, pocket electronic and online dictionaries). Although more empirical research is needed to further examine their effectiveness, electronic dictionaries are easier and more convenient to use than printed dictionaries (Chun and Plass, 1996; Hulstijn, Hollander, and Greidanus, 1996; Laufer and Hill, 2000), and some are packaged with grammar and usage texts as well as thesauruses, which allow learners to search multiple resources. Some offer advanced searches, provide multimedia annotations, such as illustrations and video that assist in reading comprehension and vocabulary learning (Chun and Plass, 1996). Electronic dictionaries frequently allow learners to save and review words and definitions; many provide sound; and a few provide opportunities to record and practice pronunciation. Pocket bilingual

electronic dictionaries also have the significant advantage of being portable. Different versions of both commercial and free online bilingual and monolingual English dictionaries are also available.¹⁷

As with paper versions, electronic dictionaries can be further improved. These improvements include providing interactive exercises and functions that allow learners to choose different difficulty levels (Perry, 1997) and incorporating better tutorials to develop dictionary user skills (Perry, 1998). Learners, teachers and researchers can also benefit from electronic dictionaries that record and analyze what features learners actually use. In addition, electronic dictionaries that include both L1 and L2 information and a variety of L1 and L2 look up options will better serve learners of all proficiency levels (Laufer and Hill, 2000). Ideally, future electronic dictionaries will combine the flexibility of bilingualized information with the speed and features of electronic media. Finally, despite their potential for supporting lexical acquisition, no research has yet demonstrated whether speed and ease in using electronic dictionaries promotes retention.

Regardless of the dictionary chosen, learners require training to use them effectively (Hulstijn, 1993; Nesi and Meara, 1994), and this is particularly important for poor dictionary users who tend to look up vocabulary indiscriminately and ignore clues from the original text (Tang, 1997). Low proficiency learners may also apply the "kidrule strategy," in which a known word or portion of the definition is incorrectly selected as a synonym for the word being looked up (Nesi and Meara, 1994). In order to counter these tendencies, teachers should model and create regular opportunities for learners to practice effective dictionary use by teaching them to identify the unknown word's part of speech as well as contextual clues, which are necessary for finding the most appropriate dictionary entry. Learners will also need to practice using all the information in an entry before making conclusions about the meaning of a word (Laufer and Hadar, 1997), particularly when multiple subentries are provided (Luppescu and Day, 1993; Tang, 1997). Furthermore, teachers can assist learners in identifying useful collocational, grammatical, and pragmatic information implicit in the sentence examples. By reviewing the available contextual clues and checking the correct meaning found in the dictionary, learners will need to practice reevaluating their incorrect inferences so that they do not retain them (Parry, 1991).

Inferring vocabulary meaning from context. As previously stated, using context to infer lexical meaning is complex and can be difficult for numerous reasons, such as the learners' lack of vocabulary, their failure to identify or elaborately process unknown vocabulary, a lack of clues or the presence of deceptively transparent clues. Nevertheless, inferring vocabulary meaning from context, the third explicit lexical learning strategy in this framework, is an essential strategy for developing reading comprehension and promoting lexical acquisition and is commonly employed by successful language learners. Less proficient learners can benefit from training in how to carefully analyze context because, even in minimally helpful contexts, they can acquire knowledge of such features as word form, affixation, part of speech, collocations, referents and associations, grammatical patterning, as well as global associations with the topic (Nation, 2001: 240). Finally, careful attention to context is necessary for confirming the correctness of explicit word analyses and locating appropriate subentries in dictionaries.

Specific procedures may improve the probability that inferences will be at least partially correct. However, since no research has yet to show the efficacy of different procedures, instructors and learners will need to experiment with and adapt the following to create their own procedure. Prior to designing a procedure, instructors might wish to diagnose the strategies that their learners actually use when they encounter unknown lexis and explicitly discuss the strengths and weaknesses of these strategies. In addition, to improve the probability of making informed inferences it is preferable for learners to know about 98% of the surrounding lexis (Hirsh and Nation, 1992), a finding that suggests that instructors must carefully select texts of an appropriate difficulty level when asking students to practice inferring from context. A six-step inductive, instructional procedure (modified from Clarke and Nation, 1980 and Nation, 2001: 257) can be used with all levels of learners. First, learners should identify the unknown word's part of speech initially because their inference should match the part of speech of the unknown word. Second, they should search for clues in the immediate context, a technique which has been found to be effective in a meta-analysis of L1 studies (Fukking and de Gloppe, 1998); this is particularly important for L2 learners as it serves to counter hasty guesses based on word form. However, EFL learners may have difficulty identifying context clues because of their relatively undeveloped vocabularies. Consequently, EFL reading teachers will initially need to provide simplified contexts, focus on the most effective clue types, such as modifying phrases and cause and effect relations (Ames, 1966; Rankin and Overholser, 1969), and clearly model and explain how to identify them (Williams, 1986). Third, bilingual EFL teachers can assess both L1 and L2 inferences and assist learners to become more aware of their understanding of the context and their inferential strategies by having them explain the reasons for their choices. Fourth, the learners should confirm the part of speech of their inference, compare it to the unknown word and then attempt to substitute it into the original context. In practice, learners may combine steps 3 and 4 as a part of a process of verification and self-inquiry, which can be instructed using prompts and short, segmented texts (Nassaji, 2003; Porte, 1988). Fifth, in order to reduce the probability of erroneous guesses, learners should confirm their inferences by consulting a dictionary (Scholfield, 1997) or the teacher. Finally, when learners make incorrect inferences, they need to reevaluate the contextual clues in order to become aware of any misinterpretations that they have made (Fraser, 1999; Huckin and Bloch, 1993; Laufer, 1997b).

Approach 2: Implicit lexical instruction and learning strategies

Although extensive reading probably accounts for much of L1 and advanced L2 learners' knowledge of reading vocabulary (Nagy, 1997; Nagy and Herman, 1987), in our experience, many EFL reading programs do not provide a sufficient amount of richly contextualized, comprehensible input. For example, based on self-reports, native speakers of English in secondary schools in the US have been estimated to read about one million running words of English text per year on average (Anderson, Wilson, and Fielding, 1988). However, extrapolating from the research of Yamazaki (1996), Japanese EFL learners at the high school level may read between 25,000 and 40,000 running words of text per year, and almost all of this is in the form of intensive translation.¹⁸ This may be indicative of the amount of reading done in some other EFL environments. Although we have argued that the temporary explicit decontextualization of lexis can greatly enhance the pace at which lexical acquisition occurs, the primary instructional emphasis must be placed on meeting words in context. Despite the advantages of studying decontextualized vocabulary, teachers and learners should be aware that

its overuse can limit the learners' ability to use vocabulary in novel contexts. Prince (1996) found that the less proficient learners who depended on L2 to L1 translations were less able to transfer this knowledge into L2 contexts. Although studying decontextualized vocabulary can enhance the saliency of spelling patterns, affixes, collocations and both core and secondary word meaning, such knowledge is of limited value until it can be accessed in context. Finally, because of the key role that chunking plays in the development of reading fluency, virtually all fluency activities should take place with contextualized passages that are at an appropriate level of difficulty for each individual.

Meaning-focused reading

The primary focus in EFL reading classrooms should be on meaning-focused reading because, in the long term, it is the primary means by which to immerse students in a word-rich environment that can result in incremental increases in vocabulary size, the elaboration of lexical knowledge and the development of reading fluency. Implicit learning through meaning-focused reading can occur incidentally as a result of learners engaging in such activities as integrated task sets (a series of tasks requiring the use of multiple skills), narrow reading, rereading, timed and paced readings, intensive reading and especially extensive reading. Although these activities deserve greater attention in many EFL classrooms, we have chosen to emphasise extensive reading as the primary means for implicit learning because of its potential for motivating EFL learners and because it can maximise the amount of meaningful input accessible to learners.

Increasing vocabulary size through extensive reading

In extensive reading, learners select and read large amounts of materials that interest them and that are within their level of comprehension. Successful programs integrate extensive reading with speaking, listening, and writing tasks and encourage large quantities of reading over long periods of time (Elley, 1991; Elley and Mangubhai, 1983). Research studies credit extensive reading with improvements in motivation, reading, writing, spelling, vocabulary growth and reading fluency (Day and Bamford, 1998: 32-39; Elley and Mangubhai, 1983). Because of these benefits, it should be implemented early in EFL curriculums for the purposes of increasing vocabulary size and developing fluency with known vocabulary (Nation and Wang, 1999). A number of activities and approaches for implementing extensive reading can be found in Jacobs, Davis, and Renandya (1997), Bamford and Day (2004), and the Extensive Reading Pages website at <http://www.extensivereading.net/index.html>

Research on increasing vocabulary size through incidental learning has been deservedly criticized for methodological weaknesses ranging from small sample sizes and overly rich contextual clues to a failure to compare it with the relative effectiveness of other more direct approaches (Raptis, 1997). Despite such flaws, many L2 studies have shown that some vocabulary growth occurs through incidental learning (Day, Omura, and Hiramatsu, 1991; Hafiz and Tudor, 1990; Horst, Cobb, and Meara, 1998; Pitts, White, and Krashen, 1989). Reviews of L1 studies have found that the chances of retaining the meaning of a word vary from 5 to 20% (Nagy, Herman, and Anderson, 1985; Swanborn and de Gloppe, 1999). This indicates that extensive reading cannot be expected to result in dramatic increases in vocabulary growth over short periods of time. Indeed, in a study involving fifteen Japanese university students, Waring

and Takaki (2003) found that very little vocabulary was retained three months after reading a single graded reader. Vocabulary gains from reading are often partial and probably acquired incrementally; new lexis may be quickly forgotten unless reinforced through review or large amounts of additional reading. However, because many researchers have used tests that were not sensitive enough to detect partial vocabulary learning, partial gains have probably been understated (Nation, 2001).

For extensive reading to be effective, learners must be regularly exposed to large amounts of comprehensible text. Because the knowledge gained from a single encounter with a lexical item is likely to be forgotten unless soon followed by another encounter, repeated contextualized exposures are necessary to consolidate and elaborate word meaning. Knowing 98% of the vocabulary in a text is necessary for both unassisted comprehension (Hu and Nation, 2000) and to provide enough coverage to give learners a reasonable chance to infer the meaning of unknown lexis (Hirsh and Nation, 1992). Initial research, based on one series of simplified readers, also suggests that learners should read one book per week and read between five and nine books per reading level in order to gain enough exposures to the vocabulary at that level; this process should then be continued at the next higher level (Nation and Wang, 1999). Although possible for highly motivated, proficient learners, reading at this pace may be too demanding for less motivated, lower proficiency learners, who, in the authors' experience, find it difficult to complete a forty page book in two weeks. Also, as a means of vocabulary growth, this reading pace may work more effectively for lower level rather than for higher level graded readers. Using Nation and Wang's (1999) data, Laufer (2003) estimated that learners would need to read about nine high level graded readers (200,000 running words of text) to learn 108 words. Consequently, meeting words repeatedly in reading texts is more effective with lower level graded readers and with higher frequency vocabulary. More information about extensive reading activities and programs can be found in Jacobs, Davis, and Renandya (1997), Day and Bamford (1998), Bamford and Day (2004), and at the Extensive Reading Pages website (<http://www.extensivereading.net/index.html>).

Developing fluency

Current theories of automatization are based on research that has repeatedly demonstrated that frequency of occurrence is an essential feature of fluency development (DeKeyser, 1997, 2001; Newell and Rosenbloom, 1981). As such, the development of rapid lexical access requires that learners meet and use vocabulary frequently in a variety of communicative contexts. Reading tasks can effectively develop fluency, provided that processing demands are minimized, which can be accomplished through the use of familiar conceptual schema, discourse and grammatical structures and task types combined with practice in performing tasks faster than normal while maintaining comprehension.

Several options are available to develop more fluent lexical access. First, a core topic can be explored through a variety of integrated tasks, such as reading, viewing accompanying videos, discussing the topic, and responding to the text through writing tasks. Second, instructional techniques such as narrow reading can contribute to enhanced levels of lexical access and reading fluency (Krashen, 1981; Schmitt and McCarthy, 2000). Third, learners can be given a series of tasks that require rereading. For instance, learners might initially skim a passage for

gist, then scan for specific information, and finally engage in one or more intensive reading activities. Fourth, systematic timed or paced readings can have an impact provided that the vocabulary load of the passages is controlled so that they are easily comprehended. Finally, and most importantly, the amount of reading input should be maximized through an extensive reading program, because in the long term it is arguably the most effective and motivating method for gaining repeated exposures to known vocabulary in a variety of contexts. In terms of using extensive reading for fluency development, ideally 100% of the vocabulary in a text should be known in order to ensure that the text is easily comprehended (Hirsh and Nation, 1992; Nation, 2001). Although more longitudinal research is needed to demonstrate empirically the benefits of extensive reading for developing fluency, it is probable that, if started early enough, extensive reading can counter the tendency of some learners to treat L2 reading primarily as a process of word-for-word translation and can simultaneously encourage the development of reading as a constructive, interactive, and socially situated process.

Conclusion

The primary impetus for this framework has been our experience that, although lexical development is a major concern of EFL learners, it is frequently undervalued by course designers and instructors.¹⁹ Although the details of specific approaches to lexical development will continue to invite controversy, we believe that applying both explicit and implicit pedagogical approaches is mutually beneficial and offers the most effective means for promoting lexical acquisition in EFL contexts.

However, we would also note that much work remains to be done. Although we applaud the valuable contributions of researchers such as Jiang (2000) and Pavlenko (1999), the field of SLVA is still far from attaining an empirically-based theory that might direct the form that new research and more efficient and effective teaching principles might take. We believe that a comprehensive SLVA theory should address the goals of developing vocabulary size, fluency and depth. The theory should also account for the fact that vocabulary is acquired incrementally through the learning of correct attributes and the unlearning of incorrect ones. Although cognitive approaches have contributed greatly to our understanding of SLVA, the field will benefit from the work of other theoretical approaches that may stimulate new avenues of research and instruction. For instance, social theories of learning (Lave and Wenger, 1991; Vygotsky, 1978), work in neurolinguistics (Neville and Bavelier, 2001; Weber-Fox and Neville, 1999), and emergentist views of learning (Ellis, 1998; MacWhinney, 1999) may make valuable contributions to the field of SLVA; however, it is far from clear how these will form a comprehensive theory.

In addition to theory development, a number of specific applied research areas require increased attention. Moreover, we would recommend the following: increased use of think-aloud protocols in the study of decontextualized vocabulary learning; a greater focus on how lexical acquisition takes place in beginning L2 learners, investigations into whether acquiring a wider, richer and more automatized vocabulary plays a role in the acquisition of morpho-syntax; investigations into the relationships that exist between the development of vocabulary breadth, elaborated knowledge, and automaticity; longitudinal changes in the learners' processes of dictionary use

and inferring word meaning from context; and the effectiveness of procedures for training learners to use dictionaries and to make inferences. Furthermore, more empirical research is needed to document the effects of extensive reading on increasing vocabulary size, acquiring partial vocabulary knowledge, elaborating knowledge, and automatizing known vocabulary. Additional issues concern the role played by age, language proficiency, native language, and educational traditions in different EFL cultures, the role of family literacy, listening-reading relations, as well as the value of specific task types with learners of various motivational and proficiency levels. Finally, the field of SLVA lacks longitudinal studies in all of the areas outlined in this framework.

Recent research has shown a great deal about how lexical acquisition can be enhanced in the EFL reading classroom. However, in spite of the impressive progress in the past decade, a significant gulf exists between the growing body of knowledge in the field and its implementation in foreign language contexts. This may point to a critical lack of available information and teacher training, or a failure to apply pedagogical knowledge. This last point is succinctly summarized by a saying attributed to the Buddha: "To know and not to do is not to know." As the field moves forward in the next decade, researchers and educators will need to work simultaneously on two fronts: the continued expansion and refinement of our understanding of ways to enhance lexical acquisition and the effective implementation of this knowledge in the foreign language classroom.

Notes

1. See Bogaards (2001) for a discussion favoring the term *lexical unit* for research writing rather than word or word families.
2. One reviewer noted that strategies are consciously applied; thus, our use of the word in relation to implicit instruction is puzzling. Our intention is to suggest that teachers and learners can consciously select activities, such as extensive reading, that will likely engage implicit processes, not that the implicit processes themselves are performed consciously.
3. Because we assume that individual language programs will have unique objectives and because these general objectives are not the focus of this paper, we do not specify them here.
4. A reviewer pointed out that using dictionaries and inferring vocabulary meaning from context also constitute ways of studying decontextualized lexis. Indeed, the effective use of these strategies for the purpose of retaining new vocabulary requires decontextualization as a part of their procedures. While we agree with this observation, we see value in distinguishing these three strategies from one another for the sake of pedagogical purposes.
5. In the case of Dutch, Hazenberg and Hulstijn (1996) concluded that at least 10,000 base words (defined as dictionary head words excluding derivations and compounds) were necessary for about 95% comprehension of academic text. Although this study did not count words using the more inclusive unit of "word families" (which includes base forms plus inflections and derivatives), it nevertheless raises the possibility that EFL learners may need a larger receptive

vocabulary knowledge to assure a high level of comprehension of academic texts. Specifically, highly technical text is likely to require more than 5,000 word families to provide 98% coverage (Chung and Nation, 2003).

6. Elaborative processing can take place when, for example, learners attend to phonological or orthographic form or associate a new word with known lexis (see Ellis and Beaton, 1993b for a discussion of this issue).
7. The precise focus and balance accorded these approaches needs to be determined according to the learners' proficiency levels and the goals of administrators, teachers, the learners and other stakeholders.
8. No empirical studies have investigated the relative efficacy of explicit instruction and learning for these three objectives; however, we believe that elaborating lexical knowledge and developing fluency are more complex and long-term undertakings than increasing vocabulary size.
9. In general, it is too time-consuming to teach a large number of these aspects of vocabulary knowledge through the use of explicit tasks; however, consciousness-raising activities can be useful for helping EFL learners to overcome tendencies to engage in word-for-word translation. In addition, explicit instruction may be useful when teaching lexis that is difficult for learners to acquire because of L1 interference as well as lexis that has unusual collocational or complex grammatical patterning.
10. By taking this view, we explicitly reject the notion that the nuances of word meaning can be captured in dictionary definitions. Although we see a clear role for the use of dictionaries in L2 reading classrooms, ultimately, word meaning rests crucially on the notion of context as expressed by Kintsch (1998: 165): "Constructing the meaning of a word is a highly contextualized process....The process might be better described as one of constructing the meaning of phrases, sentences, or even larger text units of which the word is a part. The meaning of the word, then, is intertwined with the meaning of these larger units and indeed difficult to separate from them. "A rose is a rose is a rose" is false – it is a somewhat different rose in every context."
11. Generation occurs when words are met or used in new contexts. (See Nation, 2001: 68-69, 120-121 for a summary of the research.) This results in increased attention to words, which leads to enhanced recall and recognition (Joe, 1998; Slamecka and Graf, 1978). These effects are believed to be due to greater activation of an item's semantic attributes (Gardiner and Hampton, 1985), the construction of meaning (McDaniel and Waddill, 1990), and the greater number of cognitive or mental operations that are utilized during generation.
12. The greatest strength of definitions lies in the explicit information about word meaning that they provide. Although we see value in having learners match L1-L2 translation equivalents, matching L2 words with L2 definitions is less than ideal for three reasons. First, we hypothesize that the interconnections between words in memory are a crucial aspect of lexical knowledge that the study of decontextualized definitions would contribute little to. Second, there is a large gap

between understanding dictionary definitions and using the lexis in context. Third, memorizing definitions does not involve students in the construction of knowledge.

13. The need for recycling is based on research on human memory, and specifically on the areas of retention and forgetting which has repeatedly indicated that many types of information must be processed repeatedly over time for acquisition to occur. Clear, yet detailed discussions of these issues can be found in Anderson (1995: 237-246) and Baddeley (1998: 169-189).

14. Good readers also scan nearly every word; the crucial difference lies in their ability to process the orthography in a highly automatized and accurate manner.

15. According to Bauer and Nation (1993), the most frequent of these are the regularly inflected suffixes – plural, third person singular, present tense, past tense, past participle, -ing, comparative, superlative and possessive forms. Next, the most frequent and regular derivational affixes can be taught and these include: -able, -er, -ish, -less, -ly, -ness, -th, -y, -non, and un-. A third level of common derivational affixes that should be learned early on includes: -al, -ation, -ess, -ful, -ism, -ist, -ity, -ize, -ment, -ous, and in-. Relatively less common affixes can then be taught later as the learners become more proficient. Although these categories may have pedagogical value, Nation (2001: 268) acknowledges that no empirical research has been conducted showing that the list is related to an order of acquisition.

16. A considerable body of research compiled by cognitive psychologists has shown that concrete lexis, sentences, and paragraphs are more easily recalled than those that are relatively abstract (e.g., Marschark and Cornoldi, 1991; Marschark and Hunt, 1989; Slamecka and Graf, 1978; see also Paivio's 1971 influential treatise on imagery and memory that inspired decades of research on this topic). The terms concreteness and abstractness in this context refer to more and less imageable memory codes respectively. As noted by Marschark and Hunt (1989: 710), "For at least 20 years in the laboratory and over 2,000 in practice, mental imagery has been among the most potent predictors of memory."

17. For frequently updated lists of commercial and free online learners' dictionaries, please see <http://yourdictionary.com/>

18. Translation may be more prevalent in particular parts of the world, such as Asia. Discussions of the pervasive use of grammar-translation as a method for teaching reading in Japan can be found in Hino (1988) and Gorsuch (1998).

19. This is our subjective impression based on four decades of combined experience teaching EFL courses. However, we acknowledge that empirical support in the form of surveys of teacher practice, classroom observations, and detailed reviews of commercial materials and their approaches to lexical instruction is absent.

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