

Impact of Meaning-Inferred Method vs. Marginal Glosses on Improving L2 Lexical Short-term and Long-term Retention of Intermediate EFL Learners

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Abstract

It is becoming increasingly difficult to ignore the pivotal role of L2 words in language teaching and learning. Current research conducted in the field of second language learning has revealed that vocabulary learning techniques have an important role in learners' ability of producing meaningful output in L2 communicative encounters. Accordingly, the present study sought to investigate the impact of meaning-inferred method and marginal glosses on improving L2 lexical short-term and long-term retention of word meanings by intermediate EFL learners. 63 EFL learners at the intermediate level were selected based on convenient sampling method. A pre-test was administered to ensure that the learners did not know the target words. Based on the results, 13 students were eliminated from the study because they were familiar with some of the target words. Subsequently, 50 homogenous students were assigned to two experimental groups. While students in the first group were asked to infer the meaning of words through guessing, the latter group received meanings of words in marginal glosses. Finally, the same pre-test was utilized as the post-test which was followed by a delayed post-test to assess the efficacy of the targeted independent variables on vocabulary retention. The analysis of the data by applying a repeated measure ANOVA and the related post hoc comparisons indicated that learners benefitting from inferred-meaning method demonstrated significantly greater retention of words.

Keywords: marginal glosses, meaning-inferred method, lexical long-term retention, lexical short-term retention

INTRODUCTION

Learning and teaching vocabulary might seem cumbersome for both L2 learners and teachers. Widdowson (1989) believed that lexis is where we need to start from. There are various strategies that can be utilized by learners to decipher meaning of new words. These strategies vary from direct intentional learning to contextual incidental learning. Superiority of these approaches is under question.

In recent years, there has been an increasing interest in meaning-inferred method for learning vocabulary. This method is based on “Depth of Processing Hypothesis” proposed by Craik and Lockhart in 1972. They claimed that deeper engagement with words leads to better retention. Inferring refers to guessing from contexts by using some clues such as, linguistic context and situational context. Linguistic context is the environment of a word within a text, and situational context includes background knowledge of context.

Moreover, a considerable amount of literature has been published on marginal glosses (Hong, 2010; Yoshii, 2006). Glosses are vocabulary guide. They facilitate comprehension by offering additional information (Yee, 2010). Glossing is advantageous because it hinders incorrect guessing. Parry (1993) indicated that teaching vocabulary is very time consuming, and it is not logical to spend precious time on guessing and inferring. Furthermore, there is a consensus among researchers that glossing minimizes interruptions resulting from looking up words in an external source such as dictionaries.

Weber (2008) concluded that linguistic experience plays a major role in lexical recognition. Recognition involves a cognitive mechanism of information processing. One of the key components of recognition is attention which has three dimensions including alertness, orientation, and detection. It has conclusively been shown that short-term memory is the fundamental criterion in word recognition system.

One of the recurring questions regarding vocabulary acquisition is whether learning methods lead to long-term retention. Lexical retention helps learners to recall words’ meaning over a certain time span. The ultimate goal of learning lexis is retrieving easily when we want to use them.

Although the efficacy of glossing is proved by many researchers (e.g., Nation, 2001), the findings of this study will help to compare effectiveness of different methods on lexical acquisition. This paper attempts to provide more detailed investigations regarding the effect of marginal glosses and meaning-inferred method on L2 lexical short-term and long-term retention.

LITERATURE REVIEW

Vocabulary is not only confined to the meaning, but also it deals with its structure, storage mechanism, and the relationship between words and phrases. To achieve this goal, different methods such as, marginal glossing and meaning-inferred method have been investigated to see their impact on long and short retention.

Scmitt (1997) noted that there are at least 58 methods for vocabulary acquisition. One of these strategies is meaning-inferred method. This can be done through guessing from context. External sources are not available in this method, but social strategies will facilitate inferring meaning. It provides the possibility for learners to ask their teachers or classmates for more information. Nassaji (2004) identifies inferring as one of the fundamental cognitive processes. He claimed that meaning of unknown words can be

inferred by using linguistic and non-linguistic clues in the text. His definition is closely related to incidental vocabulary acquisition which is contextualized vocabulary learning.

Nagy (1997) provided an in-depth analysis of meaning-inferred method. He classified it into three main components: (a) linguistic knowledge, (b) world knowledge, and (c) strategic knowledge. Linguistic knowledge refers to learners' syntactic knowledge and lexical knowledge. Specific ways used by learners to understand related domains of knowledge is world knowledge. Strategic knowledge is based on preferred ways employed by learners when they encounter an unknown word.

According to Hee Ko (2005), glosses are defined as information given on important lexis. There are various types of glossing, including single textual gloss, interactive multiple choices, multimedia gloss, and multi-mode gloss. Textual glosses are brief definition given for unknown words. Interactive multiple choices provide different definitions for a single unknown word; it is up to the learner to decide which one is true. Multimedia gloss refers to computer-based application of information (Salem, 2006). Multi-mode gloss refers to linked-data associated with graphics, audios, and videos in computerized texts.

The efficacy of above mentioned gloss types are under question. It is believed that textual glosses facilitate general comprehension and increase input comprehensibility. Ko (2005) demonstrated that interactive multiple choice involves students in deeper processing and demands greater mental effort.

Generally speaking, Hee Ko listed several advantages of glossing including (a) preventing learners from incorrect guessing, (b) minimizing interruptions resulting from use of external source, (c) making a meaningful relation between prior knowledge and new information, and (d) increasing learners' autonomy in lexical acquisition. Yoshii (2006) believed that glosses are effective, but gloss types or conditions must be examined. The above findings contradict the study by Hulstijn (2001). He claimed that inferred meanings are more likely to be retained than meaning provided by glosses.

Short-term capacity is an important factor in vocabulary acquisition. With regards to vocabulary knowledge, there is a link between phonological short memory and vocabulary development. According to Pimseluer's graduated interval recall hypothesis acquired vocabulary stored in short memory might fade away without reinforcement. Many studies show the positive effect of glossing on short-term retention of vocabulary.

Moreover, many researchers investigate Involvement Load Hypothesis proposed by Laufer and Hulstijn in 2001. Accordingly, long-term retention demands some general cognitive operations, i.e., depth of processing and elaboration. Depth of processing and elaboration indicates that retention of new information in long-term memory is not determined by the duration of time, but rather, shallowness of processing is crucial. This is consistent with meta-analysis of Huang (2007), which showed that learners with a higher extent of involvement load retain more L2 vocabulary.

A considerable amount of literature has been published on efficacy of marginal glosses and meaning inferred method on L2 vocabulary retention. Zhang (2007) showed that learners benefit from glossing in various ways. Hulstijn (1992) claimed that glosses facilitate learners' vocabulary growth. However, glossing has been criticized by some scholars. Hultijn (2001) indicated the superiority of meaning inferred method to glossing.

In 2012, Ko conducted a study to investigate different types of glosses on L2 vocabulary retention. Participants were assigned to three groups: L1 gloss, L2 gloss, and no gloss. Two immediate and delayed post-tests were administered. The results indicated that there was significant difference between experimental group which were provided with glosses and control group which didn't receive any glossing on immediate post-test. However, no significant difference was observed among them on delayed post-test.

Yanguas (2009) studied the impact of multimedia gloss on incidental vocabulary acquisition. The participants were assigned to four groups: textual, pictorial, textual and pictorial, and control. Results indicated that all three experimental groups outperformed control group in immediate vocabulary post-test. Rott (2002) investigated the effectiveness of multiple choices glossing over no gloss condition. He concluded that learners provided with multiple choice glossing outperformed no gloss group.

Cheng and Good (2009) investigated the effect of glosses on vocabulary acquisition. They investigated three kinds of glossing: first language in-text glosses, first language marginal glosses, and no gloss condition. Their findings reveal that participants provided with in-text and marginal glosses outperformed better than control group. However, glossing conditions didn't facilitate learners' reading comprehension.

Huang (2008) compared the efficacy of meaning-inferred and meaning-given glosses on lexical acquisition. Their subject pool included 175 students in Taiwan. Accordingly, both methods were effective on lexical acquisition. However, meaning-inferred gloss was considered more influential.

It appears from the aforementioned studies that numerous investigations have been conducted to analyze different types of glosses. However, few attempts were made to compare the efficacy of meaning-inferred method to glossing. Moreover, most of the studies in open literature did not simultaneously examine the effect of glossing and meaning-inferred method on both short-term and long-term retention.

Therefore, this paper attempted to provide more detailed investigations regarding the effects of glossing and meaning-inferred method on lexical retention. Furthermore, efficacy of these methods on both short-term and long-term memory was examined. This paper seeks to address the following questions:

1. Is there a significant difference between marginal glossing and meaning-inferred method regarding lexical short-term retention?

2. Is there a significant difference between marginal glossing and meaning-inferred method regarding lexical long-term retention?

To be on a safe side, the following null hypotheses were proposed:

H₀: There is no significant difference between glossing and meaning-inferred method on lexical short-term retention.

H₀: There is no significant difference between glossing and meaning-inferred method on lexical long-term retention.

METHODOLOGY

Participants

The subject pool consisted of 63 Iranian intermediate EFL learners both male and female in Nami institute, Isfahan, Iran. 13 of them were eliminated from the study because they were familiar with some target words. The average age of participants was 24, ranging from 17 to 31. 50 homogeneous participants were divided to two groups (each 25). Participants in the first group were asked to employ meaning-inferred method which was elaborated to them before, and participants in the latter group were asked to use marginal glosses for reading comprehension.

Instruments

A reading passage from the third edition of Saslow and Ascher's book "Top Notch" was selected with 20 highlighted unknown words. The book was beyond the learners' current level to be sure that they were unfamiliar with target words and the text. Two formats of the reading were prepared: (a) a reading with highlighted new words and provided marginal glosses on the right and (b) a reading with highlighted new words without any marginal glosses. A vocabulary test including 20 multiple choices was designed to measure learners' short- term and long-term retention.

Data collection Procedures

To accomplish the purpose of the study, the following procedures were carried on:

A total number of 63 intermediate EFL learners were participated in the study. First, a vocabulary test including target words were given to them. As a result, 13 of them were eliminated because they had already known the meaning of words. Second, 50 remained participants were divided into two groups including, marginal glosses and meaning-inferred method. Time allocation for both groups was 40 minutes. The students who were provided with marginal glosses were asked to read the text and use glosses for better reading comprehension. On the other hand, the other group employed meaning-inferred method. They did not have any chances to use external sources such as dictionary or glosses. A thorough explanation was given by the teacher to enable them to guess the unknown words by using textual clues. Moreover, they were provided with opportunity to interact with their peers or teacher for more information. Right after

finishing the reading comprehension, an immediate post-test was given to both groups in order to understand the effect of their employed strategies on short-term lexical retention. The same post-test was administered with a week interval as a delayed post-test to analyze the effect of strategies on long-term lexical retention.

RESULTS

The study set out to investigate the impact of meaning-inferred method and marginal glosses on short-term and long-term retention. In order to analyze obtained data, Shapiro-Wilk test was utilized to check whether samples come from a normally distributed population. Moreover, Levene's test was used to assess the equality of variances for variables.

Table 1. Tests of Normality

	Group	Shapiro-Wilk		
		Statistic	df	Sig.
Immediate post test	Marginal glosses	.946	25	.209
	Meaning inferred	.936	25	.121
Delayed post test	Marginal glosses	.940	25	.144
	Meaning inferred	.975	25	.779

Table 2. Levene's Test of Equality of Error Variances

	F	df1	df2	Sig.
Immediate post test	3.892	1	48	.054
Delayed post test	.830	1	48	.367

It is apparent from tables that p-value is more than 0.05 ($P > 0.05$), so the null hypothesis that the population is normally distributed was not rejected.

Table 3 provides standard deviations and means for both marginal glossing and meaning-inferred groups (immediate and delayed post-test).

Table 3. Descriptive Statistics

	group	Mean	Std. Deviation	N
Immediate post test	Marginal glosses	15.04	1.99	25
	Meaning inferred	15.68	1.41	25
Delayed post test	Marginal glosses	12.64	2.71	25
	Meaning inferred	15.12	1.99	25

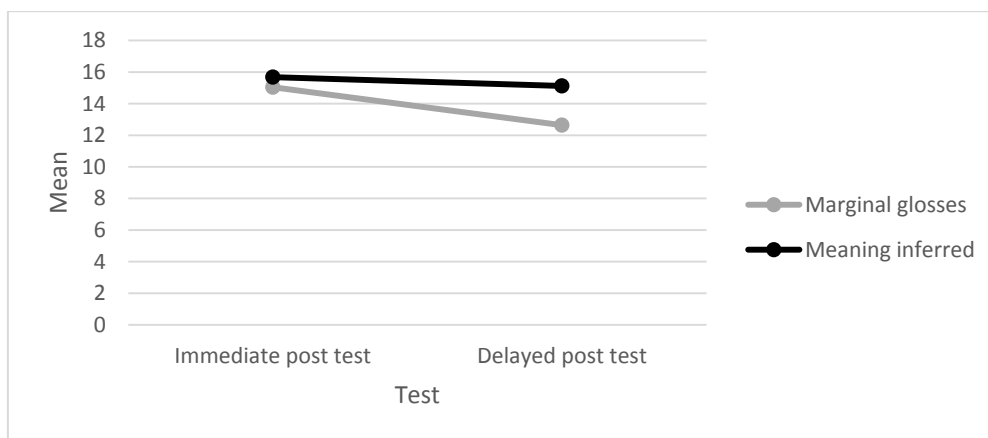


Figure 1. The means of the groups on vocabulary tests

To see whether there is an interaction effect, repeated measure ANOVA was utilized. The findings are summarized in Table 4.

Table 4. Repeated Measure ANOVA for Marginal glosses and Meaning-inferred Group

Source	SS	df	MS	F	p	ηp^2
Within-group						
Test	54.757	1	54.757	26.799	<.001	.358
Group*Test	21.162	1	21.162	10.357	.002	.177
Error	98.077	48	2.043			
Between-group						
Group	60.843	1	60.843	9.280	.004	.162
Error	314.718	48	6.557			

Table 4 revealed that the result of Test*group is significant, $F(1, 48) = 10.357, p < 0.05$, so there is an interaction effect, and across two tests the effect of the group is changing. Moreover, the result of main effect of Test is meaningful, $F(1, 48) = 26.799, p < .001, \eta p^2 = .36$. Also, There is significant main effect in “Group”, $F(1, 48) = 9.280, p < .05, \eta p^2 = .16$. Since the interaction effect is significant, LSD post hoc test conducted to compare scores between group in each test and between two tests in each group.

Table 5. Results of Post hoc Test; Comparison between Tests in each Group

Group	(I) time	(J) time	Mean Difference (I-J)	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Marginal glosses	post	delayed	2.40	<.001	1.587	3.213
Meaning inferred	post	delayed	.560	.172	-.253	1.373

According to Table 5, means of scores in immediate post test was significantly more than means of scores in delayed post-test for marginal glossing group ($P < 0.05$). However, no significant difference was observed between immediate and delayed post tests for meaning-inferred method.

Table 6. Results of post hoc Test; Comparison between Groups in each Test

Group	(I) time	(J) time	Mean Difference (I-J)	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Posttest	Marginal glosses	Meaning inferred	-.640	.195	-1.620	.340
Delayed test	Marginal glosses	Meaning inferred	-2.480	.001	-3.830	-1.130

According to Table 6, no significant difference was observed between marginal glossing group and meaning-inferred group on immediate post test ($P > 0.05$). However, the difference between marginal glossing and inferred-meaning group on delayed post test was significant ($p < 0.05$).

DISCUSSION AND CONCLUSION

To address the first research question which aimed to investigate the efficacy of marginal glossing and meaning-inferred method on lexical short-term retention, descriptive statistics, repeated measure ANOVA, and post hoc comparison were employed. The mean scores of immediate post test was a criterion to determine which group outperformed regarding short term retention. As Table 1 shows, the mean scores of marginal glossing group was 15.4 and mean scores of meaning-inferred group was 15.68. Accordingly, the first hypothesis is not rejected because the difference in efficacy of each method is not meaningful.

The result is contrary to the study done by Nation (2001). He claimed that glossing has superiority to meaning-inferred method. He found 98% coverage of known words in the reading materials was optimal in order for successful guessing. In other words, too many unknown words in a given text are likely to affect guessing from context.

To address the second research question which tended to determine the efficacy of marginal glossing and meaning-inferred method on lexical long-term retention, descriptive statistics, repeated measure ANOVA, and post hoc comparison were utilized. The mean scores of marginal glossing group on delayed post test was 12.64, and the mean scores of meaning-inferred group on the same delayed post test was 15.12. Moreover, findings of repeated measure ANOVA and post hoc comparison indicated that meaning-inferred group outperformed significantly on delayed post test comparing the marginal glossing group ($p < 0.05$).

This is consistent with by Hulstijn's (2001) study which reveals that inferred meanings are more likely to retain than meaning provided by glosses. Lin and Huang (2008) added that meaning inferred method is more influential on lexical acquisition.

Taken together, analysis of the computed results shows that both marginal glossing and meaning inferred method affect lexical short-term retention positively. Surprisingly, no significant difference was observed between two groups regarding lexical short-term retention.

The second major finding was that the impact of marginal glosses and meaning-inferred method on lexical long-term retention is significantly different. Obtained results indicated that participants employed inferring method performed relatively the same on both immediate and delayed post test. In other words, they did not experience any forgetting. However, participants in marginal glossing group forgot many words during a week interval between immediate post test and delayed post test. All in all, meaning-inferred method leads to better long-term retention. The evidence from this study suggests that the more mental effort consumed in learning L2 vocabularies the lengthier retention will be achieved.

Substantial pedagogical implications stem from the present study. For example, teachers should get familiar with various types of strategy employed in L2 vocabulary acquisition. Considering the point that using external sources such as dictionaries or marginal glosses may facilitate L2 lexical growth, but it does not always lead to long-term retention is crucial. Material developers and EFL teachers should seek ways to facilitate inferring and guessing meaning of unknown words.

The current study has some sets of problems and limitations. First, this study was concerned with intermediate EFL learners. It can be replicable for other proficiency levels as well. Second, using immediate and delayed post test was the only mean to analyze short and long term retention. However, it is possible to investigate the efficacy of variables by using other recognition tasks. Also, the present study was only concerned with L2 lexical retention through reading skill. Other skills including, writing, speaking, and listening could be studied for further research.

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