Learning L2 vocabulary from context: Myths and reality

ZORANA Vasiljevic

文脈からL2語彙を学ぶ：虚構と現実

鷲麗美知　ゾラナ

　L2 語彙習得に関する文献において、語彙学習は明示的なものと暗示的なものに区別される。学習者が学術もしくは職業上の目的で L2 を必要とする場合、豊かで明示的な語彙指導は上位 2,000〜3,000 語の高頻度語と特定分野の語彙に集中するべきだと論じられる。その一方で、低頻度語の習得は、語源で単語を覚えたり文脈から語彙を推測するなど適切なストラテジーを学習者に指導することで促進させる。

　英語には多数の低頻度語が存在すること、そして指導者は限られた時間の中で明示的な語彙指導を行わなければならないことを考慮すると、学習者の適切な学習ストラテジーの習得を支援することが彼らの L2 語彙の発展に非常に重要であることはほぼ間違いない。しかし、第二言語学習者の語彙発達を確実なものとするためには、ストラテジー訓練は十分ではない可能性があることを示唆する実証研究の証拠が次第に増えてきている。本稿は、L2 語彙の学習ストラテジーとして文脈から語彙を推測するストラテジーの有効性に関する研究のレビューを行うことを目的とする。本稿は、三つの部分に分かれている。まず、文脈からの語彙学習に賛成する論点のレビューを行う。次に、文脈から推測する語彙学習ストラテジーの有効性に関する第二言語研究の結果を示し、ストラテジー指導・使用に関する一般的な虚構や誤解を取り上げる。最後に、研究成果を授業に応用するための様々な方法について論じ、明示的な語彙指導をストラテジー訓練に統合するための実践的な提案を行う。本研究の成果は、指導者が暗示的な L2 語彙学習に関する虚構を現実から区別し、生徒に利益のあるアクティビティや経験について適切な判断を行うのに役立つだろう。

キーワード：文脈から語彙を推測、語彙学習ストラテジー、語彙指導、
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Arguments in favour of lexical inferencing from context

Traditionally, the research into second language vocabulary acquisition research distinguishes between intentional and incidental vocabulary learning. The former term denotes the direct, focused study of words and expressions directed at committing lexical information to memory. The latter term refers to natural vocabulary acquisition through exposure to oral and written contexts when the learners' attention is typically focused on the message rather than lexical items themselves (Hulstijn, 2001).

While the two approaches are not mutually exclusive, they are presented as pertinent to different stages of L2 lexical development. Explicit learning through direct vocabulary instruction is considered essential for the acquisition of high-frequency words. Implicit learning through contextual experiences is believed to be the key for the acquisition of less frequent words. Considering that high-frequency vocabulary is estimated at 2,000~3,000 words (Nation & Hwang, 1995; West, 1953) and that low-frequency items number in the hundreds of thousands, vocabulary acquisition at the intermediate level and above essentially becomes an implicit learning process. Indeed, in his comprehensive survey of research and theory on the teaching and learning of L2 vocabulary, Nation (2001) argues that "…incidental learning via guessing from context is the most important of all sources of vocabulary learning" (p.232). According to Nation, direct vocabulary study should not occupy more than 25% of the

total learning programme. By definition, low-frequency words occur very infrequently, and cover a small proportion of text. Therefore, teachers should teach learners strategies that would allow them to take advantage of contextual clues, and infer the meanings of unknown words they meet in the text, rather than invest class time in explicit instruction of items that are unlikely to be met again for long periods of time (Nation, 1990; Schmitt, 2000).

In addition to the sheer number of words to be learned, some support for incidental contextual vocabulary learning comes from studies of lexical development in the first language. A large body of experimental evidence suggests that incidental learning from context accounts for a significant proportion of L1 vocabulary growth. It is estimated that native speakers of English at undergraduate level know about 20,000 word families (Goulden, Nation & Read, 1990). The words are acquired at a rapid rate, and mostly from written input. Spoken language does not have enough lexical variation to be useful as a source of vocabulary after early childhood - the number of uncommon words in the conversation of university graduates was found to be smaller than the number of uncommon words encountered in the average children's book (Cunningham & Stanovich, 2001). According to Nagy and Anderson (1984), there are about 88,500 words in printed school English, and children add approximately 3,000 words to their reading vocabulary every year between the third and twelfth grades. Only a small proportion of that growth (200~300 words per year) can be attributed to explicit vocabulary instruction. The results of

other studies also suggest that the ability to infer word meaning from context begins to develop at an early age (McKeown, 1985; Nagy, Herman & Anderson, 1985; Nagy, Anderson & Herman, 1987; van Daalen-Kapteijns & Elshout-Mohr, 1981) and that just one exposure may be sufficient for children to form a partial semantic representation (Carey, 1978; Dickinson, 1984; Nagy et al., 1985). Vocabulary acquisition continues in adulthood and the ability to use contextual clues improves with the increase in overall cognitive maturity (Carnine, Kameenui & Coyle, 1984; Werner & Kaplan, 1952). Studies involving both children and adults show a positive correlation between leisure reading and vocabulary (Greaney & Hegarty, 1987; Rice, 1986).

Another argument in favour of contextual vocabulary learning is the context-specific meaning of lexical items. Many English words are polysemous, and word meanings are not a fixed set of properties. According to Goulden et al. (1990), most common words have, on average, 2.3 meanings, and an estimated 267,000 entries in *Webster's Third International Dictionary* (1963) represent as many as 600,000 meanings. Word concepts contain both context-independent and context-dependent properties. Context-independent properties form the core meanings of words and are always activated. Context-dependent properties are activated only by the context in which a word appears (Barsalou, 1982). Consequently, as Nagy (2000, p.66) points out 'The mental lexicon is finite, but there is no limit to the nuances of meaning that a word can take on in a context'. This diversity of possible interpretations means that a particular word denotation will only be

determinable in reference to the specific context in which the word is encountered.

Supporters of vocabulary learning from context (e.g., Schouten-van Parreren, 1989, 1992) also argue that engagement in the inferencing process promotes the retention of new vocabulary. This argument is based on the *Depth of Processing Theory* (Craik & Lockhart, 1972) and the *Theory of Traces Systems* (van Parreren, 1972 cited in Schouten-van Parreren, 1989). *Depth of Processing Theory* claims that the strength of memory traces depends on the degree of cognitive processing the stimulus has received with deeper processing leading to more durable memory traces. If target words are presented in lists or in isolated sentences with their L1 translations, the cognitive load of the learning task is relatively low and, as a result, the words are more likely to be forgotten. On the other hand, if word meanings are to be inferred from context, more mental effort must be invested, and consequently the target items are more likely to be retained. Some researchers (e.g., Cairns, Cowart & Jablon, 1981; Haastrup, 1989; Mondria & Wit-de Boer, 1991) even argue that more difficult, less-predictable contexts are more conducive to vocabulary learning as they encourage learners to use bottom-up processing strategies rather than rely on their background knowledge. In addition to the amount of mental effort, the contextual presentation of the target vocabulary is believed to promote the formation of lexical connections, and consequently facilitate the embedding of memory traces in the mental lexicon. A good retention of new words requires multiple meaningful

connections between lexical items. According to Schouten-van Parreren (1989), words in a text are already connected in meaningful ways, and the perception of these connections leads to the formation of memory traces. These connections are important as they can subsequently be used as "access roads" to retrieve particular lexical items. Therefore, words encountered in meaningful contexts are more likely to be recalled than words learned from vocabulary lists.

Finally, in addition to inferring the meanings of unfamiliar words, the contextual presentation of target vocabulary offers learners the opportunity to acquire other aspects of word knowledge and promotes the development of their reading skills. Multiple exposures to words in context enables learners to acquire features such as word form, affixation, parts of speech, collocations, appropriate grammatical patterns, as well as the concepts that lie behind the various uses (Clarke & Nation, 1980; Huckin & Coady, 1999; Hunt & Beglar, 2005; Nation, 2001; Ponniah, 2011). Lexical guessing from context also allows readers to continue reading without interruption, and to focus their mental resources on anticipating the upcoming discourse, making and confirming predictions, recognizing textual redundancy, and consequently improving their overall reading efficiency (Clarke & Nation, 1980; Kern, 1989).

In short, the number of low-frequency words to be learned, the assumed parallels with L1 development, the context-specific meaning of lexical items, the potentially higher retention rates and the

qualitatively better lexical knowledge, as well as the anticipated improvement in overall reading skills, are common assertions used to argue in favour of vocabulary expansion through inferencing from context.

Concerns about lexical inferencing as a vocabulary learning strategy in L2

Although the idea of acquiring L2 vocabulary naturally, through exposure to meaningful contexts, is intuitively appealing, the results of empirical research have been inconclusive. Some studies suggest that lexical inferencing is the main and preferred vocabulary learning strategy of adult L2 learners. Fraser (1999) examined lexical processing strategy use and vocabulary learning through reading of eight Francophone students of English over a period of five months. She observed that inferencing was used in 58% of the cases when learners encountered an unfamiliar word. Furthermore, the results showed that reading for comprehension facilitated incidental vocabulary learning. Paribakht and Wesche (1999) found that when learners encountered a new word, they resorted to inferencing from context in 80% of the cases. During this process they used both extralinguistic sources such as world knowledge, and linguistic clues such as sentence-level grammar, word morphology and punctuation. Dupuy and Krashen (1993) examined the incidental vocabulary acquisition of L2 learners of French who were asked to watch five scenes from a movie for 40 minutes, and then read the next 15 pages from the screenplay in 40 minutes. They estimated that during

that time learners gained six words on average, which suggests an acquisition rate of about .075 words per minute, or a little less than five words per hour. Parry（1993）conducted a longitudinal study of the vocabulary growth of a Japanese EFL learner enrolled at an anthropology course at an American university, and found evidence of incremental vocabulary growth through repeated exposure to selected words in the textbook. Krashen（1989）argues that lexical competence is best attained through exposure to comprehensible input in reading. Some studies（e.g., Hulstijn, 1992; Joe, 1995）suggest that although intake tends to be low, incidental vocabulary learning may occur even after a single encounter. Ponniah（2011）found that learners who acquired vocabulary incidentally were better at using the target words than learners who relied on dictionary use.

However, there is also substantial evidence suggesting that L2 vocabulary learning from context is a difficult, slow and error-prone process. Nassaji（2003）examined the relationship between learners' use of strategies and knowledge sources and their success with L2 lexical inferencing. He found the rate of success to be low, even when the learners used the resources at their disposal. Only 25.6% of the responses were correct, approximately 18.6% were classified as being partially correct, while the rate of unsuccessful inferences was as much as 55.8%. This means that more than half of the time, the students were completely wrong in their attempts to guess the meanings of unknown words from the context.

The retention of word meanings is another issue of concern. Even if a learner succeeds in inferring a word meaning correctly, it does not mean that the word will be remembered. Empirical data do suggest that guessing word meaning from context may be less effective than other vocabulary learning strategies such as translation, keyword techniques or dictionary use. Hulstijn, Hollander and Greidanus (1996) noted that when the surrounding context was comprehensible, learners often failed to retain new words even when they appeared several times in the text. Horst, Cobb and Meara (1998) found that low-intermediate learners acquired, on average, five out of 45 target words after reading a 21,231-word Graded Reader. This means that if a student read 50 novels a year, which few but the most motivated will ever do, the gains would amount to 250 words per year, which is too slow for the needs of most learners. Laufer and Shmueli (1997) observed that words presented in lists were always retained better than words embedded in context. In short, as Sternberg (1987) pointed out, although most vocabulary may be learned from context, this does not imply that learning from context is "…the fastest or most efficient way of learning specific vocabulary"(p.94).

One reason for the differences in the findings may be the diversity of study designs employed in the experimental research. To begin with, the definition of context varied from study to study. While some studies used single sentences (e.g., Laufer & Shmueli, 1997), others used whole books (e.g., Saragi, Nation & Meister, 1978; Horst et al., 1998). Some studies (e.g., Dupuy & Krashen, 1993) did not include

the delayed testing of vocabulary retention, which may have led to overestimating the actual amount of learning that took place. In order not to alert learners to vocabulary, some studies did not pre-test students' initial vocabulary knowledge of the target words (e.g., Dupuy & Krashen, 1993; Nagy et al., 1985). In some experiments, the participants were specifically asked to derive word meanings from context, which may have led to overestimating the amount of learning during natural reading, when readers may choose to skip unknown words (e.g., Freebody & Anderson, 1993; Shefelbine, 1990). Some studies (e.g., Jenkins, Stein & Wysocki, 1984) also used contexts that were more informative than those typically encountered in authentic texts. Finally, the studies also differed in the strictness of the criteria employed at the learning assessment stage. While some studies required learners to demonstrate a fairly complete semantic representation of a word (e.g., Huckin & Bloch, 2002), others gave recognition for partial word knowledge (e.g., Williams & Morris, 2004).

In addition to the study design, the difficulties in interpretation of the results are multiplied by the complexity of the reading process, and by a number of factors that may influence the accuracy of the inferencing process and vocabulary retention rates. Some of these factors concern text or word characteristics, some concern the nature of the tasks and the amount of exposure, while others tend to be learner variables.

Text features

Although it is generally assumed that L1 vocabulary is mostly learned

from context, the success of the inferencing process will often depend on the features of a particular text. Research from L1 showed that guessing word meanings from authentic texts can be challenging, even for native speakers. Freebody and Anderson (1981) observed that middle school children often shifted their attention away from the sentences that contained unknown words and reconstructed the passages based on their partial memory and general knowledge. Schatz and Baldwin (1986) found that high school students frequently failed to guess unknown words correctly, while Herman, Anderson, Pearson and Nagy (1987) observed that the explicitness of context clues had a stronger impact on incidental vocabulary acquisition in L1 than the students' reading ability.

If lexical inferencing is difficult for native speakers, for L2 learners, who generally have a smaller vocabulary size, the quality of text features is even more important. Paribakht and Wesche (1999) argue that text characteristics such as the topic, informational content and genre have an effect on both learners' motivation and their success in guessing word meanings. Thematic knowledge gives students confidence, while topics on which they do not have background knowledge, tend to have a demotivating effect.

The perceived level of text difficulty is another factor. When learners see the texts as being easy, they are more inclined to ignore any unknown words (Haastrup, 1989; Mondria & Wit-de Boer, 1991. Paribakht and Wesche (1999) found that learners

ignored approximately half of the words they identified as unknown because they did not perceive them as being important, either for the completion of a comprehension task or their communicative ability in general. On the other hand, texts that are perceived as being too difficult have a frustrating effect on the learners, and sometimes make them abandon the inferencing task. It is unlikely that those items that learners choose to ignore or abandon in input will become intake.

The richness and distribution of contextual clues also have a role to play. As Deighton (1959) shrewdly observed in one of the earliest studies of lexical inferencing from context, context may *determine* the meaning of an unknown word, but it does not necessarily *reveal* it. Only a small percentage of contexts are truly informative about the meaning of words. As a result, there is a high probability of error during the inferencing process.

Webb (2008) argues that the quality of context is more important than the number of encounters learners have with a word. Uninformative or misleading contexts not only do not contribute to word learning, but may actually lead to the loss of previously acquired knowledge. Carnine et al. (1984) found that for readers to be able to take advantage of contextual clues, they must be explicit and close to the unknown word. This is particularly important for less skilled readers who often lack the ability to integrate information from different sources.

The length of the passage may also have a role to play. The accuracy rate of students' guesses was found to decrease as passages got longer, and the number of unfamiliar words increased (Carnine et al., 1984).

Word characteristics

Intrinsic word properties such as part of speech or orthographic form were also found to have an effect on the difficulty of lexical inferencing. Verbs and nouns typically enter into a wider range of semantic relations than do adjectives or adverbs, and therefore they are usually easier to guess (Liu & Nation, 1985). Experimental evidence also suggests that verbs and nouns are acquired differently, with verbs being more difficult to process and learn (Gentner, 1981; Gentner & France, 1988; Kersten & Earles, 2004; Wochna, 2012). Wochna (2012) compared the incidental learning of nouns and verbs using eye tracking technology, and found that readers devoted more attention to contextual information when the novel word was a verb. Furthermore, while exposure to multiple contexts facilitated the retention of nouns, it interfered with the acquisition of verbs. The differences were attributed to the different semantics of verbs and nouns. Noun semantics tend to be cohesive and stable across contexts. Therefore, seeing a novel noun in two different contexts facilitated its retention. On the other hand, verb semantics are less internally dense, and more context dependent. Longer reading times for verbs were seen as a reflection of the readers' efforts to establish the relational structure from which verb meanings can be abstracted. Seeing a novel verb in

multiple contexts made the inferencing process more difficult because the readers had to combine meaning components from different relational frameworks.

The orthographic form of the word was also found to play a role in incidental vocabulary learning. Formal resemblance between a novel word and a known word was identified as one of the main causes of error in lexical inferencing from context（Bensoussan & Laufer, 1984; Laufer & Sim, 1985; Nassaji, 2003）. Learners' responses are often motivated by formal similarity between the unknown word and a word they are familiar with, sometimes resulting in extensive misinterpretation of the context to make it fit the erroneous guess.

Task characteristics

There is also some evidence that the task that learners are asked to complete influences the saliency of lexical items in the text, which in turn affects learning outcomes. For example, Paribakht and Wesche（1999）found that learners attended to more words when they had to summarize a text than when they had to answer specific comprehension questions. The authors also argued that the summarizing task involved a higher level of mental processing as it prompted the learners to read the text more carefully, and use some of the target words in their output. Comprehension task design was also found to have a different effect on the acquisition of different parts of speech. Comprehension question prompted learners to infer the meaning of verbs, while a summary task led to a higher percentage of

inferences for adjectives.

The amount of exposure

Experimental research is inconclusive with regard to the effect that word frequency has on incidental learning. While some studies (e.g., Brown, 1993) suggest that the overall frequency with which the word occurs in the language is a better predictor of incidental vocabulary learning than the number of occurrences in the specific texts that learners have read, the findings of other studies (e.g., Horst et al., 1998) do not indicate that frequency in the language is a relevant factor. Horst et al. (1998) also argue that, for consistent incidental learning, words needs to be repeated eight times or more. With five repetitions or less, there is a significant variation in word retention rates. Rott (1999) suggests that six encounters may be sufficient to learn the meaning of new words from contexts. Waring and Takaki (2003) argue that incidental vocabulary learning requires a minimum of eight encounters, and sometimes as many as 20 encounters may be needed. In a carefully controlled study, Webb (2007) examined gains in vocabulary knowledge after 1, 3, 7 and 10 encounters. Ten tests were used to measure the different aspects of word knowledge such as orthography, association, grammatical function, syntax, meaning and form. He found that each repetition had a positive effect on at least one aspect of word knowledge, but that more than ten repetitions may be needed for learners to develop full knowledge of new L2 words. The number of encounters was found to have a stronger effect on the knowledge of word form than word meaning, for which contextual

richness was identified as a determining factor.

Language proficiency

The learners' linguistic proficiency is an important factor that influences their ability to infer word meanings from context. Weaker students are often more comfortable with strategies such as translation, where one-to-one correspondence between L1 and L2 items is established, than with the formation of more complex and less salient links that emerge from the inferencing process (Prince, 1996). Such learners find it difficult to integrate information from different sources, and tend to cling to one clue that has attracted their attention, without ever reconsidering the plausibility of their hypothesis or modifying their guesses, which often results in a misinterpretation of word meanings (Schouten-van Parreren, 1989).

Vocabulary size

Learners' vocabulary size was also found to have a very strong effect on text comprehension (Laufer, 1989; 1992) and consequently the amount of incidental vocabulary learning that is likely to take place. Data from experimental research suggest that, for successful inferencing to occur, learners must be familiar with at least 95% of the running words in the text, which requires a knowledge of approximately 3,000 word families (Liu & Nation, 1985). A more recent study by Laufer and Ravenhorst-Kalovski (2010) suggests that a lexical coverage of 95% may require knowledge of 4,000～5,000 word families. The optimal ratio of unknown to running words is thought

to be 1 in 50, or 98% text coverage (Nation, 2001). To attain this level of comprehension with automatic recognition of core vocabulary, learners need to have knowledge of at least 5,000 word families (Coady, 1997). Laufer and Ravenhorst-Kalovski (2010) argue that the threshold may be as high as 8,000 word families. For languages other than English the estimates were even higher. Hazenberg and Hulstijn (1996) concluded that, in order to follow first-year university courses, L2 speakers of Dutch must have knowledge of at least 10,000 words. Learners who have a larger vocabulary size also tend to have higher rates of incidental learning (Horst et al., 1998; Stanovich, 1986). Even a very small number of unfamiliar words may interfere with text comprehension. As Marks, Doctorow and Wittrock (1974) point out "⋯unfamiliarity with low frequency words, perhaps with only one such word in a sentence, may render meaningless an entire sentence, which may, in turn, inhibit comprehension of the meaning of subsequent sentences in the same passage" (p.262). While the proportion of unfamiliar words can be controlled in EFL materials, the number of unknown words in authentic materials will often be higher than 2% or even 5%, making inferencing from context a difficult and error-prone process.

Strategy knowledge

Experimental data suggest that incidental vocabulary learning in L2 depends on the learners' knowledge of word-guessing strategies. For the inferencing process to be successful, readers must have sufficient experience in using contextual clues. However, experimental

data show that the ability to use contextual clues efficiently is not automatic, and that even in L1, language users benefit from strategy training (Carnine et al., 1984). Data from L2 also confirm that learners vary immensely in the range and patterns of knowledge sources they draw on during the inferencing process (Paribakht & Wesche, 1999).

Clarke and Nation (1980) outlined a five-step procedure for guessing vocabulary from context. The procedure begins with learners identifying the grammatical class of the unknown word. The next step is the analysis of the function that the unknown word has in the particular clause or sentence. In step three, learners look at the relationship between the clause or sentence containing the unknown word, and other sentences in a paragraph or text as a whole. Step four is guessing the meaning of the new word. The final step is a verification of the guesses. This involves confirming that the guessed word is the same part of speech as the word in the passage, replacing the unknown word with the guess and checking the meaningfulness of the text and, if possible, breaking the unknown word into its prefix, root and suffix. Learners may also look up the word in a dictionary to check whether or not their guess is correct. Clarke and Nation (1980) warn against the perils of learners relying on word parts too much, and guessing too early, before they have sufficiently examined the immediate and the wider context of the unknown word. Both analyzing word parts and consulting a dictionary are used for a confirmation or extension of what has been learned from the context, not for interpreting word meanings. In order to reduce the number of

erroneous guesses, the authors recommend that each step is practiced separately before being combined into a strategy.

Learners' beliefs and attitudes

In addition to linguistic proficiency and vocabulary size, learners' beliefs and attitudes can have a strong impact on their strategy use. Some research (e.g., Sautermeister, 1989, qtd. in Prince, 1996, p.479) suggest that learners often find it difficult to relinquish strategies that they adopted at early stages of the learning process. Furthermore, not all learners seem to share the conviction that learning from context is the best way to increase L2 vocabulary size. Paribakht and Wesche (1999) reported that although inferencing from context was the most common strategy that learners used to deal with unknown words in the text, none of the participants in their study felt that the reading and comprehension activities that they had completed were an effective way of improving their vocabulary knowledge. All interviewees seemed to share the belief that vocabulary learning involved more than interpreting the meanings of unfamiliar words in context.

Furthermore, the amount of time and cognitive effort that inferencing requires is also a deterrent for some learners. Looking for the clues in a text, making, verifying and possibly modifying the hypotheses can be a tedious process, especially considering the number of unknown words that a learner is likely to encounter in the texts. Taking into account a high possibility of error and relatively low probability of

the word being retained, it is easy to understand why many learners are reluctant to apply this strategy outside the classroom practice sessions, despite the support it may be getting from cognitive theories of learning.

Summary

In short, although intuitively attractive, seeing incidental learning as a primary source of L2 vocabulary knowledge is an unviable proposition. While exposure may lead to some improvement, it is unrealistic to expect significant vocabulary gains to occur as a by-product of the learner's engagement with comprehension-based reading or listening activities. Knowledge gains observed in those studies in which students were encouraged to guess unknown words from edited passages purposely enriched with contextual clues, do not take into account the difficulties that are likely to be encountered during real-life reading or learners' natural behaviour. Furthermore, even when contextual support is available, it does not mean that learners will know how to take advantage of it, or even want to engage in the inferencing process. Text features, task characteristics, intrinsic word properties and learner variables are all factors that influence which words learners choose to attend to, the level of mental effort they invest in the inferencing process, and consequently the learning outcomes. This makes incidental learning from context essentially unpredictable. Finally, a distinction must be made between *comprehending vocabulary in context* and *acquiring L2 vocabulary*. A single-context presentation concerns only one of many possible

meanings of the word and only some aspects of this one word's meaning. This means that vocabulary growth from context, like other forms of vocabulary learning, is a gradual process which requires multiple encounters with the target words. Considering that lexical inferencing has been advocated as a strategy for dealing with low-frequency words, which by definition are not encountered very often, relying on incidental learning via guessing from context as the main source of vocabulary acquisition, seems unrealistic and impractical.

However, the limitations of the inferencing method do not imply that there is no place for incidental vocabulary learning in second language acquisition. Context can be a rich source of information, and guessing vocabulary from context is a useful and trainable skill. Failing to help learners take advantage of this would be a misguided course of action damaging to their learning process. Yet, effective vocabulary instruction requires recognizing the advantages and disadvantages of different approaches, so that they can be used critically and with realistic expectations. The next section will propose a framework for L2 vocabulary instruction by which explicit teaching and learning from context are seen as complementary activities at all levels of proficiency, with a gradual shift from teacher-directed to self-regulated learning.

Pedagogical implications

As the review above has shown, learning vocabulary from context has

both potential and limitations. Although small sets of words can be taught effectively through direct vocabulary instruction, this method is not realistic for long-term vocabulary growth with thousands of new words to be acquired. Even the best-designed vocabulary course with the most dedicated teacher and highly-motivated learners would not be able to provide such learners with anywhere near the vocabulary size that they need to read authentic L2 texts smoothly. On the other hand, assuming that students' vocabulary will grow naturally once they have mastered the first 3,000 high-frequency words, and received the appropriate strategy training, is also overly optimistic and unrealistic, considering the number of variables involved.

The position of this paper is that, unlike in the case of L1, for L2 learners who live outside the target language communities, vocabulary acquisition remains essentially an *explicit* learning process. This assumption is not meant to suggest that context does not play any role in L2 vocabulary acquisition. Surely some learning can occur incidentally, but considering the limited language exposure, the gains are likely to be small and unpredictable. Nor does approaching L2 vocabulary acquisition as an *explicit* learning process imply that teachers should try to teach more words during class time. The vocabulary of any language consists of hundreds of thousands of words, and even the most carefully-designed vocabulary teaching course would not be able to cover more than a small fraction. The present paper defines the *explicitness* of L2 vocabulary acquisition from the perspective of the role the learner should assume during

the learning process. L2 lexical proficiency will not be achieved if learning is confined to classroom instruction, regardless of whether or not it revolves around explicit item teaching or strategy training. The development of L2 lexical competence requires learners to systematically plan, implement and monitor their learning process. L2 vocabulary learning is *explicit* because sustained vocabulary growth requires an *explicit learning intention*, regardless of whether or not the target words are presented in isolation or are encountered in a listening or reading context. Inferring unknown word meanings from context requires selective attention to new vocabulary, and hypothesis formation and verification, all of which are conscious cognitive operations (Rieder, 2003). L2 vocabulary learning is *explicit* because learners must *make a conscious effort* to commit lexical information to memory. This conscious effort is crucial for meaning inference to become meaning acquisition. As Rieder (2003) observes, in natural reading, guessing word meaning from context is the learners' attempt to fill in the gap in their mental representation of the text meaning. However, for the meaning to be retained, learners' attention must shift from the text level to the word level, so that the newly acquired knowledge can be integrated into existing knowledge structures, and the form-meaning connection can be consolidated. Finally, L2 vocabulary learning is *explicit* because learners *must create an environment conducive to their vocabulary development*. Achieving proficiency in L2 requires long-term commitment, and if they are to succeed, learners must take control of their learning. This means that they must be able to set their learning goals as well as select

appropriate strategies to achieve them.

Teachers can support learners' development in three different ways:
1) by drawing learners' attention to vocabulary and providing a systematic, explicit vocabulary instruction for students at all proficiency levels;
2) by providing appropriate strategy training;
3) by increasing learners' motivation for language learning.

Explicit vocabulary instruction

While the mastery of high-frequency words is clearly a prerequisite for language development, there is no reason to assume that students cannot benefit from explicit vocabulary instruction beyond the 3,000 word-level. As Folse (2004) points out "…no vocabulary strategy or training is a substitute for knowing vocabulary" (p.99). A substantial body of research (e.g., Laufer & Shmueli, 1997; Wesche & Paribakht, 1994; Prince, 1996) suggests that for specific sets of words, explicit instruction is more effective than guessing word meanings from context. Therefore, direct, systematic vocabulary instruction should remain an integral component of EFL courses at all levels of proficiency. Teachers should continue to draw learners' attention to vocabulary, provide good examples of usage, select or develop the appropriate practice activities, and include vocabulary in the assessment process to give students a further incentive to work on the target words.

Strategy training

In addition to explicit vocabulary instruction, it is important that learners receive appropriate strategy training, so that they can learn more effectively and more efficiently. Many learners fail to make progress in their lexical development because they do not know how to learn L2 vocabulary. Evidence from experimental research shows that learners tend to overuse a limited number of less cognitively-demanding strategies such as verbal repetition (Kudo, 1999). Furthermore, even when they possess strategies, they do not always know how to apply them (O'Malley & Chamot, 1993), and sometimes their perceptions of a strategy's usefulness do not match the empirical findings (Fan, 2003). Therefore, instruction of learning strategies should not only focus on giving learners procedural knowledge, but also help them understand the importance of strategy use, the range of strategy choices that they have, and the potential benefits and problems that the use of a particular strategy entails. Strategy training should begin early, should be comprehensive, and should include a rationale for strategy use.

In order to be able to use a variety of strategies appropriately, learners need to understand why they are doing what they are doing, and how it can benefit their learning. Effective use of vocabulary learning strategies requires an understanding of the different aspects of word knowledge and of the cognitive principles that underlie vocabulary learning. Unfortunately, this kind of knowledge is rarely shared with the learners. While the question 'What does it mean

to know a word?' commonly appears in teacher training courses and manuals, different aspects of word knowledge are hardly ever explicitly discussed in EFL materials. Learners are expected to complete various activities that 'experts' (i.e. teachers or material writers) deem useful, without ever receiving any explanation as to why these activities have to be undertaken, or how they can facilitate their learning.

While the cognitive maturity of the learners must be taken into account, there is no reason why some of the research findings could not be shared with the students in a jargon-free manner. For example, we know that knowing a word involves more than remembering its meaning and its spoken and written forms. Why do not we share that information with the learners explicitly, as opposed to just having them work on the activities that supposedly help them deepen their knowledge of particular sets of words? We know that attention to input is a prerequisite for learning (Schmidt, 1990). Why do not we make learners aware of that fact? We know that repetition is essential for learning, and that spaced repetition leads to better results (Baddeley, 1990). Why do not we include this information in EFL textbooks? Understanding the principles of language learning can help learners set their goals and engage in activities that can facilitate their learning.

From the very beginning, learners should be made to understand that there is no one single magical way that can help them master

L2 vocabulary, and that different strategies serve different purposes. Strategies for learning the meaning of a new word will be different from those that can help consolidate the meanings of the words that have already been encountered.

It is also important that students see explicit learning and guessing from context as two complementary strategies rather than successive approaches where inferencing replaces direct learning as students' proficiency levels increase. Therefore, practice with guessing vocabulary from context should begin as early as possible. Just as explicit vocabulary instruction should not end with acquisition of high frequency words, there is no reason to delay strategy training until these words have been mastered. As discussed earlier, research suggests that guessing word meaning from context requires an understanding of at least 95% of the words in the text. If materials are carefully graded, and vocabulary use is controlled, lexical inferencing may be possible even when learners have a vocabulary size of just a few hundred words.

For learning from context to take place, learners must be able to identify useful phrases in the text and direct their attention to both their meaning and their linguistic form. If they do not notice vocabulary they are exposed to, learning is unlikely to occur. It is also essential that instructors make it clear to learners that just reading or listening in L2 will not help them improve their vocabulary unless they make a conscious effort to commit lexical information to memory.

Furthermore, learners need to understand which unguessable words they can ignore, and which ones they should look up in the dictionary. As the vocabulary size of most learners falls below the threshold that yields lexical coverage of 95%, which is considered the minimum level for successful inferencing from context, conditions for incidental learning are unlikely to be met in authentic texts. Therefore, guessing from context should be practiced with adapted or simplified reading. Effort should be made to clear the texts of misleading clues as they have been found to interfere with both acquisition and the consolidation of word knowledge (Webb, 2008). Learners' attention should be directed to *Graded Readers* but not with general comments such as 'reading is fun and will help you improve your English'. What is needed is an explicit discussion of how the leveled and recycled vocabulary found in *Graded Readers* can help them meet the lexical threshold for reading comprehension, and consequently increase their chances of both correct inferencing and subsequent word retention.

With regard to training procedures, intensive, systematic practice has been found to be more important than the explicit teaching of procedural steps (Carnine et al., 1984). Particular attention should be paid to wider contextual clues as they often tend to be overlooked by learners (Haynes, 1993). Failure to combine information from different contexts, or to integrate context-based and word form-based hypotheses, were identified as common causes of errors in lexical inferencing (van Parreren & Schouten-van Parreren, 1981). Therefore, learners must learn to synthesize information from different

knowledge sources, both inside and outside the text, and monitor and, if necessary, correct their thinking process. Verification and self-inquiry were found to have a higher correlation with successful inferencing than other strategies. Self-inquiry, a process during which learners actively question the accuracy of their guesses and look for alternative solutions, was shown to be particularly effective (Nassaji, 2003).

Strategy training should also include opportunities for self and peer assessment. Teachers should set aside a portion of class time for self/peer testing of the words that learners have previously inferred from context. Test success should help learners see their progress. Difficulties in recalling word meanings or forms should raise their awareness of the importance of the systematic review of new words.

For learners to adopt a new strategy and change their learning behaviour, they must recognize the potential benefits of strategy use. The prospective change in learning practices must be linked to some kind of 'reward' such as goal fulfillment, time saving or simply having fun. In many EFL textbooks, inferencing practice activities are preceded with a warning against overdependence on a dictionary and an outline of different steps to be followed during the inferencing process. However, for most learners, the time invested in guessing meaning from context will be longer than the time needed to look up the unknown word in a dictionary. Considering the insecurity that the inferencing process entails, it is easy to see why they may be

reluctant to apply this strategy on their own. If learners are to be 'persuaded' to try to guess word meanings from context outside the classroom practice sessions, they have to be made aware that the main benefits of this strategy lie in the improvement of their reading skills, and the quality of vocabulary knowledge, rather than vocabulary size. Inferencing promotes interactive reading as it requires that the reader makes predictions, identifies context clues, forms and verifies hypotheses (Folse, 2004). Context can also be a rich source of information about different aspects of word knowledge such as their formal properties, grammatical patterns, collocates or level of formality. However, learners should also have realistic expectations. They should understand that learning from context is a long-term, cumulative process whose main strength lies in the consolidation of word knowledge. Incidental learning of new words is possible, but it will typically require multiple encounters, and therefore the process may take a long time, with gains not being immediately detectable.

Successful strategy use also requires awareness of potential pitfalls that a particular strategy entails. In case of guessing word meaning from context, confusion of word forms has been identified as one of the main causes of erroneous guessing (Bensoussan & Laufer, 1984; Laufer & Sim, 1985; Nassaji, 2003) and learners should be warned about this danger.

In short, for training to be effective, strategies must be taught and practiced in such a way that learners perceive them as both familiar

and rewarding. Learners should be introduced to a large number of strategies that can help them acquire different aspects of word knowledge. The training should not focus only on the procedural aspects of different strategies, but also make learners aware why certain strategies should be employed, so that they can make informed choices about their use, and eventually take control of their learning. With regard to lexical guessing from context, an open discussion of the benefits and potential pitfalls of the method should help learners develop realistic expectations about the nature of the knowledge that can be acquired, which in turn should help them manage their learning more effectively.

Enhancing learners' motivation

The third, and possibly the most important factor in learners' vocabulary and overall language development is motivation. Language learning is a long-term process that requires the sustained investment of time and effort outside the classroom. The more motivated learners are, the more likely they are to adopt practices conducive to their L2 development, including vocabulary expansion.

Learners' motivation may sometimes be instrumental, that is, it may be linked to some specific academic or career goal, or a desire to please people around them. Teachers can promote this type of motivation by encouraging students to consider the benefits that English may bring them in the future. They can also be invited to reflect on their ideal future-self, and imagine how to they are going

to achieve it（Thorner, 2017）. One of the limitations of instrumental motivation lies in its utilitarian character. Once the learner has reached the desired goal（e.g., entering a university or obtaining a certain level on the language proficiency test）, he or she may cease to make further efforts towards language improvement. For this reason, intrinsic motivation（i.e. motivation that is driven by internal rewards）is considered more effective for language learning. Learners who study a language because of their interest are more likely to engage in a variety of learning activities and put in the required self-sustaining effort（Thorner, 2017）.

While teachers cannot make all students fall in love with languages, they can strive to create an environment that will help them discover pleasure in learning, and give them a sense of achievement, which may eventually spark their intrinsic motivation.

To begin with, class activities should be carefully staged so that learners are aware of their progress. If the students feel they cannot complete a task, they are likely to lose enthusiasm. When it comes to guessing from context, this can be achieved by having learners record the number of words they were able to infer correctly, the number or type of context clues they were able to identify, or the number of words they inferred correctly and were later able to recall. Improvements in skill performance can be an incentive for learners to use the strategy again, and overall, make them more committed to learning.

Content-based instruction can be particularly useful for both sustaining learners' motivation and for the expansion of their lexical knowledge. Courses that focus on a particular subject matter are more likely to cover topics of interest to the students. If students find the context stimulating, they will be more likely to read the texts carefully, which should have a positive effect on both the acquisition of new words and the consolidation of existing lexical knowledge. Furthermore, if the topics are connected to the students' field of expertise, background knowledge can also support the inferencing process. Another advantage of content-based instruction is that topics are more likely to be related, so at least some vocabulary will reoccur in the texts. Repeated occurrences of given words make them more salient for readers, increasing the probability of their retention (Paribakht & Wesche, 1997; Parry, 1993). Finally, texts used in content-based courses often contain clear discourse markers and graphical displays of information, which should also facilitate comprehension and vocabulary guessing from context.

When attitude change is a goal, affective aspects of the learning process are also important. Students' feelings about their learning situation influence how they engage in the learning process (Osland, Kolb, & Rubin, 2001). Relationships formed in the learning context can have a significant impact on motivation, and the rapport formed between students and teacher is particularly important (Dörney, 1994). While improving students' relationships with their teachers does not automatically result in better performance, students who

have close, positive and supportive relationships with their teachers tend to achieve more than students in conflicting relationships (Rimm-Kaufman & Sandilos, 2011). Teachers should praise learners for good strategy use. Research in cognitive psychology suggests that people change behaviour by evaluating their activities in response to feedback and to the level of goal fulfillment, rather than reward and punishment (Thorner, 2017). Teachers play a crucial role as assessors of the learners' progress, and therefore it is essential that learners receive feedback on their strategic performance if their behaviour is to change. This includes recognizing learners' effort, even when their answers are not correct. As Thorner (2017) points out, if students feel that their efforts are being taken seriously, the quality of their contributions is likely to increase.

Working in groups can also be beneficial. Cooperative learning was found to promote both student self-esteem and their psychological well-being (Johnson & Johnson, 1975). Some researchers (e.g., Ames, 1970) argue that lessons devoted to the use of context clues should be replaced by more frequent informal group discussions of the use of context. Students could also be asked to work in teams and try to work out the meanings of unknown words in the texts. Collaborative efforts and shared responsibility should help reduce learners' fear of failure, and lead to greater accuracy in terms of their responses. Liu and Nation (1985) argue that although individual learners may not be able to guess particular words, learners can help one another, and by working together they should be able to guess correctly the

meaning of 85% to 100% of unknown words in the text. If the task is set as a competition between the teams, the game-like nature of the activity could also have a positive effect on their motivation and task engagement level.

Conclusion

In many vocabulary teaching manuals and professional development courses, inferencing vocabulary from context is presented as a sufficient strategy to take care of the lexical needs of learners who have acquired the minimum lexical knowledge base. However, as this review has shown, the amount of incidental learning that can be expected in L2 contexts may have been overestimated. Giving learners strategy training and exposing them to rich context may not be sufficient to ensure their sustained vocabulary growth. Due to learners' limited exposure and small vocabulary size, lexical information that can be acquired from context will be limited and sometimes erroneous. Furthermore, the possibility of learners retaining the meaning of new words after one or even several exposures is low. Sustained vocabulary growth requires explicit attention to vocabulary at all levels of proficiency, and reading activities should be complemented with vocabulary reinforcement practice so that the words encountered in texts are retained.

However, learners should also receive systematic and comprehensive strategy training. Building vocabulary in a foreign language will

inevitably require independent learning, and in order to help learners to maximize the returns on the time and effort they invest, the training should begin early and go beyond a mere description of the procedures, to include the theoretical motivation behind the strategy use. Independent strategy use requires more than knowledge of procedural steps. Learners need to be aware of multiple aspects of word knowledge, and have an understanding of the general principles of cognition and language, so that they can regulate their learning effectively.

Finally, teachers should strive to show learners the pleasure of language learning, so that they have not only the skills but also the motivation to engage in self-directed learning. Success with foreign language learning depends, to a large extent, on the learners' willingness to devote their time to learning. As Vygotski (1986) observed more than 80 years ago, the learning process cannot be influenced directly, but rather by making changes to the actions of the learners. Therefore, the ultimate goal of strategy training should be to teach learners how to learn vocabulary. Outside the target language communities, L2 vocabulary acquisition is essentially an explicit learning process, but this does not mean that teachers have to 'stand and deliver' all the knowledge. Explicit learning is necessary but it should be learner-regulated. There will always be a limit to what teachers can do; independent learning knows no boundaries.

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