Review of Effects of Textual Glosses on Incidental Vocabulary Learning

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Abstract- Learning vocabulary is an essential part of language learning. A number of studies showed that L2 reading can promote second language vocabulary acquisition. Sometimes, many unfamiliar words are presented in reading texts and L2 learners fail to notice the presence of unknown words. Even when L2 readers have access dictionary, they do not look up all unfamiliar words, particularly when they read long texts. A number of studies confirmed that the provision of textual glosses can enhance incidental vocabulary learning. The present study reviews results of the studies on incidental vocabulary learning chronologically. The results were divided into two groups as follows: the first group of studies reported that there was difference between the effects of textual glosses on vocabulary learning and the second group of studies confirmed that there was no difference between the effects of different glosses on vocabulary learning. This study reviewed previous studies from a new perspective that can be used as a fundamental review research for future studies on the effects of glossing on vocabulary learning.

Keywords: Incidental Vocabulary Learning, Gloss, Reading, Review.

1. INTRODUCTION

Vocabulary knowledge is considered the key ingredient in successful reading. The direct link between vocabulary and reading has been made in L2 research in that vocabulary enhances reading comprehension and reading in turn increases vocabulary knowledge. It was reported that L2 learners are often reluctant to read (Day & Bamford, 1998) because they regard reading as an unpleasant and painful process to the extent that the lack of reading leads to the lack of vocabulary that is a big problem for L2 learners. Furthermore, it is necessary for EFL/ESL learners to read without using dictionary to enjoy reading and overcome the feeling of frustration by unknown words. It is mentioned that one of the major factors in unsuccessful reading can be a lack of noticing. In his Noticing Theory, Schmidt (1995) emphasizes that conscious attention is necessary for learning and noticing is generally the first stage of learning. It is highly possible that during reading, the readers fail to notice unknown words and vocabulary learning will not occur. Numerous researchers (e.g., Yoshii, 2006; Nation, 2002) referred to glossing as one of the most effective tools for increasing noticing that enhances vocabulary learning among ESL/EFL learners. Nation (2002, pp. 174-175) defines
gloss as “a brief definition or synonym of unknown words provided in text in L1 or L2”. According to Paribakht and Wesche (1999), Parry (1997), and Watanabe (1997), glossing is necessary since the problems arose from extensive reading. Glosses are considered as valuable tools which facilitate reading in a foreign language (Watanabe, 1997). Using the gloss is easier and minimizes the interruption of reading flow compared to using dictionary that is time-consuming and interrupts the reading process (Ko, 2005; Nation, 2002). Glosses make the learners more autonomous in reading activity (Nation, 2002).

A number of researchers investigated the effects of glossing on vocabulary learning (Poole, 2011; Yee, 2010; Fang, 2009; Lage, 2008; Yoshii, 2006; Loucky, 2005; Watanabe, 1997). As there is no doubt about the advantages of glossing for incidental vocabulary learning, research questions shifted from gloss effect to gloss type. The comparison of the studies on the effects of L1 gloss and L2 gloss brought inconsistent results, some revealed no differences between two gloss types (e.g., Chen, 2002; Jacobs, 1994; Jacobs, Dufon, & Fong, 1994; Jacobs & Dufon, 1990) and others reported the advantages of one gloss type over the other gloss type (Xu, 2010; Yee, 2010; Cheng & Good, 2009; Fang, 2009; Lü et al. (2005, as cited in Hong, 2010) in vocabulary learning. As it was mentioned earlier, there is no consistency in the results of the studies pertinent to L1 and L2 glosses, and the effect of different textual glosses on vocabulary learning still remains as an open question that needs further investigation. Accordingly, the researcher intends to address this issue in the present study.

**Pedagogical Implications of the Study**

This study revealed that textual glosses are helpful for facilitating L2 vocabulary learning and EFL/ESL learners should be provided with textual glossed texts while involved in reading activities. In this way, the participants’ attention to new word will be drawn to glosses and glossed texts enhance vocabulary learning through reading. Furthermore, the provision of gloss can decrease the burden of looking up words in dictionary, prevent the interruption of reading flow, and avoid L2 learner from making false inference for unfamiliar vocabularies in a special context. Therefore, textual glosses help learners understand the reading texts and know the exact meaning of the new vocabularies. Second language instructors should consider producing some interesting reading texts with different textual glosses in order to increase ESL/EFL learners’ interest in acquiring the unfamiliar vocabularies. The selected texts should be related to the students in order to motivate students to read outside the classroom. Furthermore, the proficiency level of L2 learners should be taken into consideration in the selection of glosses and reading texts.

**Previous Studies on the Effects of Glossing on Vocabulary Learning**

Based on the related literature, a number of researchers investigated the effects of glossing on vocabulary learning but the findings were inconsistent. Although there is no consistency on glossing in recent literature, glossing is generally accepted as an aid for many foreign language text books. Glossing is the easiest way for understanding the meanings of unknown words because they are presented in the margin on the same page or another page and L2 learners do not need to look up words in a dictionary. The present study will review the studies on the gloss and vocabulary acquisition which is divided into two groups. In the first group, the findings showed that there was a significant difference between the effects of glosses on vocabulary learning. In the second group, it was reported that there was no significant difference between the effects of glosses on vocabulary learning. Table 1 below shows the summary of studies that revealed significant differences between the effects of glosses on vocabulary learning.
Table 1. Studies on Textual Glossing and Vocabulary Learning (Difference between glosses)

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Research Groups</th>
<th>Finding(s)</th>
</tr>
</thead>
</table>
| Hulstijn (1992)                      | 1) Multiple-choice gloss  
2) L1 gloss -L2 gloss  
3) L2 Multiple-choice gloss  
4) Control group                      | 1) In 3 studies, multiple choice group outperformed the single group.  
2) L1 gloss group outperformed the L2 multiple-choice group |
| Lee (1995)                           | three methodologies:  
A passive, contextual presentation with no focused at a L1-Contextualized presentation with focused teaching on L2  
-Contextualized presentation with focused teaching of L1 translation | The L1 gloss group outperformed the other groups. |
| Smallwood (1995)                     | Pre-taught in English  
-Pre-taught with L1 translation  
-No pre-teaching at all           | The L1 translation group outperformed the other groups. |
| Hulstijn, Hollander, and Greidanous (1996) | Control (no treatment)  
-L1 gloss(Dutch)  
-Dictionary look up | Glossing group outperformed the dictionary and control groups. |
| Laufer and Shmueli (1997)            | Words in: a word list-Sentences  
-In text  
-In a elaborated text | L1 gloss groups outperformed L2 gloss groups. |
| Lin and Huang (1997)                 | Meaning-inferred gloss  
-Meaning-given gloss               | Meaning-inferred gloss group outperformed the meaning-given gloss group in vocabulary gain and retention. |
| Grace (1998)                         | Sentence level L1 translation  
-control group                      | Sentence level L1 translation outperformed the control group                                   |
| Kost, Foss and Lenzini (1999)        | Text only-Picture only gloss  
-Text (L1 gloss)+ picture            | Text and picture group outperformed the other groups. |
-Dictionary-form gloss                | Dictionary-form gloss group outperformed the other group. |
| Rott, Williams, and Cameron (2002)   | Multiple-choice glosses  
-Regular glosses                      | Multiple-choice gloss group outperformed the regular gloss group in short-term retention due to more mental efforts. |
| Chang (2002)                         | Bilingual marginal glosses  
-Electronic dictionaries  
-No assistance.                      | Marginal glosses had greater effect than electronic dictionaries on the immediate test. |
| Huang (2003)                         | L1 gloss  
-L2 gloss  
-L2 gloss+ L2 English example sentences  
-Control group                      | All the gloss groups significantly outperformed the control group in word retention and text comprehension. |
| Ramachandran and Rahim (2004)        | Teaching in English and Malay  
-Teaching in English only            | The L1 teaching group outperformed the L2 teaching group. |
| Duan and Yan (2004)                  | Multiple-choice glosses  
-Single gloss  
-No-gloss                           | Multiple choice gloss group and single gloss group outperformed the control group respectively. |
| Cheng (2005)                         | L1 gloss with L2 example sentences  
-L1 in-text gloss  
-L1 marginal gloss  
-No-gloss.                          | All gloss types improved vocabulary acquisition but they had no effects on text comprehension.  
-The intermediate learners significantly outperformed the beginning and advanced learners in vocabulary learning by the use |
As illustrated in the Table 1, a number of researchers predicted that using gloss could have a positive effect on vocabulary acquisition. As it was stated by Hulstijn (1992) that the use of multiple-choice glosses can decrease the difficulties caused by inadequate contexts and the possibility of wrong inferences. Multiple-choice glosses need some degrees of mental efforts and attention that are supposed to aid vocabulary learning. Hulstijn examined this possibility through some studies, but he found inconsistent results. Three studies revealed the better performance of multiple-choice group than L2 gloss group in vocabulary acquisition. But, the results of another study that compared L2 multiple-choice glosses with L1 glosses indicated that L1 gloss group significantly outperformed the multiple-choice group in word gain.

In one of the related studies, Lee (1995) compared the effects of three types of teaching methodologies on vocabulary learning. The participants who were 120 Secondary Two students were assigned to one of the groups: a passive, contextualized presentation with no focused teaching at all, contextualized presentation with focused teaching only in L2, and contextualized presentation with focused teaching including the use of L1 translation of the target words. The subjects were given two post tests. In the first test, the participants were asked to complete a multiple-choice cloze test and in the second one, the subjects were requested to translate or gloss the target words. The results of this study revealed that the provision of L1 gloss can result in higher vocabulary learning rate.

To compare the effects of incidental-plus-L1 Chinese terms and incidental vocabulary learning in context alone, Smallwood (1995) conducted a study in which the participants were 115 secondary students in Hong Kong. The researcher provided them with a meaning recall post test and a delayed post test two weeks later. The results of this research revealed that provision of L1 gloss could lead to better performance in vocabulary acquisition.

The participants in the aforementioned study were high-school students who are supposed to be low English proficiency learners. Therefore, the recent study will focus on higher English proficiency learners. Furthermore, these studies focused on different methodologies of teaching for learning vocabulary whereas the researcher will investigate the effects of different gloss types on vocabulary learning and reading comprehension.

In another study, Hulstijn, Hollander and Greidanus (1996) compared the effects of marginal gloss, dictionary use, and the reoccurrence of unfamiliar words on incidental vocabulary acquisition. The participants were Dutch students who studied French as second
language were asked to read a text under one of these conditions: Marginal gloss (L1), bilingual dictionary use, and text only. The results revealed that L1 marginal gloss group outperformed the other groups.

To determine the effect of gloss language on short term and long term retention of 20 low-frequency words, Laufner and Shmueli (1997) conducted a study in which the participants were 128 high school students who were Hebrew native speakers. They were assigned to four experimental groups: the first group received the words in a list, the second group in sentence, the third group in a text, the forth group in an elaborated text, and one control group. The participants in experimental groups were divided into L1 and L2 groups. One post test was given to the subjects immediately after the explicit teaching session and a delayed post test was given to them after five weeks. The results of this study revealed that L1 glosses were more useful for retention of target words, in both short term and long term, than L2 gloss. It seems that the maximum attention will be drawn to the new target words if L1 gloss is used.

Lin and Huang (1997) conducted a research to compare the effects of meaning-inferred gloss (MI) with meaning-given gloss (MG) on vocabulary learning. They also intended to explore whether the proficiency level of the participants along with two different glosses could improve vocabulary acquisition. The participants were 175 English learners form four high school classes in Taiwan: two first-year classes including low proficiency students and two third-year classes including high proficiency learners. The subjects in each year were provided with MI and the other with MG. The participants were asked to read two texts. The researcher provided the MI groups with three alternatives for each target word in L1 while those in MG group received one L1 translation for each target word. A pretest, an immediate post test and a delayed post test (two weeks after immediate post test) were administered. The results of two-way ANOVA revealed that both gloss types were helpful in vocabulary acquisition, and the meaning-inferred gloss group significantly outperformed the meaning-given gloss group in both word gain and retention. The results also indicated that the proficiency level of the participants was not a prominent factor in both word gain and retention.

In another study, Grace (1998, 2000) examined the effects of sentence-level L1 translation on incidental vocabulary learning. The results revealed that translation glosses had a better effect. A number of studies compared the effects of other gloss types on incidental vocabulary learning. Kost, Foss, and Lenzini (1999) examined the effects of three gloss types: text-only (L1) gloss, picture-only gloss, and text (L1) plus picture. The participants were 56 American university students who studied German as a L2. They were asked to read a text of 272 words with 20 glosses under one of the three gloss types. Then, they were given two vocabulary tests: one, immediately after the treatment and the other after two weeks. The results of this study showed that the text and picture gloss group significantly outperformed the other two groups.

Furthermore, Gettys et al. (2001) tested the effects of sentence-level L1 translation and dictionary form glosses on incidental vocabulary learning. The results of this study showed that dictionary form glosses had a better effect on vocabulary learning than sentence-level translation glosses. In another study, Rott, Williams, and Cameron (2002) reported reverse results. The participants who were 76 German students in forth semester were provided with multiple-choice glosses that were supposed to enhance incidental vocabulary acquisition through increasing the mental effort. The results of this research indicated that multiple-choice glosses resulted in deeper understanding of vocabulary in the short-term.

In another study conducted by Chang (2002), 92 twelfth-graders read a short story in three different conditions: reading with bilingual marginal glosses, reading with electronic dictionaries, and reading with no assistance. Then, after two weeks the participants were
asked to answer three vocabulary tests on 16 target words and one reading comprehension test. Although, the results revealed that marginal glosses had greater effect than electronic dictionaries on the immediate test, the positive effect of marginal glosses disappeared on delayed retention test. The results also showed that participants with bilingual marginal glosses acquired 18% of the target words and retained 2%, participants with electronic dictionary acquired 15% and retained 4%, and those without assistance acquired 3% and retained less than 1% (0.6%) of the target words.

In another study, Huang (2003) compared the effects of three gloss groups including L2 (English) glosses, L1 (Chinese) glosses, and L2 (English) glosses plus L2 (English example sentences) on text comprehension and word retention. The participants were 181 third-year junior high school students in Taiwan. They were given a text of 314 words and 15 glosses chosen from a magazine. Then, they researcher administered a word pretest, a text comprehension test, an immediate word recall test and two delayed vocabulary recall tests sessions. The three groups of participants were provided with a text with one of the three conditions and the control group received a text without gloss. The results of this research revealed that three gloss groups significantly outperformed the control group in text comprehension and word recall. Furthermore, Huang studied on the language forgetting pattern displayed in the participants’ three word recall tests. The results indicated that the recall of words declined over time. The result resembled the results of Watanabe’s (1997) research.

Ramachandran and Rahim (2004) conducted a research in which the participants were 60 elementary level ESL learners from a secondary school in Malaysia. They were divided into two groups: the experimental group, teaching in English and Malay and the control group teaching in English only. The researcher taught 20 target words in a reading passage during one month: five words each week. An immediate post test and a one month delayed post test were administered. The participants were asked to provide the meanings of target words in Malay or English. The results of this research revealed that experimental (L1) group outperformed the control (L2) group in recalling and retention of target words. One explanation for this result is that the subjects used L1 as a resource to compensate their limited L2 vocabulary knowledge.

In another study, Duan and Yan (2004) conducted a research to compare the effects of multiple-choice glosses, single glosses and no-glosses. The results of this study revealed that both multiple-choice glosses and single glosses significantly outperformed the control group in vocabulary acquisition, while multiple-choice gloss group had a better performance than single glosses in incidental vocabulary learning.

A master thesis by Cheng (2005) investigated the effects of deliberate vocabulary learning on Taiwanese college EFL learner’s language skills. Cheng selected an implicit vocabulary teaching (Laufer and Osimo, 1991) in which embedded glosses were used to increase participants’ lexical awareness for improvement of text comprehension and vocabulary acquisition. The participants who were 135 university students were provided with four types of glosses: L1 gloss with L2 example sentences, L1 in-text gloss, L1 marginal gloss, and no-gloss. The subjects were asked to read texts of similar difficulty, then a text comprehension, an immediate vocabulary test, and two delayed post tests were administered. The findings were in agreement with the previous related research (Lee & Good, 2003; Rott, Williams, & Cameron, 2002; Schmidt, 1995). It was reported that all gloss types improved vocabulary acquisition but they had no effects on text comprehension. Furthermore, the intermediate learners significantly outperformed the beginning and advanced learners in vocabulary learning by the use of “L1 gloss and L2 example sentences” and “L1 in-text gloss”. Cheng recommended considering L1 gloss as a facilitator means to help EFL
university students improve their vocabulary knowledge in reading classes. The researcher did not take combination of “L1 gloss and L2 gloss” into consideration.

In another study, Lü et al. (2005) examined the effects of Chinese and English glosses on incidental vocabulary learning. The participants who were 50 higher level and lower level learners were assigned to two groups: English gloss and Chinese gloss groups. They were asked to read an English article and to take a vocabulary test immediately after the treatment and a delayed post-test after two weeks. The results of this study revealed that L1 gloss group significantly outperformed L2 gloss group in immediate post-test, particularly the lower level participants in L1 gloss group, but in the delayed test the lower level participants in Chinese gloss group performed better than those in English gloss group.

In another related study, Fang (2009) intended to explore the effects of L1 and L2 gloss on incidental vocabulary learning among low proficiency EFL learners. Fang also investigated whether the subjects prefer glossed texts. The participants were 15 Chinese students who studied Business at a university in Sweden. They were given two texts: one with 390 words and the other with 207 words, with a total number of 20 glosses in L1 that were underlined and boldfaced. Then, a pre-test, two immediate post-tests and two delayed post-tests were administered in this study. Posttests contained a definition-supply and a recognition test. The findings of this study revealed that low proficiency level students can benefit from glossed texts for improvement of vocabulary acquisition. The results of the study also indicated that L1 glosses are more useful than L2 glosses for short-term word acquisition whilst L2 glosses are more useful for long-term retention of vocabularies. Furthermore, the feedback from the interviews revealed that 86% of the participants preferred to read glossed texts and also most of them had positive attitudes toward the use of gloss that is in line with previous studies. The participants declared that glosses prevent long interruptions arised from looking up words in dictionary, provide the most appropriate definitions for context, and prevent wrong guess caused by insufficient context clues. The participants noted that learning vocabulary through reading could be useful due to the access to glosses. These reasons are in consistency with the conclusions of Nation (2001, p. 176) that had the same attitudes. Moreover, most of the participants preferred to use L2 (English) gloss that is in line with Jacobs et al. (1994) and Ko (2005).

In a unique related study, Xu (2010) compared the effects of different gloss conditions on incidental word acquisition through reading. The participants who were 103 students of Qingdao University were assigned to read a text under one of the three conditions. The text was composed of 774 words with 18 target words among which six words were glossed in Chinese, six in English and six in both Chinese and English. The researcher administered a text comprehension test, an immediate vocabulary test, and a delayed test one week later. Xu mentioned the findings of this research to be: 1) A better text comprehension will result in a higher rate of incidental word acquisition, 2) L1 and L2 (Chinese and English) glosses is the most useful type of glossing for enhancement of vocabulary gain and vocabulary retention, 3) L1 (Chinese) gloss is the most useful gloss in vocabulary gain but it is the least useful in vocabulary retention, and 4) L2 (English) gloss is the weakest gloss for enhancement of vocabulary gain. This study suffers from the limited number of reading texts, small sample size as well as reading activity time. Xu recommended lengthening the research time span up to a long term with a larger number of participants in order to make the findings more generalizable. Furthermore, the researcher suggested doing a research with participants of different proficiency levels. The researcher ignored to investigate the subjects’ attitudes towards the whole program and glossing.

In a master thesis, Yee (2010) compared the effects of L1 gloss and L2 gloss on vocabulary acquisition. The participants were 84 students who studied English as L2 in Band one boys’ school in Hong Kong. The participants were divided into four groups: group A and
B with L2 glosses and group C and D with L1 glosses. The participants participated in two workshops in each one text with ten target words was given to them. They also answered to two immediate and two delayed post tests. The results of this study revealed that L1 gloss group significantly outperformed the L2 gloss group in both immediate and delayed post tests in retention of 20 target words, particularly among low English proficiency level subjects. Yee added that the effects of glossing decreased in delayed post test that is a natural process in vocabulary learning which is incremental in nature. This study discussed the effective factors in vocabulary learning and the forgetting patterns as well.

Based on the related literature, there is no consistency in the effects of glossing on incidental vocabulary learning among different participants groups, so it is still an open question which the researchers should explore it. Other researchers reported that there was no significant difference between gloss groups in vocabulary learning. Table 2 shows the summary of these studies.

Table 2. Studies on Textual Glossing and Vocabulary Learning (No differences between glosses)

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Research Groups</th>
<th>Finding(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacobs and Dufon (1990)</td>
<td>Spanish (L2) gloss</td>
<td>No significant difference between groups.</td>
</tr>
<tr>
<td></td>
<td>- English (L1) gloss</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Control group</td>
<td></td>
</tr>
<tr>
<td>Hulstijn (1992)</td>
<td>Multiple choice gloss</td>
<td>No significant difference between Multiple-choice gloss group and control group</td>
</tr>
<tr>
<td></td>
<td>- Control group</td>
<td></td>
</tr>
<tr>
<td>Jacobs, Dufon, and Fong (1994)</td>
<td>No-gloss</td>
<td>No significant differences between L1 and L2 glosses</td>
</tr>
<tr>
<td></td>
<td>- L1 gloss (English)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- L2 gloss (Spanish)</td>
<td></td>
</tr>
<tr>
<td>Watanabe (1997)</td>
<td>Regular gloss</td>
<td>Both regular gloss and multiple-choice gloss groups outperformed the control group</td>
</tr>
<tr>
<td></td>
<td>- Multiple choice glosses</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Control group</td>
<td></td>
</tr>
<tr>
<td>Loucky (2005)</td>
<td>A bilingualized pre-organized gloss</td>
<td>Control group outperformed the other groups.</td>
</tr>
<tr>
<td></td>
<td>- Random bilingualized gloss</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Random control group or L2 only condition</td>
<td>- Glossed organized condition outperformed random glossed condition.</td>
</tr>
<tr>
<td>Yoshii (2006)</td>
<td>Text-only glosses (L1)</td>
<td>No significant difference between L1 and L2 glosses at immediate and delayed posttests.</td>
</tr>
<tr>
<td></td>
<td>- Text-only glosses (L2)</td>
<td></td>
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<tr>
<td></td>
<td>- Text + pictorial glosses (L1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Text + pictorial glosses (L2).</td>
<td></td>
</tr>
<tr>
<td>Lage (2008)</td>
<td>CALL glosses</td>
<td>No significant difference between two groups in recalling of words and provision of gloss</td>
</tr>
<tr>
<td></td>
<td>- Traditional glosses</td>
<td></td>
</tr>
<tr>
<td>Poole (2011)</td>
<td>Concordance-based (meaning- inferred)</td>
<td>No significant difference between groups.</td>
</tr>
<tr>
<td></td>
<td>- Dictionary-based (meaning- given)</td>
<td></td>
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</tbody>
</table>

As illustrated in Table 2, a few researchers reported that no significant difference existed between different groups of participants (Jacobs & Dufon, 1990; Hulstijn, 1992; Jacobs, Dufon, & Fong, 1994; Watanabe, 1997; Loucky, 2005; Yoshii, 2006; Lage, 2008; Poole, 2011).
In a related study, Jacobs and Dufon (1990) compared the differences between Spanish (L2) gloss and English (L1) gloss on overall text recall and learning of target words. The researchers measured the vocabulary acquisition by a posttest immediately after writing the recall and the other after four weeks. The vocabulary acquisition was tested by the translation from L2 to L1. The researchers also considered the participants’ proficiency level as a variable in this study. The participants were forth semester Spanish students with different proficiency level. The average of student’s marks on major tests was used for indicating the proficiency level. The researchers reported no significant difference between groups. Nevertheless, the participants in glossed group performed better than the un-glossed group, but this difference disappeared in delayed text. Although no significant difference was seen between two groups, high proficiency level participants benefited more from glossing for recall than low proficiency level learners.

As it was mentioned earlier, Hulstijn (1992) conducted a series of studies to explore the effects of multiple-choice glosses on vocabulary acquisition, but the conclusions were inconsistent. Hulstijn reported that there was no difference between multiple-choice gloss group and control group.

In another study, Jacobs, Dufon, and Fong (1994) asked 85 English college students who were advanced L2 Spanish learners to read a text of 612 words with 32 marginal glosses in boldface under one of the three conditions: no-gloss, L1 gloss (English), and L2 gloss (Spanish) in 50 minutes. Then, they were given a vocabulary test immediately after reading and a delayed post test after four weeks. The results of this study revealed that both L1 gloss and L2 gloss groups significantly outperformed the control group in vocabulary learning, but no significant difference was reported between L1 gloss and L2 gloss. The participants who were advanced learners and had enough background in L2 declared that they preferred to use L2 glosses but lower proficiency L2 learners may not prefer to use L2 glosses due to their lack of knowledge to contextualize the second language definitions. Furthermore, the vocabulary learning was enhanced in immediate post test but it was not seen in delayed post test.

Watanabe (1997) conducted a research in which 185 Japanese students were randomly divided into four groups: one control group and three L2 gloss groups including appositional, marginal, and multiple-choice glosses. The reading text contained 500 words with 16 glosses that were selected based on the researcher’s intuition. The reported grade level by Flesch Kincaid readability test was 9.0. Moreover, the participants’ proficiency level was determined by a cloze test to homogenize the groups. The main concern of this research was about the effects of glossing on incidental vocabulary learning. The results revealed that the marginal and multiple-choice glosses had a significantly better performance than no-gloss group in both the immediate and delayed post tests, but the appositional gloss did not get a significant gain. The results of the comprehension question analysis revealed that the marginal gloss group had a significantly better performance than the no-gloss group but no significant difference was reported between the two other gloss groups and control group. This is the first study in which the L2 gloss had a better performance than the control group. This is may be due to the research conditions such as the participants’ proficiency level, the selected glossed words, and the nature of the reading comprehension questions.

In another study, Loucky (2005) conducted a study to explore to what degree the provision of bilingualized glosses could help EFL/ESL learners in vocabulary acquisition. A total of 63 Japanese freshmen engineering students were exposed to three treatments alternatively: 1) a bilingualized, pre-organized gloss, 2) random bilingualized gloss, unsorted, and 3) random control group, monolingual target terms or L2 only condition. The results indicated that the participants in control group significantly outperformed the subjects in two other groups, and glossed, organized condition group gained better than random glossed
condition group. These results supported the Depth of Processing Hypothesis in which when more lexical processing is needed, more target words are retained.

In another study, Yoshii (2006) compared the effects of L1 gloss and L2 gloss on incidental vocabulary learning. The researcher intended to explore whether the use of picture glosses (text plus picture) had any effect on word acquisition. The participants were 195 EFL college Japanese students who were assigned to one of the four groups: text-only glosses (L1), text-only glosses (L2), text plus pictorial glosses (L1), and text plus pictorial glosses (L2). The subjects were asked to read a text of 390 words with 14 glossed highlighted vocabularies on the computer. The researcher administered an immediate posttest after reading the text and a delayed posttest immediate posttest which contained a definition-supply and a recognition test. The Results of the study revealed that there was no significant difference between L1 and L2 glosses at immediate and delayed posttests. Yoshii reported that “the L1 text-only group displayed a rather unique pattern of retention over time: this group was able to sustain its scores, while the other three groups showed declines in their scores” (p. 93). Considering the participants’ proficiency level in this study, the number of target words was very limited.

In a master thesis, Lage (2008) aimed to explore the difference in the incidental vocabulary learning (or recall) of Spanish vocabulary while reading for comprehension. Lage also investigated on the effect of subject characteristics on gloss access. The participants were high-intermediate/low-advanced Spanish students from two sections of the same Spanish course at an American university. They were divided into two groups: traditional English marginal gloss and CALL gloss. The participants were asked to answer three vocabulary post tests in three following weeks and to complete a text comprehension test. The results of this research were not consistent, but revealed that there was no significant difference between the recalling of vocabulary and the presentation of gloss. Furthermore, it was indicated that there was a positive relationship between gloss and language proficiency.

In another master thesis, Poole (2011) compared the effects of textual glosses enhanced with modified corpus-extracted sentences and textual glosses enhanced with dictionary definitions on academic word acquisition at an intermediate to advanced level. The participants were 26 non-native speakers of English registered in introductory composition courses at a U.S. university. This study aimed to find an effective text-based method for glossing these significant terms since the academic words could not be annotated simply by pictorial glosses. The researcher intended to indicate whether the use of concordance-based (meaning-inferred) or dictionary-based (meaning-given) glosses could improve the participants’ receptive/ productive vocabulary knowledge. Moreover, the subjects’ attitudes towards difference online gloss modules were elicited in this research. It was reported that participants in concordance-based group had positive tendencies in their performance but it was not considerable enough that could be attributed to the treatment method. The mean scores increased, but the results of the one-way ANOVA revealed that there was no significant difference between the performances of different groups.

With regard to the inconsistent results in the related literature, a few studies reported no significant difference between gloss groups, the effects of different types of glosses on vocabulary gain and retention still remains as an open question. The researchers can explore more about this prominent issue in future studies.

2. CONCLUSION

Textual glosses were observed to result in better performance in vocabulary learning. Vocabulary learning is an incremental process (Nagy, Herman & Anderson, 1987) and the provision of gloss can facilitate vocabulary learning. In this study, the review of related
studies revealed that textual glosses are effective tools in L2 vocabulary learning, but which kind of textual glosses are more useful is still an open question. The researchers can review studies on the effects of textual glosses on text comprehension. They can also review the studies on the effects of other gloss types on vocabulary learning.

3. REFERENCES


Lage, T. M. (2008). An exploratory study of computer assisted language learning (CALL) glosses and traditional glosses on incidental vocabulary learning and Spanish literature reading


Biodata
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