



The effects of accessing L1 versus L2 definitional glosses on L2 learners' reading comprehension and vocabulary learning

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Abstract

This study was conducted to investigate the effects of different types of glosses and no-gloss condition on second language vocabulary learning. There were totally 81 high school students involved in the study, and they were randomly divided into three groups: L1-gloss group, L2-gloss group, and No-gloss group. These three groups were subjected to three main tests: reading comprehension test, immediate vocabulary test, and delayed vocabulary test. They were also asked to complete a student opinion questionnaire to examine their opinions about the use of the glosses and the types of glosses. In order to find out the differences in these test scores for three different groups, a one-way between-groups ANOVA with planned comparisons and a mixed between-within ANOVA were conducted. Secondly, word retention was tested by looking at the difference in the number of words gained between immediate vocabulary test and delayed vocabulary test again through the same mixed between-within ANOVA. Results indicated that there was a significant difference between glossed and no gloss groups on each test. For each condition, L1 gloss group had the highest mean score followed by L2 gloss group. It was also found that there was a significant decrease in the scores for each gloss condition after a two-week time interval. The results of the student opinion questionnaire revealed that students prefer glosses in reading texts by mostly favouring L1 glosses over L2 glosses.

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1. Introduction

Vocabulary learning is one of the most important elements in second language acquisition. There are different techniques to promote vocabulary learning, and glossing is one of them. Glossing is a technique used to enhance comprehension in reading and acquire new vocabulary items by providing L2 explanation or L1 translation (Bowles, 2004; Nation, 2001; Pak, 1986). If the words are presented in important parts of the text, they are likely to be noticed. Teachers can increase the chance of a word being noticed by “pre-teaching, highlighting the word in the text such as using underlining, italics or bold letters, and glossing the word” (Nation, 2001). The major effect of glossing thereby is consciousness raising which will make

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the word more salient the next time it is met (Gass, 1988). In this way, drawing attention to new words can increase the chances of them being learned (Nation, 2001).

Glossing is one type of input modification. Input modification is a pedagogical intervention in which a teacher manipulates a target form to help learners acquire the form. By providing additional information such as definitions or synonyms, glossing helps students cope with insufficient contextual cues in learning new words while reading. (Ko, 2012, p. 57).

According to Holley and King (1971) and Watanabe (1997), glossing is helpful in reading comprehension and vocabulary acquisition because students complete certain phases when provided with glosses in a reading activity: first input, second input, and third input phases.

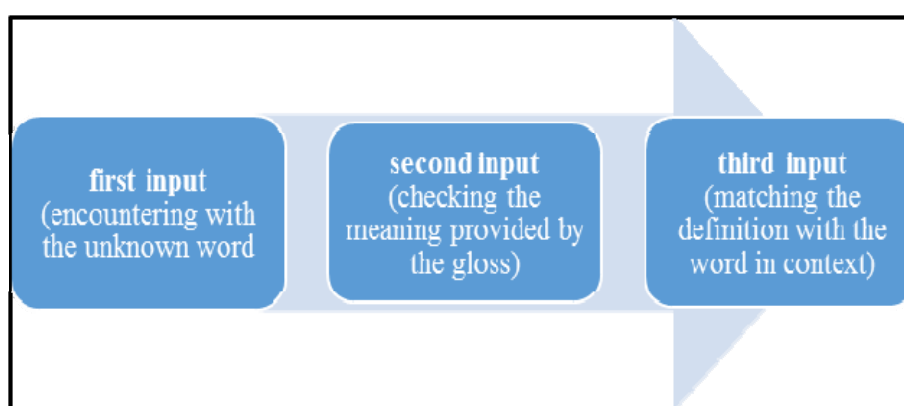


Figure 1. Phase of practice when using glosses (based on the original source by Watanabe, 1997)

In the first input phase, students encounter with the unknown word, they check the meaning provided by the gloss in the second input phase, and lastly in the third input phase, they match the definition with the word in context. By following these phases, vocabulary items in the glossary get “repeated attention” (Watanabe, 1997). During these three phases, the word is kept in short term memory. “Glossing could thus be a useful way of bringing words to learners’ attention. Glossing helps learning” (Watanabe, 1997, p. 287).

There are four main types of glosses in terms of the way they are presented: marginal, at-the-bottom-of-the-page, in-text, and pop-up glosses. Marginal glosses appear in the margin on the same line with the glossed words. Some glosses are in the format of a list including definitions or synonyms for each vocabulary item at the bottom of the page. They can be presented in the order of appearance in the text or alphabetically. In-text glosses are the ones appearing next to the target vocabulary item and presented in the text. Alternatively, pop-up glosses are used in computer-based environment as attached to the target word, and they can be seen when clicked on. There are a good number of studies investigating effectiveness of gloss places. For example, Holley and King (1971) found no difference between glosses in the margin, at the foot of the page, and at the end of the text while Jacobs, Dufoni, and Hong

(1994) found that learners expressed a clear preference for marginal glosses. An equally significant aspect of glossing was studied by AbuSeileek (2008) who investigated four types of locations in paper-based and computer-based glosses: at the end of the text, in the margin, at the bottom of the screen, and in a pop-up window. It was found that learners' preferences are marginal glosses, and they performed better in reading comprehension when provided with marginal glosses.

Glossing has been studied in various contexts like how glosses are presented (AbuSeileek, 2008; Cheng & Good, 2009; Morrison, 2004; Yao, 2006; Yeung, 1999), how the information is presented in glosses –definitional or grammatical- (Erçetin, 2003; Sakar & Erçetin, 2005), types of glosses (Gettys, Imhof, & Kautz, 2001; Grace, 1998; Nagata, 1999; Watanabe, 1997; Yeung, 1999), the effect of L1 and L2 glosses (Jacobs et al., 1994; Laufer & Hill, 2000; Ko, 2012; Yoshii, 2006), and students' attitudes towards glosses (Ko, 2012).

Many studies have attempted to investigate gloss use and gloss types, but there are still controversial ideas about the effectiveness of glosses or which type of gloss to use. Furthermore, although there are a good number of studies in various L2 contexts, it was observed that there is a need for an investigation on glosses within the context of Turkish L2 learners of English. With these concerns, the present study aims to contribute to the existing literature by investigating on the contexts of gloss types, the effect of L1 and L2 glosses, and students' attitudes towards glosses.

2. Review of Literature

Teachers should carefully think about two major situations before teaching the unknown word: (1) *Should time be spent on it?* and (2) *How should the word be dealt with?* If the aim of the lesson is vocabulary learning, and if the word is a high frequency word, it may be necessary to spend time on teaching it. However, if the conditions are different, teachers can benefit from other strategies like glossing. When students encounter with low frequency words in a reading passage, it may be difficult for them to guess the meaning of the word if they do not use it in everyday life. Reading process is interrupted when students look up the words or ask teacher/peer for the meaning. Moreover, it can be burdensome for teachers to spend time on teaching these vocabulary items. At this point, Nation (1990) suggests using glosses on the grounds that that they help learners by assisting comprehension, they prevent distraction, and they are practical in terms of increasing the quality and quantity of teaching and learning. Besides, glosses create a chance to use unsimplified and unadapted texts by providing accurate meanings for words that may not be guessed correctly (Nation, 2001). In their study, Erçetin (2003) and Sakar and Erçetin (2005) note that learners find glosses motivational and helpful because reading activities are more manageable thanks to practicality of the glosses. So that L2 learners could have a higher quality and quantity of L2 production, vocabulary learning and reading

comprehension can be enhanced by using glosses as a way of ‘easification’ (Bhatia, 1983).

On the other hand, some studies claim that glosses may have a negative effect on text comprehension by interrupting the reading flow (Johnson, 1982), and use of glosses may prevent students from inferring the meaning by decreasing their interaction with learning process (Mondria, 2003). Notwithstanding these limitations, most of the studies report on the benefits of glosses (Hulstijn, Hollander, & Greidanus, 1996; Jacobs et al., 1994; Myong, 1995; Watanabe, 1997). For example, reading texts elaborated with glosses are recalled more in comparison with texts without glosses (Davis, 1989; Jacobs, 1994), and incidental vocabulary learning is more effective with glossed texts (Hulstijn et al., 1996; Watanabe, 1997). By the same token, Vela (2015) summarizes the justifications for using glosses by stating that reading process can continue without distraction thanks to glosses, they prevent wrong guessing by providing definitions, and both teachers and learners can benefit from the classroom time in a fruitful way because glosses are practical and time-saving. However, for texts without glosses, the possibility of misunderstanding may be a problem if students cannot infer the correct meaning. Hulstijn (1992) calls this wrong inference situation as ‘unlearning’ and suggests fixing it by using glosses to aid students to understand the text properly by avoiding random guesses.

For Lyman-Hager and Davis (1996), various results on the effectiveness of glossing may be due to authenticity of the reading material. They claim that glossing may be more helpful for authentic texts while modified texts do not need it. Bland, Noblitt, Armington, and Gay (1990) argue for a developmental relationship between proficiency level and the effects of glossing. They found that learners with high L2 proficiency preferred L2 glosses instead of L1 glosses. Likewise, Ko (2005) reported that L2 glossing was significantly more effective only when students were at a high L2 proficiency level. Furthermore, Yeung (1999) observed that low proficiency learners benefited more from in-text glosses, while marginal glosses were more effective for high proficiency learners.

There is also, however, a further point to be considered. The studies on the effectiveness of L1 and L2 glosses either indicated no difference (Cheng & Good, 2009; Jacobs et al., 1994) or had better results with one gloss type over another (Jacobs, 1991; Luo, 1993). For example, Jacobs et al. (1994) compared the immediate and delayed effects of L1-gloss (English), L2-gloss (Spanish), and no-gloss on vocabulary learning. They observed a significant immediate effect of glosses with no difference between L1 and L2 gloss conditions. However, the advantage of glossing was not significant over time. In another study, Laufer and Hill (2000) compared the effects of L1 translation, L2 explanation, and L1 translation + L2 explanation on word retention with 72 university students from Israel and Hong Kong. The study demonstrated that while there was no significant difference between glossing types for Israeli students, word retention was higher with L2 explanation for students from Hong Kong. Similarly, Yoshii (2006), in a study conducted with 195 Japanese

university students, did not observe significant differences between L1 gloss and L2 gloss conditions in terms of their immediate and delayed effects on vocabulary learning. On the other hand, Myong (1995) found that L1 glosses resulted in better vocabulary learning but did not differ from L2 glosses in their effect on comprehension. In a similar study, Laufer and Shmueli (1997) found that L1 glosses are superior to L2 glosses in both short-term and long-term (5 weeks) retention and irrespective of whether the words are learned in lists, sentences, or texts. In order to clarify the issue about the effects of different glossing types, Nation (2001) states: “It seems that the first requirement of a gloss is that it should be understood. The choice between L1 and L2 does not seem to be critical as long as the glosses are clear”.

Each of these studies makes an important contribution to our understanding of the effects of glossing. However, further investigation comparing gloss types must be conducted since studies up to now have not been able to build consensus on the effects of glossing, and the number of such kind of studies is quite limited. By taking these into account, an experimental study was designed to investigate the effects of different types of glosses and no-gloss condition on second language vocabulary learning and reading comprehension by also examining learners’ opinions about the use of the glosses and the types of glosses. With these aims, the current study tries to find answers to the following questions:

1. Does access to glosses facilitate reading comprehension? If yes, is there a difference between L1 and L2 glosses in terms of their effects on reading comprehension?
2. What are the immediate and delayed effects of exposure to L1 and L2 glosses compared to no gloss condition on vocabulary learning?
3. What are participants’ opinions about the use of glosses and different types of glosses?

3. Methodology

3.1. Participants

The study was carried out at a state Anatolian high school in Ankara with 10th year students. Participants were homogeneous in terms of their proficiency, grade level, and age. All of them had received 6 years of English language education with limited hours of instruction at primary and secondary schools. At the time of data collection, their exposure to English was 4 hours a week with no exposure outside school. Their level of English proficiency was A2 (as reported by the school administration based on Common European Framework), and materials were prepared in parallel with this proficiency level and pilot study. A total of 86 students participated in the study. Five students participated in the pilot study, and the other 81 students were randomly assigned to three groups: L1-gloss group ($N = 28$), L2-gloss group ($N = 28$), and No-gloss group ($N = 25$).

3.2. Materials

The first step of material preparation was to choose a reading text with the help of the course instructor. By taking participants' proficiency level (A2) into consideration, a text called "Fox-Hunting" from *Solutions, A2, Students' Book* (Falla & Davies, 2012) was chosen with some additions according to the students' level of proficiency. It was thought that choosing an unfamiliar topic for the reading text would decrease the possibility of guessing the meanings with background knowledge. The text included 285 words with 67.8 reading ease and 7.2 readability level measured by Flesch-Kincaid readability scale indicating that the text is appropriate for the proficiency level of the participants.

With a pilot study, five participants were asked to read the text and underline the unknown words, and they were interviewed about the readability and comprehensibility of the text. A total of 16 words were chosen based on the underlined words in the pilot study, and necessary changes were done. Next, the reading text was adapted into three forms: a text with L1 gloss, a text with L2 gloss, and a text with no gloss. Target words were bold-faced, and they were listed in the order of appearance in the text at the bottom of the page with meanings in L1 or L2 in glossed texts.

A reading comprehension test was prepared in multiple choice form. It included ten questions, each with three distractors and one right answer. Before implementing it, the reading comprehension test was controlled by an expert in the field of assessment and evaluation, and some distractors were changed. The students were told that they were supposed to read the passage and answer the questions on the reading comprehension test.

A vocabulary test was prepared to be administered immediately and 15 days after the treatment. The test included 16 multiple choice questions with three distractors and one right answer assessing the meaning of each vocabulary item. The same test was used for the delayed post-test by changing the places of questions and multiple choice options. With the expert opinion from the field of assessment and evaluation, some questions were revised and refined. The students were not informed about the immediate and delayed vocabulary tests beforehand in order to prevent the attempts of memorizing the meanings.

A student opinion questionnaire was designed to investigate learners' opinions about the use of the glosses and the types of glosses. They were asked whether they would prefer gloss or no-gloss conditions in reading texts, and its reason. With a second question, they were asked which language they would prefer for gloss: Turkish or English. For L1 and L2 gloss conditions, two questions about how they read the text and how frequent they checked the gloss were added to student opinion questionnaire.

3.3. Procedures for data collection

Each gloss group had a different layout for the reading passage. For example, L1-gloss group was provided with a list of the bold-faced vocabulary items with Turkish meanings. The time allocated for this phase was 25 mins, and students were not allowed to use dictionary. The purpose of giving these two activities together was to provide an aim for the activity and to make students focus on the reading passage while answering the reading comprehension questions.

After participants finished the reading activity, an unannounced vocabulary test (immediate vocabulary post-test) was administered. The time allocated for this activity was 12 mins. The aim of this phase was to test participants' vocabulary learning based on word meaning. They were supposed to choose the right word to fill in the blanks in a context designed in multiple choice form. Following the immediate post-test, a student opinion questionnaire was given to find out participants' preferences for glossing and gloss types. As the last phase of the study, a delayed vocabulary post-test was implemented 15 days later without announcing students about it. It was the redesigned form of the immediate vocabulary test, and it was made sure that participants were not exposed to those vocabulary items during this period. The purpose of the delayed post-test was to test word retention by exploring how many vocabulary items participants remember after two-week period of time. The procedures followed for this experimental study are demonstrated in Figure 2:

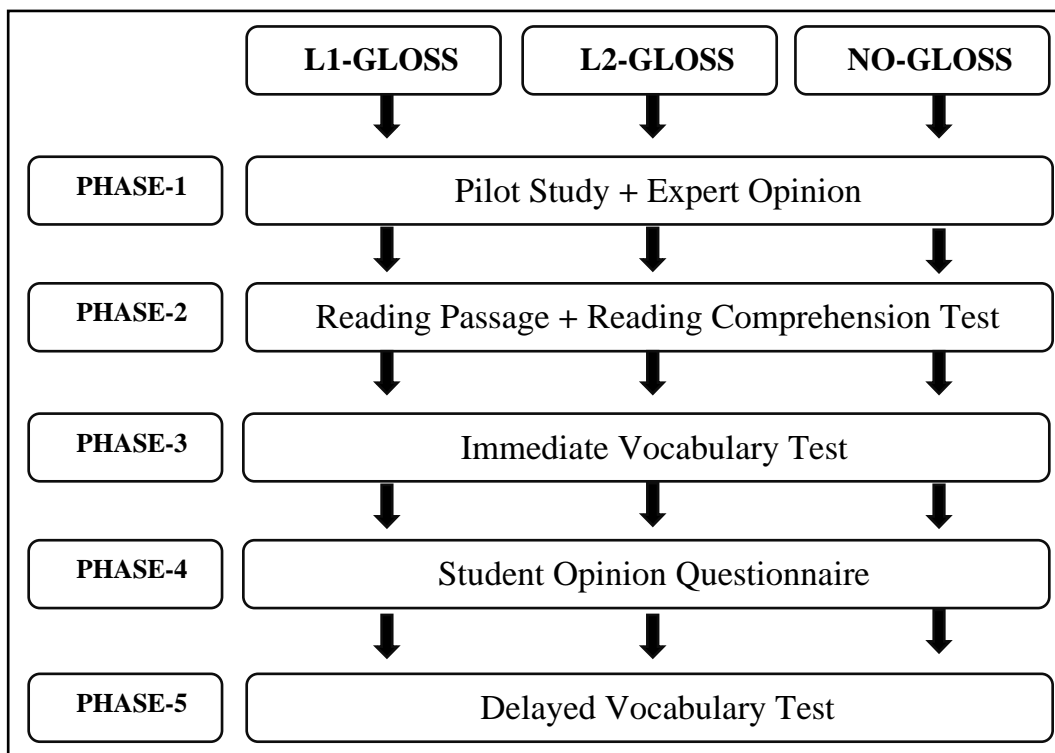


Figure 2. Procedures followed for the present experimental study

3.4. Procedures for data analysis

Reading Comprehension Test, Immediate Vocabulary Test, and Delayed Vocabulary Test were scored as 1 point for each correct answer. A one-way between-groups ANOVA with planned comparisons was conducted to investigate group differences for reading comprehension test. Then, a mixed between-within ANOVA was performed in order to find out the differences in immediate and delayed test scores for three different groups, and also word retention was tested through the same analysis by looking at the difference in the number of words gained between immediate vocabulary test and delayed vocabulary test. Lastly, participants' opinions about glossing and gloss types were analysed based on the student opinion questionnaire.

4. Results

Before carrying out the analyses, normality and group tendency tests were controlled to decide whether to use parametric or nonparametric tests. This step was carried out by examining skewness, kurtosis, mean, trimmed mean, Kolmogorov-Smirnov, Shapiro-Wilk, Histogram, Normal Q-Q plot, Detrended Normal Q-Q plot, and Boxplot. It was concluded that distribution is normal, so it was decided to continue analyses with parametric tests. Apart from these, for one-way between-groups ANOVA with planned comparisons and mixed between-within subjects analysis of variance, homogeneity of variance and homogeneity of inter-correlations were controlled.

Table 1 demonstrates the descriptive statistics for the reading comprehension test, immediate vocabulary test, and delayed vocabulary test under three different gloss conditions. The maximum possible score for reading comprehension test is 10, and it is 16 for vocabulary tests.

Table 1. Gloss conditions and descriptive statistics for tests

	Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Reading Comprehension Test	L1-gloss	28	7.36	1.367	4	9
	L2-gloss	28	7.00	1.217	4	9
	No-gloss	25	6.16	1.795	2	9
Immediate Vocabulary Test	L1-gloss	28	12.79	1.663	6	16
	L2-gloss	28	10.07	3.420	2	15
	No-gloss	25	7.36	2.039	3	11
Delayed Vocabulary Test	L1-gloss	27	6.63	2.256	3	11
	L2-gloss	26	6.31	2.895	1	11
	No-gloss	25	4.60	2.273	1	9

In order to explore whether glosses facilitate reading comprehension, a one-way between-groups ANOVA with planned comparisons was conducted. Two contrasts were determined for this analysis. Contrast 1 represents the comparisons between glossed conditions and no gloss condition, and contrast 2 was conducted to compare L1 gloss and L2 gloss conditions. Planned contrasts revealed that access to glosses significantly increased reading comprehension scores compared to no-gloss condition, $t(78) = 2.88, p = .005$, but access to L1 gloss did not significantly increase reading test scores compared to access to L2 gloss, $t(78) = .91, p = .365$.

Table 2. Planned contrasts for reading comprehension test

		Sum Of Squares	df	Mean Square	t	Sig.
Reading Comp. Test	Contrast 1	19.71	78	9.85	2.88	.005
	Contrast 2	167.78		2.15	.91	.365

Next, a mixed between-within subjects analysis of variance was conducted to assess the impact of different gloss types (L1 gloss, L2 gloss, No gloss) on participants' scores on the vocabulary test across two time periods (immediate vocabulary test and delayed vocabulary test). There was a significant interaction between gloss type and time, Wilks Lambda = .74, $F(2, 75) = 13.09, p < .0005$, partial eta squared = .25. Moreover, there was a substantial main effect for time, Wilks Lambda = .24, $F(1, 75) = 229.57, p < .0005$, partial eta squared = .75, with three groups showing a reduction in vocabulary test scores across the two time periods (see Table 4.1). The main effect comparing the gloss groups was also significant, $F(2, 75) = 18.86, p < .0005$, partial eta squared = .33, suggesting a difference in the effectiveness of the three glossing groups. Post-hoc comparisons using Bonferroni test demonstrated that the mean scores of each group were significantly different from each other (L1 gloss>L2 gloss, $p = .043$; L1 gloss>No gloss, $p = .000$; L2 gloss>No gloss, $p = .002$).

As the last part of the current study, participants' opinions about glossing and gloss types were analysed based on the student opinion questionnaire. The first part of the questionnaire was about their preferences for glossing and the reasons. Majority of the students (84%) preferred glosses by mostly stating three main reasons: (1) glosses are time saving; (2) glosses help them understand the passage better; and (3) they can learn new words thanks to glosses. The other issue in student opinion questionnaire was about the use of L1 or L2 glosses, and most of the participants (71.6%) opted for L1 glosses while 28.4 % preferred L2 glosses. Majority of the participants preferring L1 glosses stated mainly two reasons: (1) it is difficult for them to understand the L2 definitions; and (2) they can understand the content of the passage better thanks to L1 definitions.

5. Discussion

With regard to the first two research questions, it is clear that there is a difference in test scores (Reading Comprehension, Immediate Vocabulary, and Delayed Vocabulary) of participants for three gloss conditions (L1 gloss, L2 gloss, and No gloss). Firstly, there was no difference between L1 and L2 gloss conditions while there was a significant difference between both gloss conditions and no-gloss condition in the reading comprehension test scores. Secondly, for both vocabulary test scores, the main effect comparing the gloss groups was significant. However, while the significance value was substantial for the differences between glossed and no gloss conditions, it was almost not significant for L1 and L2 gloss groups ($p = .043$). The reasons for these differences could be that glosses provide L1 translation or L2 description, so they are more practical than dictionaries in terms of accessibility (Hulstijn et al., 1996). Since students can easily match the meanings with the words in context, reading process is not interrupted thanks to glosses (Rott & William, 2003). By looking at the scopes of the studies in literature, Schmitt (2008) recommends using L1 glosses for low proficiency level learners by also adding that it does not matter using L1 or L2 glossing as long as the learners can understand the L2 description or L1 translation.

An alternative explanation for higher scores in L1 and L2 gloss conditions can be ‘unlearning’ (Hulstijn, 1992) caused by random guessing in no gloss situations. According to Haynes (1993), glossing has an important role in preventing wrong guesses. Otherwise, this unlearning situation may be fossilized. At this point, inferring the meaning of the word can be problematic and misleading for less proficient learners especially when they do not possess the knowledge of a certain amount of words around the target word in the context. The issues of noticing and salience can be other probable reasons of the effectiveness of L1 and L2 glossed texts (Ko, 2012). With conscious attention for bold-faced words and listed words at the bottom of the page, learners may turn these inputs into intakes by matching them with the context of the reading passage.

Despite no significance between L1 and L2 glosses in reading test scores and slight significance in vocabulary test scores, the means of L1 gloss conditions are higher than the other conditions. Swan (1997) states that learners can benefit more from their L1 to learn L2 vocabulary. Schmitt (2010) comments on this issue by giving the example of L1↔L2 dictionaries which are frequently preferred by L2 learners. This preference can be supported with the proven active L1 interference in L2 vocabulary learning for both low L2 proficiency and high proficiency levels (Schmitt, 2008). The positive effects of using L1 in vocabulary teaching at the first stages of foreign language learning was also demonstrated in some other studies (Laufer & Shmueli, 1997; Lotto & de Groot, 1998; Prince, 1996; Ramachandran & Rahim, 2004). Schmitt (2008) makes a point of the role of L1 in L2 vocabulary teaching and learning by stating: “Although it is unfashionable in many quarters to use the L1 in second

language learning, given the ubiquitous nature of L1 influence, it seems perfectly sensible to exploit it when it is to our advantage” (p. 337).

Another important aim of the study was to test word retention by looking at the change in vocabulary test scores after a two-week time interval. As it was clearly seen in the analyses, there was a significant decrease in the scores for each gloss condition. Despite decreases in each gloss condition, L1-gloss group still had the highest mean score followed by the L2-gloss group in delayed vocabulary test. It can also be deduced that both gloss types were effective for word retention in this particular study. In accordance with the results of current study, Jacobs and his colleagues (1994) noted that glosses provide more lexical processing for learners, so word retention is higher with glossed conditions. On the other hand, there was a remarkable decrease in the mean scores after two weeks in our study. This can be an indication of the necessity for repetition and exposure to the input because participants did not have any chance to revise the target vocabulary items during these two weeks. As a result, their mean scores were naturally doomed to decrease. Schmitt (2008) emphasizes on the need for “engagement with vocabulary” for word retention by stating that “virtually anything that leads to more exposure, attention, manipulation, or time spent on lexical items adds to vocabulary learning” (p. 339).

In accordance with the results of the present study, many studies also reported that L2 learners think that glosses are helpful and assist their comprehension (Jacobs et al., 1994; Ko, 2005; Ko, 2012; Luo, 1993). Moreover, contrary to the participants’ preferences for L2 glosses in Ko’s (2012) study, most of the participants in the present study opted for L1 glosses by stating two main reasons: (1) it is difficult for them to understand the L2 definitions; and (2) they can understand the content of the passage better thanks to L1 definitions. Similarly, Laufer and Hill (2000) noted that most of the Israeli participants (72%) preferred L1 translation over L2 explanation in glosses.

6. Conclusion and implications

The present study was conducted to investigate the effects of different types of glosses and no-gloss condition on L2 vocabulary learning and to examine learners’ opinions about the use of the glosses. Since up to date studies on glossing yield various results about the effects of different gloss types, it was thought that new insights can be brought in to the present knowledge of literature within a different context in our study. The current study revealed some common results like the significant difference between glossed conditions and no gloss conditions, and learners’ preference for having glosses in their reading materials. With other distinctive findings, the present study yielded important results in terms of the effects of different gloss types.

Firstly, by looking at the significant difference between gloss groups and no gloss group in reading test and vocabulary tests in the current study, it can be concluded that glossed reading may be more effective for less-proficient learners. “Glossing enhances the likelihood of acquiring words incidentally as a by-product of reading”

(Ko, 2012, p. 75). Along with the need for further investigation on the effects of glosses for different levels of proficiency, it is accepted that reading comprehension, vocabulary learning, and individual learning can be improved by using glosses (Nation, 1990; Watanabe, 1997). As Lenders (2008) asserts, using glosses may increase “the autonomous, active processing of L2 input”. Secondly, student opinion questionnaires revealed that participants of the present study prefer L1 glosses over L2 glosses, which again can be a result of their proficiency level of elementary. Thanks to glosses, reading in L2 can be more manageable and enjoyable for students at less proficient levels.

Above all, there were significant time effects on each gloss condition over time. This situation underlines the importance of engagement with the vocabulary to retain the acquired vocabulary items (Schmitt, 2008). Although techniques like glossing may be effective in incidental vocabulary learning, there is a need for a longitudinal effect for a broader vocabulary size. Therefore, glossing must be supported by further engagement and activities so that vocabulary learning can be actualized pre-eminently. Schmitt (2008) suggests some factors facilitating vocabulary learning: “increased frequency of exposure; increased manipulation of the lexical item and its properties; increased amount of time spent engaging with the lexical item; increased amount of interaction spent on the lexical item” (p. 339). These factors can be additionally used to increase the effectiveness of glossing.

In conclusion, investigating the effects of three different gloss types (L1 gloss, L2 gloss, and No gloss) may contribute to the perspective on vocabulary teaching and learning in literature. However, it is necessary to conduct related studies in different contexts to determine the place of glossing in vocabulary learning. For example, the effects of gloss types on different proficiency levels must be investigated with different and larger groups of students. Such a study would certainly guide teachers in material preparation in terms of choosing the right glossing type for the right proficiency level. Furthermore, studies made so far have not used a common criterion for the selection and number of the vocabulary items for glossing or the assessment tools to test vocabulary learning after glossing. Therefore, research on how to choose vocabulary items for glossing list and the amount of vocabulary items to gloss can be conducted. With regard to these suggestions and implications, it can be lastly noted that glossing may be an effective and practical technique aiding reading comprehension and vocabulary learning. All in all, the things to be considered are how, when, where, and for whom to use glosses.

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