The Effects of Oral Code-Mixing and Glossing on Iranian EFL Learners’ Vocabulary Knowledge

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Abstract. The current study investigated the effects of oral code-mixing and glossing on L2 vocabulary learning. To this end, 60 EFL learners studying at pre-university school were given a pre-test to make sure that they did not have any prior knowledge of the target words. Based on their scores in the pre-test, 36 pre-university students were selected and divided into three groups, including two experimental groups and one control group. All three groups were provided with the same text, under three different conditions. The participants of the first experimental group received L1 translations of target words orally by one of the researchers to investigate any possible effects of code-mixing. The participants of the second experimental group received the L1 translation of the new words in a written form to check the possible effects of glossing technique, and the participants of the control group were provided with the same text without any oral or written definition. After three days, a cued production test and a multiple choice test were administered as the immediate post-tests. One week later, a delayed post-test was administered. The results showed that there were significant differences among the three groups. Indeed, the findings revealed that both

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code-mixing and glossing techniques are effective for vocabulary learning. Meanwhile, the participants of the glossing group outperformed the participants of code-mixing condition.

**Keywords:** Code-mixing, glossing, vocabulary knowledge

1. Introduction

Communication is one of our daily works without which people can’t speak to each other. According to Sadeghi and Farzizadeh (2013), communication is the integration of many skills and one of which is vocabulary, and one’s vocabulary repertoire has a direct connection with a successful communication. So, vocabulary learning has an important role in our daily life too. Harmer (1991) stated if language structure is the skeleton of the language, then vocabulary items are the vital organs and the flesh. Because of the importance of vocabulary learning, a vast portion of English language education is devoted to teaching vocabulary. Indeed, a lack of enough vocabulary knowledge can be regarded as an obstacle to a learner’s linguistic competence, a phenomenon which Corson (1997) called lexical barrier.

One of the important problems EFL learners face is how to acquire L2 vocabulary items. According to Wilkins (1972), “while without grammar very little can be conveyed, without vocabulary nothing can be conveyed” (pp.111-112). Meanwhile, traditional language teaching methods were mainly concerned with teaching either grammar or communicative skills and as a result little attention has been paid to teaching L2 vocabulary. Therefore, there is a great need for teachers and instructors to be aware of different kinds of strategies and techniques that improve students’ vocabulary learning.

Teachers and learners of foreign languages try to find new techniques and strategies for improving their vocabulary knowledge. According to Allen (1983), although teachers have spent a lot of time on vocabulary teaching in many English classes, no desirable results have been seen. It seems that finding a good method or strategy for learning vocabulary is the other part of vocabulary teaching.

Code-mixing and glossing are two different strategies which are used for teaching and learning new vocabulary items. According to Brown
The Effects of Oral Code-Mixing and Glossing...

(2007), code-mixing or using an L1 word while speaking in L2 is one of the compensatory strategies that is used for vocabulary learning. Glossing is a summary of the meaning of words in a text, usually found as notes in the margin or between the lines of a text in order to help the reader with an understanding the meaning of unknown words in the text (Richards & Schmidt, 2010). Although code-mixing and glossing are strategies that are used for learning new vocabulary, it is still not clear which one would be more effective for promoting L2 learning vocabulary knowledge? The present study is going to find out the effect of two of these strategies (oral code-mixing and glossing) on vocabulary learning in order to see which of them is more effective than the other.

2. Literature Review

2.1. Vocabulary knowledge

Vocabulary knowledge is one of the important elements that EFL learners deals with during the process of learning a foreign or second language (Ahmadi, Ismail, & Abdullah, 2012). The role of vocabulary learning in both first and second languages cannot be neglected. That’s why, Qian and Schedl (2004) stated that there is a strong relationship between vocabulary learning and foreign language learning. Zhang and Anual (2008) also examined the correlation of vocabulary knowledge with foreign language learning and found a significant relationship between vocabulary knowledge and foreign language learning.

Vocabulary learning is central to learning a language. Whether we are learning our mother tongue or learning a new language as a foreign language, vocabulary learning plays an important role in our daily communications. Nunan (1990) stated that learning vocabulary in the very early stages of life is more important than grammar. That’s why, without vocabulary one cannot be able to communicate well. In other words, as Kilickaya and Krajka (2010) stated, without grammar knowledge little communication is possible, but without vocabulary knowledge communication is impossible. Nowadays, the importance of vocabulary learning is obvious to both teachers and learners.

According to Martin-Chang and Gould (2008), one of the most important factors that has an influence on language learning is the knowl-
knowledge of vocabulary learning, and indeed vocabulary knowledge improves language learning. Davis (1968) found that the element that has a strong correlation with learning a foreign language is the knowledge of vocabulary. Therefore, if students don’t have enough vocabulary knowledge, they will deal with difficulties in writing, speaking, listening, and reading (Ahmadi, Ismail, & Abdullah, 2012).

There are two kinds of vocabulary knowledge, productive and receptive. Kamil and Hiebert (2005) defined productive vocabulary as those words that learners use in their speaking or writing, but receptive vocabulary as those vocabulary items that help learners to understand meaning during listening or reading. Moreover, researchers classified vocabulary learning activities into two parts which are called incidental vocabulary learning and intentional vocabulary learning (Nation, 2001). According to Hulstijn (2001), incidental vocabulary learning is learning without any intention that happens haphazardly. On the contrary, according to Streiter, Knapp, Voltmer, and Zielinski (2004), in intentional vocabulary learning, learners memorize the meaning of new vocabulary items from a list of words one by one. According to these researchers, this kind of vocabulary learning is fast and usually is preferred by learners, but students face the new words in an isolation, not in a text. With regard to these two vocabulary learning activities, Krashen (1989), after reviewing a number of articles about incidental and intentional vocabulary learning, concluded that incidental vocabulary learning is more effective than intentional vocabulary learning.

According to Prez (2007), the importance of vocabulary knowledge has been repeatedly accepted in both theoretical and empirical vocabulary research. As noted by Hunt and Beglar (2005), “the heart of language comprehension and use is the lexicon” (p. 2).

2.2. Glossing
Researchers have defined glossing in similar ways. For instance, Lomicka (1998) defined glosses as a short meaning of unfamiliar words which is provided in different parts of a text. According to Otto and Hayes (1982), “The term gloss and glossing are being used to designate and describe the systematic use of marginal notes and other extra-text nota-
tions to direct readers’ attention while they read” (p. 1). Chun and Plass (1996) also stated that “the traditional method for glossing or annotating words is to provide a definition or explanation of the word either in the L2 or in the native language (L1) of the readers” (p. 183). Roby (1999) defined gloss as any note which is written in L1 or in L2 to help learners’ reading. Ko (2005), and Nation (2001) defined glossing as the definitions or synonyms of important words in a text.

It seems that increasing the number of words knowledge during reading is a good strategy for many L2 teachers and learners (Hsu, 2011). For example, Rott, Williams, and Cameron (2002) believed that learners enrich their vocabulary bank during reading, but Rott (2007) argued that during reading comprehension process it is hard for students to achieve the meaning of new words, because learners couldn’t pay full attention to the two tasks simultaneously. That’s why during reading process, it’s better for teachers to include some suitable activities and techniques to improve students’ vocabulary knowledge. Glossing in these situations may be the best option. Otto and Hayes (1982) emphasized on applying glosses in reading materials for two reasons. First, because glosses increase students, understanding, and second glosses can develop strategy use and comprehension skills. Moreover, Nation (2001) stated that glossing can reduce the interruptions during reading process, because glossing provides definitions of new words and L2 learners don’t need to look up the meanings of the new words repeatedly.

According to Zarei and Hasani (2012), there are many articles which are written on glossing and there are arguments both for using or not using glosses in second language acquisition.

Nagata (1999), and Lin and Huang (2008) emphasized the positive effects of glossing on reading comprehension. They believed that glossing made reading more interesting for learners and reduced interruption in reading process. They also believed that glossing could facilitate words retention through several encountering.

A number of studies (e.g., Lin & Huang, 2008; Rouhi & Mohhebebe, 2012) investigated the effects of glossing on vocabulary learning. For example, Yoshii (2006) investigated the effects of L1 and L2 glosses on incidental vocabulary learning. 195 EFL learners were assigned into
four conditions of L1 glosses, L2 glosses, L1 textual glosses and pictorial glosses, and L2 textual glosses along with pictorial glosses. The results indicated that both L1 and L2 glosses were effective for incidental vocabulary learning. But in terms of long term retention, the students of the L1 textual glosses group performed better than the students of the L2 textual glosses or L2 textual and pictorial glosses.

Lin and Huang (2008) also investigated the effects of meaning-inferred and meaning-given glosses on students’ incidental vocabulary learning. The participants of this study were 175 students of high and low proficiency level of Taiwan. Results of this study approved the positive effect of glossing on vocabulary learning. Indeed, those vocabulary items which were bold and glossed improved students’ attention to the new vocabulary items. These researchers also concluded that although both meaning-inferred and meaning-given glosses led to incidental vocabulary learning, but the results revealed that meaning-inferred glosses were more effective than meaning-given glosses in retention of new vocabulary items.

Yanguas (2009) examined the effects of different types of glossing (textual, pictorial, and textual-pictorial glosses) on vocabulary knowledge and text comprehension. 94 university students were divided into four groups, three groups as the experimental groups and one group as the control group. The results suggested that all kinds of glosses were better than the no-gloss condition. Regarding the comprehension text, results showed that the combined glossing condition is more effective than the other conditions, but about the production of the target vocabulary items, the results didn’t show any significant differences among different conditions.

Rouhi and Mohhebbei (2012) also investigated the effect of computer assisted L1 and L2 glosses on vocabulary knowledge. The participants of this study were forty-four Iranian pre-university students which were divided into three groups. Indeed, two groups as the experimental groups and one as a control. The first experimental group received L1 glosses, the second one received L2 glosses, and the third one which was the control group received no glosses. After 6 sessions of treatment, students were taken immediate post-test and 25 days later
took the delayed post-test. The results showed that both experimental groups outperformed the control group. Results also indicated that the first experimental group (L1 glosses) performed better than the second experimental group (L2 glosses).

2.3. Code-mixing
Code-mixing is another technique that can be used for vocabulary teaching and learning. Brown (2007) defined code-mixing as “using a L1 word with L1 pronunciation or L3 word with L3 pronunciation while speaking in L2” (p. 138). Moreover, according to Woon Yee Ho (2008), code-mixing is a “change of one language to another within the same utterance or in the same oral/written text” (p. 1). Numan and Carter (2001) also defined the term as “a phenomenon of switching from one language to another in the same discourse” (p. 275).

According to Mirhasani and Jafarpour Maghami (2009), during the 1970s and 1980s, using code-mixing in the classroom was a kind of disadvantageous phenomenon, and the main concern was about how to prevent it. However, in recent years scholars and researchers believed that using code-mixing can be considered as an effective strategy in teaching and learning vocabulary. For example, Abdali (2007) examined the effects of code-mixing on L2 vocabulary learning. 50 pre-university students were divided into two groups. One of the experimental groups received word definition through code-mixing while the other group was provided with definitions and synonyms. The results showed that code-mixing was more effective than providing learners with word definition for vocabulary learning.

Hosseini Fatemi and Barani (2014) investigated the effect of teachers’ code-mixing on Iranian university EFL learners’ vocabulary knowledge. 60 intermediate university EFL learners were selected as the participants of this study. These participants were assigned to a code-mixing condition versus an English-only condition classroom. Findings showed that teachers’ code-mixing improved the process of teaching and learning vocabulary.

Celik (2003) also investigated the efficacy of code-mixing on L2 vocabulary learning. He reported the benefits of code-mixing for vocabu-
ulatory learning and retention. Indeed, he selected some stories which involved L1 vocabulary items instead of L2 words. The context involved both L1 words and their L2 equivalents. The participants of this study which were freshmen, listened to these stories for two times. The results indicated that most of the students used newly learned vocabulary items in their speaking or writing. So, he found that teaching new vocabulary items through code-mixing can be a useful and effective method.

Mirhasani and Jafarpour Maghami (2009) investigated the effect of code-mixing on Iranian EFL learners’ oral proficiency. By a teacher-made achievement test the homogeneity of the participants understood. After selecting the participants of the control and experimental groups, students were asked to participate in speaking activity. For the students of the control group, using L1 was forbidden during their speaking, while the participants of the experimental group were allowed to use L1 in their speaking. After the post-test, the collected data indicated that code-mixing could have a positive effect on EFL learners’ oral proficiency.

In contrast, Zarnani and Zarei (2012) provided counter evidence for the efficacy of code-mixing. They investigated the effects of standard and reversed code-mixing on L2 vocabulary recognition and recall. For doing this research, 87 female Iranian EFL learners were selected. These participants were divided into three groups, two experimental groups, and one control group. The first experimental group received vocabulary instruction through standard code-mixing, that is, an L1 vocabulary item was inserted to an L2 context. The second experimental group received the same vocabulary instruction through reversed code-mixing, that is, an L2 vocabulary item was inserted to an L1 context. The control group, received the same words in English sentences without any standard or reversed code-mixing. The results indicated that both standard and reversed code-mixing had no significant effect on the learners’ vocabulary recognition.

Although, several studies investigated the effects of code-mixing or glossing on vocabulary knowledge separately (e.g., Celik, 2003; Yoshii, 2006; Lin & Huang, 2008; Ko, 2012), it is still not clear which of these two techniques is more effective for vocabulary learning. Therefore, this study is going to compare the effects of oral code-mixing and glossing on
Iranian EFL learners’ vocabulary knowledge. To this end, the following research questions will guide the current study:

1. Does presenting new words through code-mixing (oral input) promote pre-university EFL learners’ acquisition of L2 vocabulary?

2. Does providing pre-university EFL learners with glossed L1 translation of target words (written input) enhance the acquisition of these words?

3. Which of the above techniques (code-mixing or glossing) is more effective for teaching L2 vocabulary?

Three null hypotheses were formulated based on the research questions:

1. Presenting new words through code-mixing (oral input) doesn’t promote pre-university EFL learners’ acquisition of L2 vocabulary.

2. Providing pre-university EFL learners with glossed L1 translation of target words (written input) doesn’t enhance the acquisition of these words.

3. There is no difference between the effects of code-mixing and L1 glossing on the acquisition of L2 words.

3. Method

3.1. Participants

According to the students’ pre-test scores, among 60 pre-university EFL learners, 36 lower-intermediate of them were chosen as the participants of this study. They were all female and at the same level of proficiency. The participants’ age ranged from around 17 to 18. All the students involved in the study were native speakers of Persian, learning English as a forging language.

3.2. Design

This study employed an experimental design including two experimental conditions, namely, oral code-mixing, and glossing, that were compared with a control group. The participants were randomly assigned into three groups of 12 participants. After administering vocabulary knowledge test, those vocabulary items which were least known to learners were
selected as target words. After four days, learners of the experimental
groups received treatment in one session according to the group designa-
tion. Two days later two post-tests were assigned by the researcher. One
of these post-tests was a cued production test, and the other one was
a multiple choice test. One week later, a delayed post-test which were
similar to the immediate post-test but with some minor changes in the
structure of the questions were administered.

3.3. Target words identification
In order to identify the target words, the participants were provided
with a list of 30 words as a pre-test. The researcher asked them to write
the Persian translation of these words in a space provided in front of
them. Based on learners’ answers those words which were least known to
the participants were selected as target words of this study. Indeed, out
of 30 vocabulary items, 15 words were selected as the target vocabulary
items because none of the participants couldn’t write the correct Persian
translation of these 15 vocabulary items. The selected target vocabulary
items were: political, vote, protest, injustice, independence, religious,
indigestion, longevity, reduce, entire, deprived, intermittent, asthma,
symptoms, and inflammation.

3.4. Setting and data collection procedure
The participants in this study had learned their English in an educa-
tional setting. The majority of these learners had been learning En-
glish as a foreign language at schools for six years. The study required
three homogenous groups whose vocabulary knowledge was checked to
make sure about their homogeneity. A pre-test was administered and it
was found out that they were homogenous with regard to their vocabu-
lary knowledge. Therefore, according to the pre-tests scores, among 60
students enrolled in the Hijab pre-university school, 36 students were
chosen by the researcher. These participants were divided into three
groups. Two experimental groups and a control group. The difference
between the experimental groups and a control group was in the man-
ner of presentation of material to be taught. The text which is used
as the instruction of this study was selected from Thoughts & Notions
book (Ackert & Lee, 2005). Three more paragraphs were taken from
Four Corners book (Richards & Bohlke, 2011). The length of the text was about 508 words. Based on the learners answers’ in the pre-test, those words which were least known were selected. Fifteen new words were chosen and taught by the researcher under three conditions.

3.4.1. Oral code-mixing condition
After identifying the target words through the pre-test, 15 new words were selected and the researcher provided a text which contained these 15 new words. For the first experimental group, oral code-mixing condition, the researcher just made these 15 new words bold in the text. The researcher read the text to the learners, whenever she reached a bold word, she provided the learners with the oral definition of the target word. Therefore, through one session students received the L1 translation of these 15 new words in the text orally by the researcher.

3.4.2. Glossing condition
Just like the first experimental group, the same 15 target new words were selected and inserted to the same text. Again these fifteen new words were bolde by the researcher, but this time the Persian translation of these 15 target words were provided in parentheses in front of them within the text. The learners were simply asked to read the text containing the target words and pay attention to the Persian translation of the bold words.

3.4.3. Control condition
The participants of control group received the text without any bold words. Learners provided the same text without providing L1 definitions of these fifteen new words orally or in a written way through one session.

The amount of time which was allocated for the treatment sessions of the three groups was about 30 minutes. Three days after the instruction session, the researcher administered the immediate post-test. The students were asked to answer the questions in 35 minutes. One week after the immediate post-test, the delayed post-test were administered.

3.5. Testing instruments and procedure
One of the testing instruments which is used in this study is pre-test. Two
other tests were used to assess vocabulary knowledge as a results of post- and delayed post-tests. They were a cued production vocabulary test, and a multiple choice test.

3.5.1. Pre-test
The pre-test involved 30 questions. Each of these question items included a word with a space in front of it. Students were asked to write the Persian translation of the words in the provided space. An example of this test is presented in Example 1.

Example 1

Injustice

3.5.2. Cued production test
The cued production test involved fifteen questions. Each of these questions contained a target word. The test included a statement with a blank in which the first two letters of each words and their Persian translation were provided. Students were asked to fill in the blanks by the appropriate target words. The reliability of this test was also measured by estimating the correlation coefficient between the control group’s scores in the immediate and delayed post-test which was 96. An example of this test is provided below.

Example 2

The number of employees was re ——— (کاهش دادن) from 40 to 25.

3.5.3. Multiple choice test
The third vocabulary test of this study was a multiple choice test which involved 20 items including 15 target vocabulary items and 5 distractors. Each item involved a statement in which a word was removed followed by four options. Students were asked to select one of these four options in order to fill in the blanks. The reliability of this test was measured by estimating the correlation coefficient between the control group’s scores in the immediate post-test and delayed post-test which indicated. 98 correlation between the two sets of scores. An example of the multiple choice test is presented in Example 3.
Example 3
In 1918 British women got the right to _________.
   a. vote     b. reduce     c. discover     d. undertake
Two versions of these tests (cued production test, and multiple choice test) were administered for both post-and delayed post-tests by slightly changing the structure of the items.

3.6. Data analysis
After obtaining learners’ scores in the post-and delayed post-tests, one-way ANOVAs were performed on learners’ scores to find if there is statistical significant difference among the groups. In order to identify the differences among the groups, Tukey’s post hoc comparisons were performed.

4. Results

Tables 1 and 2 provide descriptive statistics for learners’ scores in cued production test and multiple choice test in immediate and delayed post-tests.

**Table 1.** Descriptive statistics for learners’ scores in the cued production test

<table>
<thead>
<tr>
<th></th>
<th>Immediate post-test</th>
<th></th>
<th>Delayed post-test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Glossing</td>
<td>12</td>
<td>12.50</td>
<td>1.50</td>
<td>10.91</td>
</tr>
<tr>
<td>Code-mixing</td>
<td>12</td>
<td>5.41</td>
<td>1.78</td>
<td>3.16</td>
</tr>
<tr>
<td>Control</td>
<td>12</td>
<td>1.58</td>
<td>1.24</td>
<td>0.58</td>
</tr>
</tbody>
</table>
Table 2. Descriptive statistics for learners’ scores in the multiple choice test

<table>
<thead>
<tr>
<th></th>
<th>Immediate post-test</th>
<th>Delayed post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>Mean</td>
</tr>
<tr>
<td>Glossing</td>
<td>12</td>
<td>14.66</td>
</tr>
<tr>
<td>Code-mixing</td>
<td>12</td>
<td>7.00</td>
</tr>
<tr>
<td>Control</td>
<td>12</td>
<td>1.00</td>
</tr>
</tbody>
</table>

As tables 1 and 2 indicate, the number of participants in each group (code-mixing, glossing, and control) were 12 EFL learners. By comparing the mean scores of glossing, code-mixing, and control groups in all testing sessions, it can be realized that the glossing and oral code-mixing groups’ mean scores are higher than the control group in all testing occasions. Furthermore, the results presented in the tables 1 and 2 suggest that learners’ scores in the glossing condition is higher than learners’ scores in the code-mixing condition.

In order to see if there is a statistical significant difference between the three groups, learners scores were submitted to one-way ANOVA. The results shows a significant difference between the three groups. Table 3 provides the results for cued production test.

Table 3. ANOVA (results for cued production test)

<table>
<thead>
<tr>
<th></th>
<th>Immediate post-test</th>
<th>Delayed post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$df$</td>
<td>$F$</td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>158.0</td>
</tr>
<tr>
<td>Within Groups</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

As tables 3 indicates, the difference among the three groups in immediate cued production test, $F(2, 33) = 158.0, p < .001$, and in delayed cued production test, $F(2, 33) = 251.6, p < .001$ are statistically significant.
Table 4. indicates the results for multiple choice test.

<table>
<thead>
<tr>
<th></th>
<th>Immediate post-test</th>
<th></th>
<th>Delayed post-test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>F</td>
<td>Sig.</td>
<td>F</td>
</tr>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>248.8</td>
<td>.000</td>
<td>289.7</td>
</tr>
<tr>
<td>Within Groups</td>
<td>33</td>
<td></td>
<td></td>
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</table>

As table 4 shows, the difference among the three groups in immediate multiple choice test, $F(2, 33) = 248.8, p < .001$, and in delayed multiple choice test,$F(2, 33) = 289.7, p < .001$ are also statistically significant.

In order to locate the differences among the groups, Tukey’s post hoc comparisons were employed for post-test and delayed post-tests scores. Table 5 indicates the results.

Table 5. Group comparisons for the cued production test and multiple choice test

<table>
<thead>
<tr>
<th></th>
<th>Immediate post-test</th>
<th></th>
<th>Delayed post-test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glossing &gt; code-mixing*</td>
<td>p &lt; .001</td>
<td>Glossing &gt; code-mixing*</td>
<td>p &lt; .001</td>
<td></td>
</tr>
<tr>
<td>Glossing &gt; control*</td>
<td>p &lt; .001</td>
<td>Glossing &gt; control*</td>
<td>p &lt; .001</td>
<td></td>
</tr>
<tr>
<td>Code-mixing &gt; control*</td>
<td>p &lt; .001</td>
<td>Code-mixing &gt; control*</td>
<td>p &lt; .001</td>
<td></td>
</tr>
</tbody>
</table>

*. The mean difference is significant at the 0.05 level.

As Table 5 indicates, for both post-and delayed post-tests, the glossing group outperformed code-mixing and control groups. Furthermore, the code-mixing group outperformed the control group.

5. Discussion

The current study investigated the effects of oral code-mixing and glossing on L2 vocabulary knowledge. The results indicated that both conditions were effective for promoting L2 knowledge. Furthermore the findings revealed that the glossing condition was more effective than code-mixing. Based on the findings of the study, the answers to the research questions are now provided.
5.1. The effects of code-mixing on learners’ acquisition of L2 vocabulary
The first research question asked if presenting new words through code-mixing promoted pre-university EFL learners’ acquisition of L2 vocabulary. By looking at the mean scores of code-mixing group and control group, it is realized that participants in code-mixing condition outperform the participants of the control group. Consequently, the answer to the first research question is positive and the first null hypothesis is rejected.

In line with the findings of the present study, Celik (2003) believed code-mixing is an effective technique for teaching L2 vocabulary. He found that if students encounter a context which involves both L1 words with their L2 translation, they will use the new words in their speaking and writing.

Moreover, Abdali (2007) had a positive view about using code-mixing in EFL classrooms. After examining teaching vocabulary through code-mixing, she found that those students who received the L1 translation of the new words orally by the teacher perform better than those students who didn’t received the L1 translation.

5.2. The effects of glossing on learners’ acquisition of L2 vocabulary
The second research question of this study asked if providing pre-university EFL learners with glossed L1 translation of target words enhanced the acquisition of these words. As it was mentioned in the previous section, the mean score of the participants of glossing group was higher than the mean score of the participants of the control group. Thus, the learners of glossing group performed significantly better than the learners of control group. Therefore, based on our findings, the second null hypothesis is also rejected.

In line with the findings of the present study, Rouhi and Mohhebbai (2012) had a positive view about using glossing for promoting students’ vocabulary knowledge. After examining teaching new vocabulary items through glossing, they found that students of L1 glosses condition performed better than students of no glosses condition.
In contrast to the findings of this study, Holly and King (2006) believed that glossing cannot enhance the students’ vocabulary knowledge. They believed that for improving students’ vocabulary knowledge other techniques (such as visual aids, paraphrasing and etc.) may be more effective than glossing.

5.3. Comparing the effects of oral code-mixing and glossing on learners’ acquisition of L2 vocabulary

The last research question of this research asked which of the above techniques (oral code-mixing, and glossing) was more effective for teaching L2 vocabulary? According to the findings of this study, glossing is more effective than code-mixing method in vocabulary teaching and vocabulary learning. Therefore, the third null hypothesis is rejected too. But why was glossing more effective than code-mixing method? It can be argued that glossing is more effective than code-mixing because in the glossing condition learners had more time to concentrate on the definitions of the new words.

In addition, it seems that providing the definition of new words in a written form may positively affect participants’ short-term and long-term memory for recalling the meaning of the new words in both immediate and delayed post-tests. In the contrary, the participants of the oral code-mixing condition forgot the meanings of the new words when the researcher provided the translation of new words in an oral way. Indeed, the students of this method tried to ask the meaning of the bold words for several times exactly after reading the text completely by the researcher.

The findings of the present study can be discussed in relation to a number of previous studies. For instance, Nagata (1999), and Lin and Huang (2008) found that glossing is an effective method for vocabulary teaching and learning. Indeed, they believed that using glossing method could improve learners’ words retention. They reported that using glossing made reading more enjoyable, and reduced interruptions in reading process. They believed that using glossing method in learning a foreign language could lead to incidental vocabulary learning.

Moreover, Ko (2012) had a positive view about glossing and vocab-
ulary learning. He reported that there is a significant difference between a glossed and no-glossed conditions on students’ L2 vocabulary learning. Indeed, he believed that learning vocabulary through glossing condition is much better than no-gloss condition.

Although some researchers (e.g., Ko, 2012; Nagata, 1999) believe that glossing is an effective technique for vocabulary learning, other researchers suggested that using the other techniques (such as using dictionary, repetition, visual aids and etc.) may be more effective than glossing. For example, in contrast to the findings of the present study, Jacobs, Dufon, and Hong (1994) revealed that exposing students to the other methods of vocabulary learning such as repetition, paraphrasing, or the other approaches is more effective than providing learners with different forms of glossing.

6. Conclusions, implications, limitations, and suggestions for further research

The results of the current study provided evidence that glossing and oral code-mixing are effective techniques for teaching L2 vocabulary. Furthermore, the results indicated that glossing is more effective than code-mixing for L2 vocabulary learning.

The results of this study have some important implications for language teaching practitioners. While implication of this study is that learners can benefit from written definitions and synonyms of unknown vocabulary during reading furthermore learners benefit from oral definitions and synonyms of L2 words provided by the teacher during class presentations and lectures.

Like other studies, this study suffers from some limitations too. One limitation of this study is that only female learners participate in this study and this can jeopardize the generalizability of the results. The second limitation of this study is that the learners only participated in one treatment session. However, the researcher had to limit the number of treatment sessions into only one session in order to avoid the effects of other confounding variables that might occur between the treatment sessions.
One suggestion for future research is to investigate the effects of glossing and code-mixing in intentional context, because in this study the context for teaching new vocabulary was incidental that is the participants were not inform that would be tested regarding the target vocabulary items.

References


Appendix A: Pre-test

Name: ..........................................

Write the translation of each words in Persian.

1. Injustice ...................... 2. Vote .........................
3. Religious ..................... 4. Leader .........................
5. Mice ......................... 6. Protest .........................
9. Intermittent .................. 10. Symptom .....................
11. Occasionally .............. 12. Moderate ......................
15. Indigestion ............... 16. Function ......................
17. Undertook .................. 18. Cardiovascular ............
21. Independence ......... 22. Illness .........................
23. Reduce .................... 24. Motivate ......................
27. Alternate-day ............ 28. Evolutionary ................
29. Inflammation ........... 30. Entire .........................
Appendix B: Immediate Post-test

Part 1

In the name of God

Name: ----------------------------------

Choose the best answer.

1. It was the worst day in my ___________ life.
   a. entire       b. political      c. intermittent   d. deprived

2. The movie deals with ____________ suffered by Native Americans.
   a. illnesses  b. injustices   c. functions   d. religions

3. Some people fast for ____________ reasons.
   a. entire       b. deprived      c. political   d. dangerous

4. In 1918 British women got the right to ____________.
   a. vote       b. reduce        c. discover   d. undertake

   a. indigestion b. independence c. inflammation d. religion

6. Students held a ____________ march against the war.
   a. injustice   b. longevity    c. indigestion  d. protest

7. The worms have a ____________ of two years.
   a. symptom    b. inflammation  c. longevity   d. function

8. Mohandas Gandhi was the famous Indian ____________.
   a. teacher    b. doctor        c. leader     d. writer

9. Ramadan is a _______________ holiday for Muslims.
   a. religious  b. entire        c. dangerous  d. spiritual
10. Upton Sinclair suffered from -------------- for 12 years.
   a. longevity  b. indigestion  c. independence  d. injustice

11. She had all the normal childhood ------------------.
   a. occasions  b. symptoms  c. illnesses  d. conditions

12. If you are -------------- of food, your brain needs to work hard.
   a. spiritual  b. deprived  c. intermittent  d. terrible

13. Common ---------------- of diabetes are weight loss and fatigue.
   a. inflammations  b. illnesses  c. religious  d. symptoms

14. The weather forecast is for sun, with -------------- showers.
   a. dangerous  b. intermittent  c. powerful  d. entire

15. Some people suffer from ------------------.
   a. asthma  b. independence  c. longevity  d. protest

16. Blood markers of ------------------, including C-reactive protein, also decreased, suggesting that the fast was helping to moderate their overactive immune system.
   a. indigestion  b. inflammation  c. asthma  d. illness

17. Fasting is also spiritual practice in many -----------------.
   a. religions  b. occasions  c. conditions  d. functions

18. Some of these prisoners are extremely -----------------.
   a. entire  b. dangerous  c. political  d. spiritual

19. This computer program can perform several --------------.
   a. functions  b. symptoms  c. conditions  d. occasions

20. Giving up smoking -------------- the risk of heart disease.
   a. discovers  b. undertakes  c. reduces  d. motivates
Part 2

In the name of God

Name: ..................................

Fill in the blanks with the correct words.

1. Shortly afterwards he fell ill of an in- - - - - - - (متناب) fever, but seemed to recover.

2. A lot of children have been de- - - - - (محروم بودن) of a normal home life.

3. The number of employees was re- - - - - (کاهش دادن) from 40 to 25.

4. In 1882 Mark Twain had another serious illness, with in- - - - - - - (التهاب) of the brain; but he recovered sufficiently to travel to his old haunts in France and Italy.

5. His as- - - - (تنگی نفس) tormented him day and night.

6. People of all ages and of both sexes are affected by in- - - - - - - (سوء هاضمه).

7. Look out for sy- - - - - (نشانه ها) of depression.

8. The en- - - - (تمام) village was destroyed.

9. We vo- - - - (راي دادن) Democrat in the last election.

10. The building work will go ahead, despite the pr- - - - - - - (اعتراض) of local residents.

11. Where there's law there's in- - - - - - (پي عادالت).

12. We wish you both health and lo- - - - - - (طول عمر).
13. My re - - - - - - - (مذهبی) beliefs forbid the drinking of alcohol.

14. I suspect that he was dismissed for po - - - - - - - (سیاسی) reasons.

15. The country has made great advances since in - - - - - - - (استقلال).

Appendix C: Delayed Post-test

Part 1

In the name of God

Name: -----------------------------

Choose the best answer.

1. It was the worst day in my ---------- life.
   a. entire                  b. political                   c. intermittent                 d. deprived

2. The movie deals with --------------- suffered by Native Americans.
   a. illnesses             b. injustices                c. functions                      d. religions

3. Some people fast for --------------- reasons.
   a. entire                  b. deprived                 c. political                       d. dangerous

4. In 1918 British women got the right to ----------------.
   a. vote                     b. reduce                   c. discover                       d. undertake

   a. indigestion          b. independence        c. inflammation               d. religion

6. Students held a --------------- march against the war.
   a. injustice               b. longevity              c. indigestion                   d. protest
7. The worms have a ___________ of three years.
   a. symptom       b. inflammation     c. longevity       d. function

8. Imam Khomeyni was the famous Iranian ___________.
   a. teacher       b. doctor          c. leader          d. writer

9. Ramadan is a ___________ holiday for Muslims.
   a. religious     b. entire          c. dangerous       d. spiritual

10. Jack Krashen suffered from ___________ for 12 years.
    a. longevity     b. indigestion     c. independence    d. injustice

11. She had all the normal childhood ___________.
    a. occasions     b. symptoms       c. illnesses       d. conditions

12. If you are ___________ of food, your body needs to work hard.
    a. spiritual     b. deprived        c. intermittent   d. terrible

13. Common ___________ of heart disease are weight loss and fatigue.
    a. inflammations b. illnesses       c. religious      d. symptoms

14. The weather forecast is for sun, with ___________ showers.
    a. dangerous     b. intermittent    c. powerful       d. entire

15. Some elderly people suffer from ___________.
    a. asthma        b. independence    c. longevity      d. protest

16. Blood markers of ___________, including C-reactive protein, also decreased, suggesting that the fast was helping to moderate their overactive immune system.
    a. indigestion   b. inflammation   c. asthma         d. illness

17. Praying is also spiritual practice in many ___________.
    a. religions     b. occasions       c. conditions     d. functions
18. Some of these prisoners are extremely ________________.
   a. entire  b. dangerous  c. political  d. spiritual

19. This computer program can perform several ________________.
   a. functions  b. symptoms  c. conditions  d. occasions

20. Giving up smoking ____________ the risk of heart disease.
   a. discovers  b. undertakes  c. reduces  d. motivates

Part 2

In the name of God

Name: ………………………..

Fill in the blanks with the correct words.

1. Shortly afterwards he fell ill of an in ____________ fever, but seemed to recover.

2. A lot of poor people have been de ____________ of a normal home life.

3. The number of students was re ____________ from 40 to 25.

4. In 1882 Mark Twain had another serious illness, with in ____________ of the brain;
   but he recovered sufficiently to travel to his old haunts in France and Italy.

5. His as ____________ tormented him day and night.

6. People of all ages and of both sexes are affected by in ____________.

7. People of all ages and of both sexes are affected by in ____________.

8. People of all ages and of both sexes are affected by in ____________.

9. People of all ages and of both sexes are affected by in ____________.

8. The en----- (تمام) city was destroyed.

9. We vo----- (رای دادن) Democrat in the last election.

10. The building work will go ahead, despite the pr----- (اعتراض) of local residents.

11. Where there's law there's in------ (می عدالتی).

12. I wish you both health and lo----- (طول عمر).

13. My re----- (مذهبی) beliefs forbid the drinking of alcohol.

14. We suspect that he was dismissed for po----- (سیاسی) reasons.

15. The country has made great advances since in----- (استقلال).

**Appendix D: Text**

*One of the texts used in this study.*

**Twenty-One Days without Food**

Why would someone decide to stop eating? We know that the body needs food in order to function well. However many people fast at some time during their lives. Why is this?
There are several reasons why people might choose to fast. Some do so for political reasons, while others may fast for religious or health reasons.

Mohandas Gandhi, for example, fasted 17 times during his life. He believed that fasting was a powerful political tool. In 1943, he fasted to draw attention to his country's need for independence. For 21 days, he went without food. Another famous faster was Cesar Chavez. In the 1960s, he fasted for three weeks. His goal was to bring attention to the terrible working conditions of farm workers in the United States.

Fasting is also a spiritual practice in many religions. Every year during the month of Ramadan, which is a religious holiday, Muslims fast from sunrise to sunset. Many Hindus fast on special occasions, as do some Christians and Buddhists.

Of course, not everyone fasts for political or religious reasons. Some people occasionally fast just because it makes them feel better. The American writer Mark Twain thought fasting was the best medicine for common illnesses. Whenever he had a cold or a fever, he stopped eating completely. He said that his always made his cold or fever go away. Another American writer, Upton Sinclair, discovered fasting after years of overeating, and headaches. His first fast lasted for 12 days. During this time, his headaches and stomachaches went away. Sinclair said that fasting also made him more alert and energetic.

As for treating cancer, Valter Longo, director of the Longevity Institute at the University of Southern California, thinks that short-term complete fasts maximize the benefits. He has found that a 48-hour total fast slowed the growth of five of eight types of cancer in mice, the effect tending to be more pronounced the more fasts the animals undertook.
Fasting is good for the brain. If you look at an animal that’s gone without food for an entire day, it becomes more active. Fasting is a mild stressor that motivates the animal to increase activity in the brain. From an evolutionary perspective, this makes sense, because if you are deprived of food, your brain needs to work harder to help you find something to eat. For people who are overweight, any kind of intermittent fasting diet will probably help reduce the risk of diabetes and cardiovascular problems, Mattson says. In 2007, he found another benefit, too. He put 10 overweight people with asthma on an alternate-day incomplete fast and found that their asthma symptoms improved after just a few weeks. Blood markers of inflammation, including C-reactive protein, also decreased, suggesting that the fast was helping to moderate their overactive immune system.

Choosing to go without food can be very dangerous. However, that doesn’t stop people from fasting for political, religious, or health reasons.