

## **Evaluating L2 readers' vocabulary strategies and dictionary use**

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### **Abstract**

A review of the relevant literature concerning second language dictionary use while reading suggests that selective dictionary use may lead to improved comprehension and efficient vocabulary development. This study aims to examine the dictionary use of Japanese university students to determine just how selective they are when reading nonfiction English texts for general comprehension. The findings suggest that high-intermediate and advanced learners are often selective when considering whether to look up a word. However, a third of the participants in this study were judged to have used the dictionary excessively. In addition, a quarter of the words looked up in the study were neither essential to the articles' main points nor frequent or useful words, according to corpus research. It is concluded that some learners might benefit from training in selective dictionary use.

**Keywords:** vocabulary strategies, dictionary use, reading online

Vocabulary knowledge is the most important component of second language (L2) reading comprehension, even more so than background knowledge and syntax (Laufer, 1997). When learners come upon an unknown word that they cannot infer from context, they can either ignore the word or consult a dictionary. While it is often stated that learners tend to depend on dictionary use excessively, research shows that learners' strategy use varies depending on a number of variables (Gu & Johnson, 1996; Hulstijin, 1993; Zhang, 2001). Second language instructors often have different assumptions as to the effectiveness of using a dictionary while reading. Instructors following traditional grammar-translation methods have tended to focus on decoding text and have encouraged the extensive use of dictionaries. However, current communicative practices in the field focus on strategic reading and inferring the meaning of unknown words from context (Grabe & Stoller, 2004; Knight, 1994; Laufer, 1997), and many teachers discourage the use of dictionaries altogether in the reading classroom (Bensoussan, Sim, & Weiss, 1984).

Teachers' views on dictionary use do not always seem to be based on empirical evidence (Luppescu & Day, 1993), though in the past two decades researchers have paid more attention to examining the efficacy of dictionary use. A number of studies have focused on the postreading vocabulary and comprehension scores of learners with and without the use of dictionaries (Bogaards, 1998; Knight, 1994; Luppescu & Day, 1993; Summers, 1988). Though studies have

shown contrasting results, most have demonstrated that dictionary use can enable comprehension. Therefore, rather than focusing solely on whether or not dictionaries should be used, there is a need to examine when and how often learners might optimally use dictionaries.

This study is motivated by the need to further understanding of how dictionaries can be used to increase comprehension and enable vocabulary acquisition. Specifically, it will be considered under what circumstances unknown lexical items should be looked up, as opposed to using other strategies such as ignoring words or trying to infer meaning from context. The relevant literature concerning reading strategies, incidental vocabulary acquisition, and dictionary use will be analyzed in order to define and describe *selective dictionary use*. Second, using this foundation, this paper will then describe a small-scale study on the dictionary use of Japanese learners of English in order to determine just how selective they are in using their dictionary when reading nonfiction texts for general comprehension. The study could hopefully spark more interest in the area and could also help educators determine whether learners might benefit from more explicit instruction on vocabulary strategies and dictionary use.

### **Studies of Dictionary Use**

Language educators sometimes claim that using a dictionary while reading can lead to inefficient learning (Bensoussan et al., 1984; Knight, 1994), and research indicates that this may often be the case. Compared to control groups who were not allowed to use dictionaries, L2 learners using dictionaries took twice as long to complete the reading task in Luppescu and Day's (1993) study and half as long in Knight's study. More proficient learners showed little or no gain when using dictionaries in the studies by Bensoussan et al. and Knight, indicating that the extra time used to look up words was used inefficiently. Indeed, using a dictionary does not always improve comprehension (Bensoussan et al., 1984; Koyama & Takeuchi, 2004). One concern is that the time it takes to look up words interferes with readers' short-term memory and prevents them from focusing on the text as a whole (Bensoussan et al., 1984; Knight, 1994). In addition, learners with access to dictionaries sometimes locate the wrong dictionary entry, leading to miscomprehension (Bogaards, 1998; Luppescu & Day, 1993; Tang, 1997).

However, Bogaards (1998) found that learners were significantly more likely to identify the correct definition in the dictionary than they were to accurately guess the meaning of unknown words from context. In fact, many studies have shown that L2 dictionary use improves reading comprehension and could lead to lexical development. In a series of three studies (Summers, 1988), L2 English learners using a dictionary scored significantly better on both postreading comprehension and vocabulary tests. In a study of nearly 300 Japanese learners of English, the experimental group with access to bilingual dictionaries while reading scored significantly better than the control group on a vocabulary posttest (Luppescu & Day, 1993). In another study involving 112 learners of Spanish (Knight, 1994), learners who had access to a dictionary scored higher on postreading comprehension and vocabulary tests, though the difference in the comprehension scores of more proficient learners was not significant, as mentioned above.

Utilizing new technologies such as handheld electronic dictionaries, online dictionaries, and marginal glosses may affect the efficacy of dictionary use. Referring to an unknown word

through an electronic link, for example, takes much less time and distracts the reader from the text to a lesser degree. In a study by De Ridder (2002), there was no correlation between the time needed to complete the reading task and the number of words looked up through marginal (electronic) glosses. In another study (Koyama & Takeuchi, 2004), users of electronic dictionaries looked up more words in less time than users of printed dictionaries. However, the greater number of lookups did not lead to increased comprehension in either study.

### **Text Coverage and the Use of Dictionaries**

Corpora and research on text coverage may provide some clues as to why some less proficient learners benefited more from dictionary use in the above studies. Nation (1990, 2001), Laufer (1997), and others have shown that L2 readers may have difficulty comprehending reading passages if they understand less than 95% of the running words in the text, or approximately 3,000 word families. Extensive dictionary use may not enable learners with a very low vocabulary to reach the threshold. Strategic reading requires significant cognitive resources (Laufer, 1997), and using a dictionary often may use too much of this capacity. Many researchers in the field (e.g., Laufer, 1997; Nation & Warring, 1997) recommend having low-level students read graded readers or build their sight vocabulary rather than having them tackle authentic texts.

However, whether or not dictionary use can enable intermediate or preadvanced learners to reach the threshold has largely been ignored in the research on text coverage. Moreover, 95% is not an absolute tipping point between noncomprehension and comprehension, as it often seems to be considered in the field. In Hu and Nation (2000), for example, readers with coverage as low as 80–90% showed some comprehension of text, and it is suggested that access to a glossary would have increased comprehension even more. Indeed, the dictionary use studies mentioned above support the idea that looking up words can increase learners' coverage of the text and enable comprehension. There was a significant correlation between the number of words looked up and the comprehension scores of less proficient learners in Knight (1994), suggesting that dictionary use helped these learners reach the comprehension threshold. On the other hand, considering that there was no significant difference in the comprehension scores of control and experimental groups of high-proficiency learners in Knight's study and in Bensoussan et al. (1984), it is possible that these learners already knew enough words in the passages to enable comprehension.

Coverage is not only important for comprehension but also for lexical development. Hirsh and Nation (1992) hypothesized that learners may need to comprehend up to 98% of the running words in a passage in order for incidental vocabulary learning to take place when reading for pleasure, though empirical support is needed to support this claim. If a text is too difficult, context clues that are necessary to infer a word's meaning from context are not accessible (Laufer, 1997; Robinson, 2003). Recent research shows a significant correlation between comprehension and the gain and retention of new lexical items (Pulido, 2007). Therefore, it could be hypothesized that if a dictionary can be used to increase comprehension, dictionary use may also lead to incidental learning of other unknown words. It is possible, however, that the process of looking up a word in the dictionary may require too much of the cognitive resources necessary for learners to infer the meaning of words from context.

Nevertheless, the dictionary use studies mentioned above indicate that looking up words can lead to the retention of words looked up. Noticing language is the first step to acquisition (Schmidt, 2001), and looking a word up in the dictionary and identifying the correct definition calls more attention to the word, which increases the chances the word will be retained (Peters, 2007; Pulido, 2007; Robinson, 2003). However, looking up nearly all unknown words without careful attention would be unlikely to lead to retention. In the studies mentioned above on the learners' overuse of electronic glosses, it is hypothesized that looking up too many words without careful consideration led to shallow processing and short-term retention (De Ridder, 2002; Roby, 1999).

## **L2 Learners' Dictionary Use**

There are a number of factors that influence learners' dictionary use. Research has shown that most learners do not look up words at random. Hulstijin (1993) found that advanced learners were somewhat less likely to consult a dictionary if the meaning of the unknown word was easily inferred. Moreover, studies have shown that learners tend to look up *relevant words*, defined in these studies as words that were needed to answer comprehension questions (Hulstijin, 1993; Laufer & Levitzky-Aviad, 2003; Peters, 2007). As will be discussed in the next section, research shows that more proficient learners use a variety of vocabulary strategies, rather than depending exclusively on dictionaries (Gu & Johnson, 1996; Hulstijin, 1993; Zhang, 2001).

Several other variables influence learners' reading and vocabulary strategies. Task is one of the most influential variables. In a translation task, for example, readers need to understand each word (Bogaards, 1998), while learners reading for general comprehension can often ignore unknown words and use their dictionary more strategically. When reading for pleasure or to build fluency, readers should not be expected to refer to a dictionary often, if at all (Hu & Nation, 2000). The type of dictionary used is another key variable. As suggested above, learners look up words more frequently when utilizing electronic or web-based dictionaries, rather than printed dictionaries (De Ridder, 2002; Koyama & Takeuchi, 2004; Roby, 1999). Other variables may include the time learners have to read, the type of word and text, learner motivation, and learning style (Hulstijin, 1993; Oxford, 2001).

## **Selective Dictionary Use**

The research studies described above suggest that there are some advantages, some disadvantages, and a number of variables concerning the use of dictionaries for L2 readers. Looking up words may help learners build their receptive vocabulary and can also enable comprehension. On the other hand, it takes readers longer to read when using a dictionary, and more proficient learners benefit less, if at all, from dictionary use. Looking up words may be quicker and easier when using online or electronic dictionaries, but it can become so effortless that it may decrease vocabulary retention. Based on the studies mentioned above, it is concluded here that dictionaries should be used for learners when reading a text above their level to reach the comprehension threshold (roughly 95% coverage). Learners reading texts near or at their level should use dictionaries very rarely, if at all. Using a dictionary more than necessary could lead to an inefficient use of study time and less retention of words looked up.

However, it still needs to be considered which lexical items should be looked up and which words can be ignored (Hulstijn, 1993). When teaching academic reading, Grabe and Stoller (2004) suggest that instructors focus students' attention on words that are frequent and useful to acquire and words that are related to the main points of a reading passage. When coming upon an unknown word whose meaning cannot be readily inferred from context, perhaps instructors could adopt the same approach when helping learners to decide whether to consult a dictionary. First, in terms of reading comprehension, some words are clearly more important to understand than others. An unknown word in the headline or the first few sentences of a news report, for example, is obviously much more important than a word at the end of the article, which is often limited to details. In terms of vocabulary acquisition, corpus research has highlighted how infrequent most words in English are. While the most common 3,000 word families cover 90–95% of running words used in an average text (Laufer, 1989; Nation, 1990, 2001), hundreds of thousands of less frequent words make up a tiny fraction of words used (Leech, Rayson, & Wilson, 2001). If dictionary use assists a learner in acquiring an infrequent word, it is unlikely that the learner will ever encounter the word again. On the other hand, improving learners' knowledge of high-frequency vocabulary has been shown to lead to increased reading proficiency (Coady, Magoto, Hubbard, Graney, & Mokhtari, 1993).

Research into the learning strategies of the most proficient learners supports the idea of selective dictionary use in that these learners tend to use a variety of vocabulary strategies while reading (Gu & Johnson, 1996; Hulstijn, 1993; Moir, 1996, as cited in Nation, 2001; Zhang, 2001). In Gu and Johnson, both contextual guessing and skillful use of dictionaries correlated highly with proficiency scores and vocabulary size. Moreover, *selective attention* was one of two metacognitive strategies that correlated significantly with proficiency. Identifiers of this strategy included that learners could sense when a word can be guessed from context, they knew when a word was essential to the passage, and they knew which words were important to learn. Though correlation does not prove causation, it is possible that the learners' selective dictionary use may have increased their proficiency significantly compared to their peers. Hulstijn's (1993) research supports this idea since learners with high inferencing ability scores had significantly higher vocabulary scores, but the reverse was not true. Indeed, a growing body of research shows a high correlation between proficiency and cognitive and metacognitive strategy use in all language skills, and strategy training has led to greater reading proficiency in a number of studies (Carrell, 1985; Carrell, Pharis, & Liberto, 1989; Oxford, 2001).

Although the issue needs to be examined more extensively, there is considerable evidence that selective dictionary use can lead to improved reading comprehension, vocabulary development, and an efficient use of study time. Based on the literature, selective dictionary use is defined here as looking up words that cannot be readily guessed from context and that are either useful to learn or relevant to the main points of the passage or the task at hand. In addition, selective dictionary use would mean looking up enough words to enable comprehension, but using other strategies as often as possible. Research suggests that this would mean looking up enough words to enable roughly 95–98% coverage of the text. Because of the possible benefits, selective dictionary use could be promoted as a viable strategy to L2 learners.

Other studies have not explicitly defined or measured selective dictionary use. Gu and Johnson's

(1996) study does identify several key reading strategies, but it examines only learners' self-reported behaviors. Research showing that learners tended to look up relevant words (Hulstijn, 1993; Laufer & Levitzky-Aviad, 2003; Peters, 2007) also did not measure learners' behavior when reading in non-test-like, real-world settings (Bogaards, 1998). Relevant words in these studies were defined as words that were needed to answer comprehension questions, and many of these words were likely to have been looked up not while reading the passages initially but when answering postreading questions.

Can language learners actually determine which words are important to the main point and which words are frequent and useful? This study examines the dictionary use of Japanese university students of English to measure just how selective they are when reading nonfiction texts for general comprehension.

## Method

Thirty-four female university students in Japan read and summarized three texts of various genres. The participants had access to an online bilingual dictionary while reading, and the words looked up were measured and analyzed for their frequency and their relevance to the passages' main points.

### *Participants*

The participants included 17 first-year and 17 second-year students in the highest level of the university's intensive English program. The program's reading curriculum focused on understanding the main points of articles and guessing vocabulary from context, but not dictionary use. The participants' scores on the paper-based Test of English as a Foreign Language (TOEFL) ranged from 457 to 600, with a mean of 503 (median = 497,  $SD = 32$ ).

### *Materials*

The study involved three authentic reading passages. The first reading was a short news item (382 words), the second was a section from a book (420 words), and the third was a longer feature news story (1,120 words). The short news story reports about a factory worker who had slipped into a vat of chocolate. The book passage describes the rationale of the UN Millennium Goal to increase women's participation in politics. The feature news story discusses Japan's somewhat contradictory attitude on the environment and global warming. The three specific texts were chosen since they were perceived to be the kind of passages the learners might read for pleasure or in their academic studies.

The three texts were also selected because they each have significantly different organization, and text type may influence dictionary use (Bogaards, 1998). As is typical of daily news stories, most of the main points of the first text could be found in the headline and first few paragraphs. The book passage followed the organization of a five-paragraph essay, with a clear thesis and topic sentences containing the main idea and the main points of the passage, respectively. Finally, the feature news story was typical of such stories in that it began with an example to hook the

reader. The opening example was then woven throughout the rest of the passage, which included the main points, details, and examples mixed in a seemingly unclear way. It was hypothesized that the participants would have more difficulty identifying key words to look up in this passage.

### *Procedure*

To estimate the participants' receptive knowledge of the words in the target readings, 1 week before the pretest the students were given a list of the words and they marked whether they knew the word's meaning or not. Because of the great number of words tested in this study, testing for deeper levels of lexical knowledge was not feasible. On the day of the test, participants opened a Microsoft Word document containing the three passages. The participants were then told that they could check the definition of words while reading the passages, since the words were linked to an internet-based bilingual English-Japanese dictionary ([www.alc.co.jp](http://www.alc.co.jp)). When the participants clicked on a word, an internet browser window opened containing the word's translation in Japanese and an example sentence in English. Since visible hyperlinks may increase the frequency of lookups (De Ridder, 2002), the linked words were not highlighted in any way.

The participants had 1 hour and 15 minutes to read the passages and to write a summary and reaction of a few sentences for each. This task was chosen, rather than answering comprehension questions (Hulstijn, 1993; Laufer & Levitzky-Aviad, 2003; Peters, 2007) or completing a translation task (Bogaards, 1998), because this study aims to more validly reflect an authentic reading task where the reader aims to understand the main points of the passage and then forms some opinion or reaction to it. However, since learners' ability to summarize and write a reaction does not always correlate with their understanding of the text, the learners' comprehension of the passages could not be validly scored and was considered outside the scope of this study. When the participants were finished with the task, they printed out the document and gave it to the researcher. Since each word clicked on was automatically underscored by the Microsoft Word program as a followed link, the hard copy revealed which words were consulted in the online dictionary by each participant.

### *Analysis*

To determine if the participants were using the stated descriptors of selective dictionary use, research questions were formed and analyzed in the following ways:

1. *Did the participants look up enough words to enable comprehension but use other vocabulary strategies when possible?*

The number of the words looked up by each participant in the study was added to the total number of words marked as known in the pretest. Considering the number of times each word appeared in the passages, it was then estimated if the participants knew or looked up 95–98% of the passages' running words. The exact percentages representing *coverage* are considered estimates since the participants may have sometimes looked up words marked as *known* in the pretest and since there is no guarantee the participants actually identified the correct dictionary definition.

*2. Did the participants tend to look up useful, high-frequency words rather than infrequent, technical words?*

The frequency and usefulness of each word was analyzed based on whether it was in the 2,000 level, the Academic Word List (AWL; Coxhead, 2000), or off these lists (off-list words) based on corpus data (Cobb, 1999; Heatley & Nation, 1994). Considering the vocabulary level and the academic aspirations of the participants, the 2,000-level and AWL words were considered the most useful to acquire. Therefore, the number of words looked up in the 2,000 word list or the AWL were compared to the number of off-list words looked up.

In order to account for the participants' vocabulary level, frequencies were calculated by comparing the number of words looked up by each student to the number of words marked as unknown in the pretest in each category. The variable was then analyzed using a paired, two-tailed *t* test to determine if the participants looked up useful and high-frequency words significantly more often than off-list words.

*3. Did the participants tend to look up words that are relevant to the main points of the passages, rather than the supporting details?*

The number of words looked up in the passages' main points was compared with the number of words looked up in the passages' supporting details and examples. Each word's relevance was determined based on whether or not the word appeared in clauses rated by the researcher as being one of the main points of the passages. Again, the participants' pretest survey was considered, and *t* tests were used to determine whether the participants looked up unknown words in the passages' main points significantly more often than unknown words in the supporting details.

*4. Did the participants more often look up words that are either useful words or words relevant to the main points of the passages rather than uncommon words in the supporting details of the passages?*

The number of words looked up that were either in the top 2,000 and AWL word lists or in the passages' main points was compared to the number of off-list words looked up in the passages' details and examples. Once again, the participants' pretest vocabulary surveys were then considered, and *t* tests were used to measure significance.

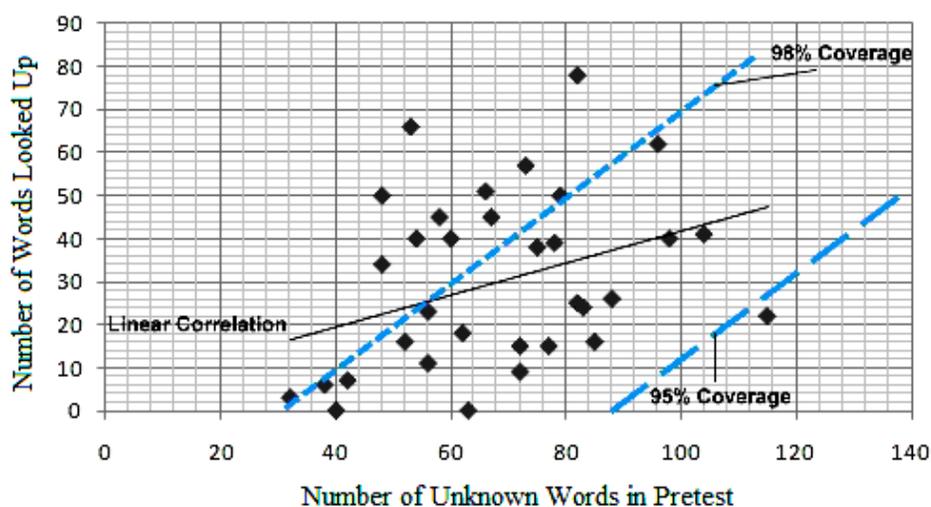
## **Results**

### *The Number of Words Looked Up*

The pretest vocabulary survey revealed that the participants did not know the meaning of an average of 67.5 of the words, which represents 4% of the total number of running words that appeared in the passages ( $SD = 0.01$ ). Most of the participants previously knew the meaning of 95–98% of the running words, while just five students knew less than 95% (all of the five were

within 93–94.9%). Therefore, previous research suggests that most participants would need to look up few, if any, words to reach the 95%–98% mark, which is one of the descriptors of selective dictionary use used in this study.

The participants varied wildly in terms of how many times they utilized the dictionary link (see Figure 1). While 2 participants looked up no words at all, 3 other participants looked up 78, 66, and 62 words. The mean number of words looked up was 29.76 ( $SD = 20.5$ , median = 25), which was 1.5% of the total number of running words. There was a weak positive correlation ( $r = .36$ ), represented by the solid line in Figure 1, between the number of words marked as unknown in the pretest and the number of words looked up. In other words, many participants with a lower vocabulary used the dictionary to increase their coverage, while many of the participants with a higher vocabulary utilized the dictionary link less often. However, there were a few outliers whose dictionary use did not correlate with their vocabulary level.



**Figure 1.** Number of unknown words and words looked up.

Considering the number of previously known words and the number of words looked up by each participant, it is estimated that most participants (21) reached or stayed in the 95–98% range, which is indicated by the two dotted lines in Figure 1. In other words, most participants seemed to use the dictionary link enough times to comprehend the texts (the comprehension threshold discussed in previous research studies), but they used other strategies, such as ignoring unknown words or inferring their meaning, at other times. On average, the participants knew or looked up 97.4% of the words ( $SD = 0.02$ ). However, while 1 participant remained slightly under 95%, 12 of the 34 participants exceeded the 98% range (though one learner previously knew this many words and looked up only three words during the test). It could therefore be concluded that roughly 1 in 3 participants relied on the dictionary perhaps to an excessive degree, instead of using other vocabulary strategies, which research suggests should have been possible.

### *The Frequency and Usefulness of the Words*

Over half of the words (53%) the participants looked up in the study were relatively infrequent off-list words (see Table 1). However, considering that they already knew most of the words in

the high-frequency bands, the participants were actually much more likely to look up unknown high-frequency words. They looked up an average of 13.63 words in the 2,000-word list or AWL, which is 72% of the number of reported unknown words in these frequency bands ( $SD = 0.69$ ). On the other hand, they looked up a mean of 15.74 off-list words, which is 34% of the total number of reported unknown off-list words ( $SD = 0.23$ ). The difference between these frequencies is statistically significant ( $p < .01$ ).

Table 1. *Frequent, useful words versus infrequent words*

	Frequent, useful word	Infrequent word
Dictionary use	47%	53%
Unknown word looked up	72%	34%

### *The Context of the Words*

As shown in Table 2, the majority of the words (57%) the participants looked up in the study were in clauses rated by the researcher as one of the main points of the passages. By passage, 54% (news report), 64% (textbook passage), and 53% (feature story) of the words the participants looked up were in clauses related to the key points. The findings indicate that the learners did not have significantly more difficulty identifying the main points in the feature news story as hypothesized, compared to the news report or book passage.

Table 2. *The context of the words*

	Word in the main points	Word in supporting details
Dictionary use	57%	43%
Unknown word looked up	68%	36%

When considering the participants' unknown words, there was a tendency to ignore (or guess from context) many unknown words not related to the main points. They utilized the dictionary link for 36% of the number of reported unknown words that were in clauses outside the main points ( $SD = 0.46$ ), compared to 68% for unknown words in the main points ( $SD = 0.25$ ). This difference is significant ( $p < .01$ ).

### *Word Frequency and Context*

Seventy-five percent of the words looked up in the study were either frequent, useful words or words in one of the passages' main points (see Table 3). In other words, three-fourths of the words the participants looked up in the online dictionary fit one of the two main descriptors of selective dictionary use.

Table 3. *Selective dictionary use*

	Frequent word or word in the main points	Infrequent word in supporting details
Dictionary use	75%	25%
Unknown word looked up	59%	26%

Considering the participants' vocabulary level, the participants were much more likely to look up unknown words that fit one or both categories. On average, they looked up one-fourth (26%) of the unknown off-list words appearing in the details or examples ( $SD = 0.18$ ) and 59% of the reported number of unknown words that were either in the main points or in the more common frequency bands ( $SD = 0.45$ ). This difference is statistically significant ( $p < .01$ ).

## Discussion

The findings here suggest that high-intermediate and advanced learners often use the selective dictionary use strategies described in this study. Most participants looked up enough words to reach the 95% comprehension threshold but used other strategies for the remaining unknown words. The participants tended not to focus on the infrequent technical words contained in the supporting details of the passages. On the contrary, the participants were significantly more likely to look up words that were either useful, high frequency words or words related to the main points. Three-fourths of the words the participants looked up in the study fit one of these two descriptors of selective dictionary use.

Nevertheless, the findings suggest that many participants could have been more selective when considering which words to look up. One-fourth of the words consulted in the dictionary were neither relevant to the passages' main points nor were frequent words. Moreover, when considering the participants' vocabulary level, 1 in 3 participants looked up so many words that they exceeded the 95–98% range. As mentioned previously, research suggests that other strategies should have been possible. The participants who relied on the dictionary could have finished the task much more quickly and efficiently had they more often used other reading strategies such as guessing vocabulary from context or ignoring technical words not essential to the main points of the passages. Indeed, a few of the participants had trouble completing the task on time, though most did not.

### *Implications*

The findings suggest that selective dictionary use may be an issue for some learners, though the topic should be researched much more extensively. Considering that many participants could have been more selective in their dictionary use, it may be useful to address the topic, either directly or indirectly, in reading textbooks and in the classroom. Communicative language instruction may improve the efficiency of students' dictionary use without focusing on the issue directly. While teachers following grammar-translation methods often encourage learners to use a dictionary to decode the text, students in communicative language classes are encouraged to focus on understanding the main points and the information needed to complete tasks rather than trying to understand each word and sentence. Moreover, communicative instruction also includes practice inferring meaning from context, which may lead learners to become less dependent on their dictionary.

However, communicative reading teachers may need to adjust their methods to more appropriately address the issue of selective dictionary use. First of all, rather than encouraging students not to use a dictionary, learners might be advised to use a dictionary a limited number of

times depending on their language level and the difficulty of the text. This would encourage students to be selective, and this study suggests that learners often do have good judgment. In postreading tasks, vocabulary strategies could be practiced more explicitly. While students are often asked to guess the meaning of words from context, a more methodologically-sound alternative would be for learners to be also given the option of ignoring the word or looking it up. The students could then note down or discuss why they looked up the words they did. Appropriate reasons could include that the word's meaning could not be inferred and it seemed relevant or useful to learn.

As long as the learner's vocabulary is not too limited (Laufer, 1997), explicit instruction may also be useful in order to help learners identify which words are relevant to the main points. First, learners may benefit from instruction on recognizing the organization of reading passages (Carrell, 1985; Jiang & Grabe, 2007). The location of the main points can often be predicted by previewing the organization, but second language reading textbooks rarely mention where to find the main points in news articles, feature stories, and essays. As mentioned in the materials section, the news article and book passage in this study had fairly predictable organization compared to the feature story, but the participants did not look up words in the main points of these two passages any more often.

Recognizing transition words could also help learners understand if a sentence is a main point, supporting detail, or example. The following excerpt from the feature story about Japan and global warming shows how transition words could have been used to distinguish examples from main points:

The government's response has been hobbled by disputes.... The economics ministry, *for example* [italics added], has blocked the ... demands for a tax on ... fuels *such as* [italics added] gasoline, kerosene and liquefied petroleum gas.... (Collier, 2006, p. A1)

Though many participants looked up the words *gasoline*, *kerosene*, and *petroleum*, these terms are clearly examples of *fuels*. Moreover, the whole sentence itself is merely a supporting example of the lack of governmental action. Therefore, the unknown words in the second sentence could easily have been ignored.

Second, though it may seem obvious, learners should be made aware that words that are repeated often in a passage tend to be either high-frequency words or words essential to the topic (Hirsh & Nation, 1992). In this study, the words *vat*, *participation*, and *emissions* were used several times and were key to the main points of the passages on the chocolate factory accident, women's involvement in politics, and global warming, respectively.

There are also a few guidelines that instructors could point out to students to help them identify high-frequency, useful words. However, learners (and educators) first need to be aware of how infrequent most words are and the importance of focusing on common words in the language or their specialized field. English language learners could then be informed that research shows that there is a significant negative correlation between the length of a word and its frequency (Leech et al., 2001). Examples of longer, more uncommon words that were often looked up in this study were *egalitarian*, *hyperefficient*, and *photovoltaic*. On the other hand, *utilize* was an example of a

high-frequency word (in the AWL) with few syllables that many participants did not look up (despite the fact that many reportedly did not know the word in the pretest). Along with the context of the word and whether the word has been noticed before, the number of syllables can serve as a rough guide for determining whether or not the word is common enough to be looked up.

### *Limitations*

This was a relatively small-scale study, and there were a few limitations to the research methodology. First, as suggested before, a review of the data suggests that participants sometimes looked up words reported as *known* in their pretest survey. Since the data analysis relied on the pretest survey for determining the number of unknown words looked up, the frequencies reported in this study should be considered estimates of the learners' *coverage* and the *percentage of unknown words looked up*. Future studies should either utilize a different pretest survey or the data analysis methods may need to be revised to better account for this. Second, though some words occurred several times in the passages, the data collection procedures did not allow for the recording of the number of times a word was looked up. Therefore, even if a word was looked up more than once, it was automatically recorded as having been looked up one time. Moreover, it was impossible to determine in which occurrence the word was looked up.

This study should be considered an introductory study into the issue of selective dictionary use. The methods used in this study for recording the words looked up were reliable and fairly valid, especially compared to earlier studies on dictionary use in which learners were asked to mark the words they looked up. However, in future empirical studies on dictionary use, computer programs, such as the one described by Knight (1994), could be created to better record and analyze the data.

### **Conclusion**

Some L2 instructors urge students to use their dictionary as much as possible while others encourage them not to use a dictionary at all. However, though the issue needs to be examined more carefully, research suggests that encouraging selective dictionary use may more efficiently improve L2 learners' reading comprehension and vocabulary. This study defines selective dictionary use as looking up words that are either useful to learn or relevant to the passage's main points or the reading task. In addition, for learners just below the level of the text, dictionaries should be used to enable adequate coverage of the passage (roughly 95–98% of the running words), while other strategies should be used for the remaining words.

Though educators sometimes claim that learners do not use dictionaries efficiently, the findings here suggest that many high-intermediate and advanced learners are often selective when considering whether to look up a word. Nevertheless, a third of the participants in this study were judged to have perhaps used the dictionary link excessively. A quarter of the words looked up in the study were neither essential to the passages' main points nor frequent or useful words, according to corpus research. It could be concluded that some learners might benefit from

instruction on selective dictionary use. Learners may need help learning to recognize a passage's main points and evaluating the frequency and usefulness of unknown words.

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