On the Incidental Learning of Abstract and Concrete Vocabulary Items in L1 Gloss and L2 Gloss

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Abstract

This paper strives to examine the short term/long term retention of abstract versus concrete vocabulary; and intends to investigate the effectiveness of teaching abstract and concrete vocabulary incidentally through marginal glosses presented in L1 and L2. 72 EFL learners at Imam Khomeini International University participated in this study. Their proficiency level was determined by a Proficiency Test. 10 participants were excluded from the study, and the remaining 62 were mostly at upper-intermediate level. The participants read two reading comprehension passages of approximately the same length and difficulty and answered six comprehension questions following each passage. In each passage, the difficult vocabulary items were glossed marginally so that the participants would incidentally notice them to gain a better understanding of the passage. In one passage, marginal glosses were provided in L1 while in the other the glosses were in L2. Then, the participants were tested for their recall of 15 abstract and concrete words in each passage. After a two week interval, they were requested to demonstrate their understanding of the glossed words in the passages. The paper presents a detailed analysis of the results and concludes with findings and implications.

Key words: incidental vocabulary learning, abstract and concrete words, L1 gloss, L2 gloss

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1. Introduction

It is an agreed-upon fact among students, teachers, materials writers, and researchers that learning vocabulary is a critical part of mastering a second language. However, according to de Groot (2006), the best means of achieving good vocabulary learning is still unclear partly because it depends on a wide variety of factors. Therefore, it is perhaps not surprising that learners and teachers have often been uncertain of the best method to follow, especially as textbooks and syllabuses have normally lacked clear descriptions and guidelines.

Burling (1983) maintains that vocabulary is the step-child of modern foreign language pedagogy. Readers are bewildered between three unhappy choices. If they resist looking up words they may not get the meaning, and their command of vocabulary expands but very slowly. On the other hand, if they look up most unknown words but make little or no conscious attempt to memorize their meaning, they may understand what they are reading, but they do not enjoy reading and their vocabulary still expands discouragingly. Finally, if they memorize a large number of the words they look up, they suffer even more since they must make a choice between bad and worse, spending tedious time with the dictionary or memorizing. Soon, they begin to feel it would be more useful and surely more pleasant, to read more and memorize less.

Krashen (1989) maintains that learning a language without vocabulary is impossible. As a matter of fact, the importance of vocabulary in learning and understanding the second language is not unknown. The controversy is on the teachability and more specifically on the way through which vocabulary should be learned and taught. Even though some language teachers maintain that vocabulary does not need to be actively taught, many studies support the fact that learning new words requires tremendous endeavor (Miller & Gildea, 1987; Nation, 1990). In fact, language learners themselves agree that many of their difficulties in both receptive and productive use of language are caused by their inadequate vocabulary knowledge (Meara, 1980; Nation, 1990).

There are many different methods of teaching and learning vocabulary. Schmitt (2008) summarizes the methods and their effectiveness in Table 1.

Table 1
Relative Effectiveness of Vocabulary Learning Methods

The more effective task	The less effective task	Study
Meaning selected from several options	Meaning explained by synonym	Hulstijn 1992
Meaning looked up in a dictionary	Reading with/ without guessing	Knight 1994; Luppescu & Day 199
Meaning looked up in a dictionary	Meaning provided in a marginal gloss	Hulstijn *et al.* 1996
Meaning negotiated	Meaning not negotiated	Newton 1995
Negotiated input	Premodified input	Ellis *et al.* 1994
Used in original sentences	Used in non-original sentences	Joe 1995, 1998
Used in a composition (Ll-L2 look up)	Encountered in a reading task (L2-L1 look up)	Hulstijn and Trompetter 1998
Interactionally modified output	Interactionally modified input	Ellis & He 1999
Reading and a series of vocabulary exercises	Reading only (and inferring meaning)	Paribakht & Wesche 1997
Reading, words looked up in a dictionary	Reading only, words not looked up	Cho & Krashen 199₄

The present study aims to examine the effectiveness of learning abstract and concrete vocabulary items incidentally through marginal glosses presented in L1 and L2. Attempt is also made to investigate the difference in the long term vs. short-term retention of abstract versus concrete vocabulary in L1 gloss and L2 gloss.

There are two theoretical frameworks for this study. The first one is Hulstijn and Laufer's (2001) Involvement Load Hypothesis. Hulstijn and Laufer's basic contention was that "the retention of unfamiliar words is, generally, conditional upon the degree of involvement in processing these words" (p. 545). They suggest that involvement for vocabulary learning consists of three components: need, search, and evaluation. Need is the requirement for a linguistic feature to achieve some desired task, such as needing to know a particular word to understand a passage or using a word in a sentence that the teacher has asked for. Search is the attempt made to find the required information, for example, looking up the meaning of that word in a dictionary or trying to find the L2 translation of an L1 word.

Evaluation entails a comparison of the word, or information about a word, with the context of use to determine whether it fits or is the best choice. For example, when the word looked up is a homonym (e.g., bank of a river, or bank as a financial institution), a decision has to be made about its meaning by comparing all its possible meanings against the context and choosing the one that is the best choice. They maintain that tasks with relatively more need, search, and evaluation elements are more effective.

The other theoretical framework is Schmidt's (1990) noticing hypothesis. He posits that forms have to be noticed to be further processed. According to Schmidt' hypothesis it can be claimed that noticing leads to better comprehension of the text and learning of the target vocabulary.

2. Literature Review

As the topic requires, the review section should summarize findings of the studies related to issues such as the differences between incidental versus intentional vocabulary learning, L1 versus L2 vocabulary learning, abstract versus concrete vocabulary, and long-term versus short-term vocabulary retention.

2.1 Incidental versus Intentional Vocabulary Learning

First of all, the distinction between incidental and intentional vocabulary learning should be sketched. Incidental learning is defined as accidental learning of information without the intention of remembering that information (Hulstjin, 1989). Richards and Schmidt (2002, p. 252) define incidental learning as "learning something without the intention to learn it or learning something while intending to learn another, for example, unintentionally picking up vocabulary, patterns, or spelling through interaction, communicative activities, or reading for content or pleasure." Along the same lines, intentional vocabulary learning is defined by Richards and Schmidt as "learning by following a deliberate program of study to enhance vocabulary or grammar." (p. 252)

It is suggested that most of the words students know are not learned through intentional word-learning activities. That is, many words must have been 'picked up' during listening and reading while students' attention is not directly focused on learning vocabulary rather to get the meaning of what is heard or read (Hulstijn, Hollander, & Greidanus, 1996). However, Schmitt (2008) maintains that vocabulary learning programs need to include both an explicit, intentional learning component and an incidental learning component based on maximizing exposure. To realize this, Nation (2001) puts forward a structure to combine intentional and incidental vocabulary learning. Schmitt (2008) believes that

intentional and incidental vocabulary learning approaches are not only complementary, but positively require each other. Nation (2001) suggests four components for vocabulary learning: meaning-focused input, meaning-focused output, language focused learning, and fluency development.

Hulstijn, Hollander, and Greidanus (1996) investigated the effectiveness of incidental vocabulary learning under one of the three conditions: marginal glosses, dictionary use, or control. Overall, they found support for the first condition. In their study, the marginal glosses group outperformed the other groups. They argued that maybe this is because participants in the dictionary group only looked up 12 percent of the target words. They contended, however, that when participants in the dictionary group did look up a target word, they were more likely to remember its meaning than the marginal glosses group. They also found support for the effectiveness of the frequency of occurrence of the target words. They argued that the frequency of occurrence significantly influenced the retention of exact word meanings. They also found that marginal glosses group enjoyed the frequency of occurrence more than the other two groups. This was because they were the only students who had access to the exact meanings with certainty.

Watanabe (1997) investigated the effects of text modification (appositives and single and multiple choice glosses) and task (translation) on incidental foreign vocabulary learning. His study did not show any difference in the effectiveness of the gloss types. However, he found that both the single and multiple choice marginal gloss conditions performed better than the appositive conditions. He further found that translation task did not promote the retention of newly learned vocabulary knowledge.

Grace (2000) investigated the effects of L1 translations on incidental vocabulary learning. She used sentence-level L1 information (translation of the sentence in which a certain target word appears) rather than word definitions or explanations. She found that the translation glosses were significantly effective in incidental vocabulary learning.

Waring and Takati (2003) investigated the rate of vocabulary retention from reading a graded reader. They concluded that incidental learning was possible but not always. They further argued incidental learning occured more likely for more frequent words. Their study revealed that only 4 percent of words would be retained after three months and none after six months. There are a number of reasons why students fail to learn the meaning of unknown words. Firstly, sometimes students may

feel that they know the words, but in fact, they do not; or they may decide to ignore them. Secondly, they may infer the meaning erroneously and as a result learn words incorrectly.

Although many aforementioned studies reviewed supported the incidental vocabulary learning, it is worth noting that they are not without problems. Laufer (2005) listed some of the problems inherent in incidental vocabulary learning that can also be regarded as strong points in intentional learning. First, learners who get the overall message often do not go for the precise meanings of individual words. Second, guessing from context is not always reliable. Furthermore, words easily guessed from context may not generate enough involvement to be learned and remembered afterwards. Finally, new words which learners have encountered in context should be met again quickly so that they are remembered.

2.2 L1 versus L2

Goral et al. (2006) in their study investigated the cross-language lexical connections and indicated that L2 words are learned through their L1 counterparts rather than through direct association to conceptual system. The Revised Hierarchical Model (RHM), developed by Kroll (1994) assumes that word forms in L2 are first learned via their translation equivalents in L1; only with increased proficiency, are stronger connections between L2 words and conceptual representations formed.

De Groot et al. (1994) maintained that translating from the more proficient language (mostly L1) to the less proficient language (mostly L2) is slower than translating to the more proficient language.

Some researchers have intended to investigate whether L1 or L2 vocabulary teaching results in better comprehension and retention. Prince (1996), for example, investigated the difference in the retention rate of L1 translation condition and L2 context condition, and found that the former produced much better results than the latter, particularly for less-proficient learners. Ramachandran and Rahim (2004) found more promising results for L1 translations compared to L2-based meanings. Laufer and Shmueli (1997) reached the same result replicating the study in another context. Lotto and de Groot (1998) found that L2–L1 word pairs led to better learning than L2-picture pairs. These studies suggest that L1 plays a significant role in L2 vocabulary learning. This is because an L1 translation is a natural vehicle for form–meaning link and facilitating the form–meaning linkage through L1 translation may allow more cognitive resources to be focused on form (Barcroft, 2002).

Wen and Johnson (1997) argued that translation and the use of

mother tongue should be avoided by Chinese students consciously. However, Hsieh (2000) showed the superiority of learners who used translation as a useful strategy in learning foreign language vocabulary. Grace (2000) investigated the effect of L1 translation on short-term or long-term retention of foreign vocabulary. She was able to illustrate that learners in the translation group showed significantly better short-term or long-term retention than those without translation. Her findings suggested that students can take advantage of L1 translation in vocabulary learning.

Morimoto and Loewen (2007) reported that learners often make use of their L1 as an anchoring device for learning L2 words. Thus, they suggested that it is more productive to view one's L1 not as a thing to be avoided but rather as a valuable resource in learning L2 words. But perhaps the best evidence to support L1 influence on L2 vocabulary learning stems from psycholinguistic studies, which demonstrate that the L1 is active during L2 lexical processing in both beginning and advanced learners (Hall, 2002; Jiang, 2002; Sunderman & Kroll, 2006).

2.3 Abstract versus Concrete Vocabulary

De Groot et al. (1994) conducted a study to show the differences in the translation of abstract and concrete words and argued that, as far as translation is concerned, concrete words are typically translated faster than abstract words. They reasoned that more concrete than abstract words have unique translation equivalents across the languages. As far as response times are concerned, Goral et al. (2006) found no significant difference in response times to concrete versus abstract words.

Mondria and Wit-de Boer (1991; as cited in Alavi and Kaivanpanah, 2008) considered the degree of abstractness and concreteness as a variable influencing guessing. It seems that the difference between the retention of abstract and concrete words has not been comprehensively investigated, so the need for further investigation to clarify the difference is clearly felt.

2.4 Short-Term Versus Long-Term Retention of Vocabulary

Laufer and Osimo (1991) propose some methods for long-term vocabulary retention:

   1. *Frequency of exposure*; that is, the more frequently learners are exposed to target words, the more likely they are to learn them.

   2. *Meaningful activities*; that is, the more related the tasks students are engaged in to the newly learned words, the better the retention.

   3. *Mnemonic techniques*; in which students associate the foreign

vocabulary to a keyword that sounds the same or has a similar meaning.

4. Elaborate processing of words; that is, linking the new item to other items in L2. The link can be a synonym, an antonym, or a co-hyponym. Proponents of the 'depth of processing' (Craik and Lockhart, 1972) hypothesis claim that the more cognitive effort invested into word learning, the more likely those words will be remembered in both the short- and long-term memory.

Grace (2000) investigated the effect of L1 translation on short-term and long-term retention of foreign vocabulary. No significant difference was found between short-term (immediately after the lesson) and long-term (two weeks after the lesson) retention test scores.

2.5 Glossing

One way to help learners learn new vocabulary better is to give learners definitions of the unknown words in the text. Nation (2001) believes glossing is useful for several reasons: first, more difficult texts can be read when the difficult words are glossed; second, glossing provides accurate meanings for words that might not be guessed correctly by students themselves; furthermore, it causes minimal interruption to reading – especially compared to dictionary use; and finally, it draws readers' attention to words that contribute to the acquisition process. According to Schmitt (2008) research tends to support these arguments.

Hulstijn, Hollander, and Greidanus (1996) found that L2 readers with marginal glosses learned more vocabulary than dictionary-using readers, or readers with no gloss/dictionary support. The point that needs to be considered is how and where to gloss. Research indicates that it does not matter much whether the gloss is an L2 description or an L1 translation, as long as the learner can grasp the meaning (Jacobs, Dufon, & Fong, 1994; Watanabe, 1997; Yoshii, 2006). From the research reviewed in glossing it can be suggested that there is no problem in using L1 glosses for less-proficient learners. Holley and King (1971) found that glossing in the margin, bottom of the page, or at the end of the text enjoys similar effectiveness. However, as learners seem to prefer marginal glosses over the other ones, this is probably the best place for glossing (Jacobs, Dufon, & Fong, 1994).

Hunt and Beglar (1998) proposed some principles regarding vocabulary learning:

> Principle 1: Provide opportunities for the incidental learning of vocabulary.
> Principle 2: Diagnose which of the 3000 most common words learners need to study.

Principle 3: Provide opportunities for the intentional learning of vocabulary.

Principle 4: Provide opportunities for elaborating word knowledge.

Principle 5: Provide opportunities for developing fluency with known vocabulary.

Principle 6: Experiment with guessing from context.

Principle 7: Examine different types of dictionaries and teach students how to use them.

Reviewing the recent research Schmitt (2008) added the following to the above list:

✓ Learners need large vocabularies to successfully use a second language.

✓ Vocabulary learning is a complex and gradual process, and different approaches may be appropriate at different points.

✓ At the beginning, establishing the meaning–form link is essential, and intentional learning is best for this. Using the L1 is one sensible way to quickly establish this initial link.

✓ Once this initial meaning–form link is established, it is crucial to consolidate it with repeated exposures.

✓ It is also important to begin enhancing knowledge of different aspects of word knowledge. Some of these may be usefully learned explicitly (e.g. knowledge of derivative forms), but the more 'contextualized' word knowledge aspects (e.g., collocation) are probably best learned by being exposed to the lexical item numerous times in many different contexts.

✓ Make sure that learners maintain the maximum amount of engagement possible with lexical items.

Considering the significance of the long-term retention of vocabulary, the interconnectedness of L1 and L2, the differences in concrete and abstract words, and the importance of providing marginal glosses, this study aims to investigate the long-term retention of abstract and concrete words in L1 and L2 glosses. The present study seeks to answer the following questions:

1. Is there any difference between the retention of words provided in L1 and L2 glosses?

2. Is there any difference between the retention of abstract and concrete words?

3. Method

3.1 Participants

Sixty two male and female Iranian students learning English aged 18 to 25 participated in this study. They were studying TEFL at Imam Khomeini International University. The mean score of their proficiency was 34.62 out of the total of 50 indicating that they were approximately at upper-intermediate level.

3.2 Instruments

In order to answer the research questions in this study, a Proficiency Test, two reading passages selected from Readers' Digest, and two sets of vocabulary tests for short-term and long-term retention were used.

3.3 Data Collection Procedure

Students took a 50-item proficiency test including grammar, vocabulary, and reading comprehension items. They had 50 minutes to complete it. Then, they were given two reading passages of approximately the same length and difficulty each followed by six comprehension questions. Participants were then asked to read the passages and answer the comprehension questions. They had 20 minutes to complete each passage. They were encouraged to notice the vocabulary items incidentally to gain a better understanding of the passages. In one passage abstract and concrete marginal glosses were provided in L1 while in the other the glosses were in L2. The participants were tested for their recall of 15 abstract and concrete words in each passage. Participants were asked to mark the words they had known beforehand to make sure that the items were new for them. After a two week interval, they were requested to demonstrate their understanding of the glossed words in the two passages.

4. Results and Discussion

For data analysis paired-samples t-test was conducted in order to show the differences between the retention of words provided in L1 and L2 glosses and the retention of abstract and concrete words.

To answer the first research question, whether there is any difference between the retention of words provided in L1 and L2 glosses, a paired-samples t-test was conducted. There was a statistically significant difference between the participants' performance in L1 gloss (M= 36.02, SD= 7.23) and L2 gloss (M= 39.67, SD= 6.28) in the short-term test, $t_{(61)}=$ 3.60, $p < 0.005$. The eta squared statistic (0.18) indicated a large effect size (Cohen, 1988). The results are shown in Table 2. This shows that students

learn more vocabulary incidentally in L2. This is contrary to the previous research showing no difference between L1 and L2 glosses (Chen, 2002; Jacobs et al., 1994). However, it is in concert with the findings of Miyasako (2002) who revealed the advantage of L2 gloss over L1 gloss.

However, in the long-term retention test there was no difference between the retention of words glossed in L1 or L2. This is again in contrast with the previous research (Yoshii, 2006), since he found significant difference between the two types.

Table 2
T-Test Results for L1 and L2 Glosses

		t	*df*	*Sig. (2-tailed)*
Pair 1	L1 short-term - L2 short-term	-3.608	61	.001
Pair 2	L1 long-term - L2 long-term	-1.717	61	.091

Figure 1 shows the differences between the long-term versus short-term retention of vocabulary presented in L1 and L2 glosses graphically.
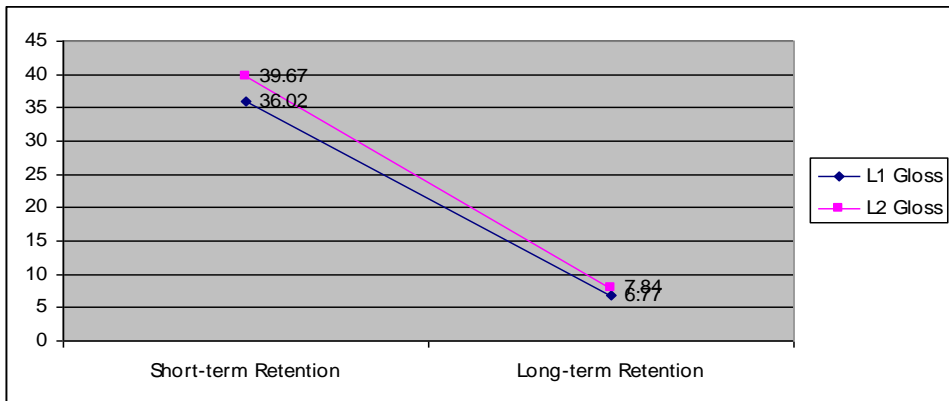

Figure 1. Differences between the long-term short-term retention of L1and L2 glosses

To answer the second research question, whether there is any difference between the retention of abstract and concrete words, a paired-samples t-test was conducted.

The results of the data analysis for the short-term retention showed a statistically significant difference between the retention of abstract words

(M= 34.42, SD= 6.4) and concrete words (M= 40.09, SD= 6.8 $\underline{t}$(61)= 6.30, p＜0.0005). In the case of the long-term retention, there was also a significant difference observed between the abstract vocabulary (M= 6.25, SD= 3.02) and concrete vocabulary (M= 8.75, SD= 3.08 $\underline{t}_{(61)}$= 2.81, p＜0.006). The eta squared statistic in short term test (0.80) and long-term test (0.11) indicated a large effect size. The results are shown in Table 3. The findings of this study indicated that students learned and retained concrete words better than abstract ones.

Table 3

T-Test Results for Abstract and Concrete Vocabulary

		t	*df*	*Sig. (2-tailed)*
Pair 1	abstract short-term- concrete short-term	-6.307	61	.000
Pair 2	abstract long-term - concrete long-term	-2.819	61	.006

Since the difference between the retention of abstract and concrete words has not been comprehensively investigated, there seems to be no rejection or approving of the previous research. However, it is in harmony with some research findings attaching more difficulty to translation of abstract words compared to that of concrete ones.

Figure 2 shows the differences between the long-term short-term retention of abstract and concrete words graphically.
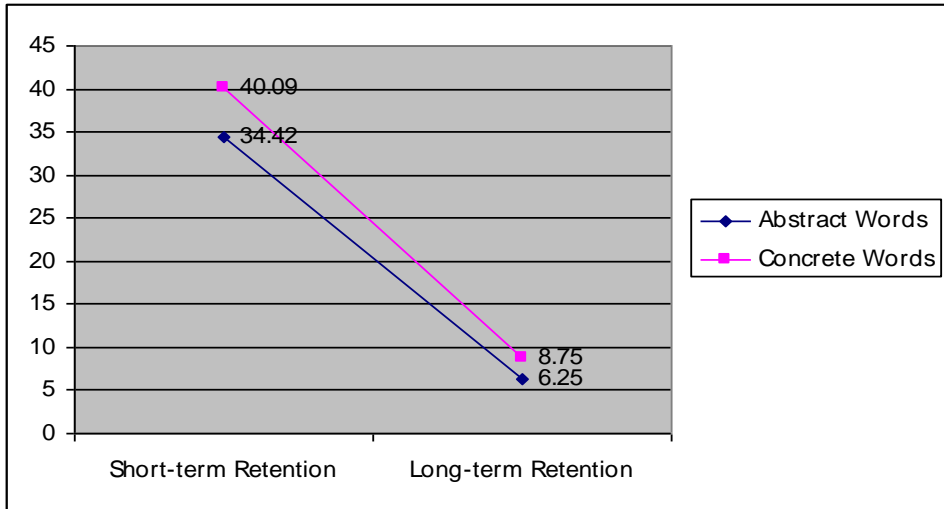

Figure 2. Differences between the long-term short-term retention of abstract and concrete vocabulary.

Overall, in the short-term test students' retention of the words was on average 72 percent, but this dropped to 16 percent in the long-term test.

5. Conclusion and Implications

Two research questions were investigated in this study and the answers to them were provided. Research question one dealt with the difference between the retention of words in L1 and L2 glosses. Contrary to the previous findings, this study found a significant difference between participants' performance in L1 gloss and L2 gloss and argued that students' success in learning vocabulary incidentally in L2 outweighed their success in L1. The second research question investigated the difference between the retention of abstract and concrete words. The results of the data analysis in both short-term and long-term tests showed a statistically significant difference between the retention of abstract versus concrete words. The findings showed that it is easier for students to learn and retain concrete words better than abstract ones. Maybe this is because concrete words have more unique translation equivalents across languages as de Groot et al. (1994) argue.

The findings of the study indicate that students learn more vocabulary incidentally in L2 compared to L1. The advantage of L2 gloss over L1 gloss shows that more emphasis should be put on providing L2 definitions in English classes. As it is evident from the findings of this study, students learn and retain concrete words better than abstract ones. This difference should be taken into consideration in vocabulary learning contexts. It is further suggested that concrete words be taught in earlier stages of learning and teaching abstract words should not be started until learners have developed a command of English vocabulary.

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