The Effect of Jigsaw Technique vs. Concept Map presentation Mode on Vocabulary Learning of Low-Intermediate EFL Learners

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Abstract: The present study aimed at finding the effectiveness of two techniques for teaching English vocabulary to Iranian EFL learners; A jigsaw procedure as an innovative cooperative technique and concept-mapping procedure as a technique that elicited the schemata, background knowledge and students ideas as well. Forty-four students were chosen from Mojtama Fanni Tehran and College institutes located in Babol through convenience sampling. The Jigsaw group consisted of Twenty-two low-intermediate participants in Mojtama Fanni Tehran. The concept-mapping group was taught vocabulary through concept-mapping technique in College institute. In fact they were our two independent experimental groups who were at low-intermediate level of proficiency. Then, they were homogenized by Oxford Proficiency Test. To evaluate the effect of each technique distinctively, both groups were given the same items as a pretest and posttest. After the eight sessions of treatment, the data was analyzed by independent t-test through SPSS version 18 to compare the results of pretests and posttests of both groups. The results revealed that both techniques were effective in learning vocabulary items and the concept-map group performed better on the post-test of vocabulary.

Index Terms: EFL learners, concept mapping, cooperative technique, jigsaw

1. Introduction

All the four main language skills need great effort to be learned, especially in an EFL context. Vocabulary learning has always been a major concern among language teachers and learners. Effective learning of new lexical items seems to be one of the main goals to be achieved by all language learners. It might enable students to write more effectively. Besides, they can interact in an appropriate way. The more vocabulary knowledge leads to better understanding passages. According to Richards and Renandya (2002), vocabulary teaching and learning were given little priority in second language learning and teaching programs but nowadays many studies have been devoted to vocabulary learning.

As Nemati (2013) mentioned, vocabulary is a very important element within a language as the overwhelming majority of meaning is carried lexically, and, therefore, something to be taken into consideration both into second and foreign language. So lexical items which carry out the meaning are so important in all languages. We as human being understand each other through the meaning of words which is known by us.

According to Nation (2006), 8000 to 9000 word family vocabulary is needed for comprehension of a written text and a vocabulary of 6000 to 7000 for spoken text is needed. Thus vocabulary knowledge contains a large domain of our requirements to understand language and we can say that vocabulary knowledge is so important for people in need of un-
derstanding the written texts or in reading skills.

Learning vocabulary seems to be the pre-requisite to learning the four main language skills. Vocabulary learning is a continuous task and it is a key component of language learning. The work of the scholars and practitioners shows that there has been a renewed interest in learning and teaching vocabulary in the past two decades (Maftoon, Hamidi & Sarem, 2012). The role that knowledge of vocabulary plays in second language acquisition is receiving much attention in language teaching curriculum. Moreover there are many strategies of learning and teaching new lexical items in cooperative learning as Folse (2014) argues, two of such strategies are jigsaw technique and concept mapping.

Although many teachers might be aware of the importance of vocabulary learning and teaching strategies for Iranian students and the related techniques as well; a few of them desire to improve this interest in their students and internalize new lexical items, because new lexical items are easily forgotten. This study tries to investigate the effects of Jigsaw and Concept-mapping teaching and the degree to which they result better vocabulary acquisition in Iranian low-intermediate EFL learners. Besides, these techniques will benefit learners to learn new vocabularies in a co-operative atmosphere (Wedman, 1996).

2. Review of the Related Literature

2.1 Vocabulary learning and teaching

Learning a language demands us to be skillful in four skills. Listening, speaking reading and writing and it is obvious for being a good readers we must know vocabularies to understand the written and spoken texts. English language learners who experience slow vocabulary development are less able to comprehend text at grade level than their English only peers. According to Mearu (1980, as cited in Nation, 2006), language learners admit that they face considerable difficulties with vocabulary even they upgrade from an initial stage of acquiring a second language to much more advanced level. Besides language teachers consider vocabulary as a topic they most need research to make their teaching and students learning better in the classroom. Moreover, Gupta and Folse (2014) argued that learning new words is one of the most crucial processes in human development, so it is said that the main role of vocabulary learning is straightforward accepted and suitable strategies to achieve this goal is in great demand. There are many strategies in which two frequent techniques are Concept-mapping and Jigsaw.

2.2 Concept-mapping

Education should be used to help a person grow and develop in many aspects such as intellectual, emotional, and social aspects. Education should also create awareness (Khatib, Sarem, & Hamidi, 2013). Concept-Mapping refers to a strategy for examining learners understanding of relationships among concepts (Novak, 1992). It actually creates a graphic representation of one’s knowledge through encoding the information into memory (Moas & Leaubry, 2005). According to Morse and Jutras (2008), concept mappings are used either at the begging of starting a topic in the class to access the prior knowledge or at the end to summarize students new learned topic.

The technique of concept mapping was developed by Novak (1970) and his research team at Cornell University in 1970s as a means of representing the emerging science knowledge of students. It is subsequently been used as a tool to increase meaningful learning in sciences. Subjects were represented as the expert knowledge of individuals and teams in educating learning movement called constructivism. Novak’s work is based on the cognitive theories of Ausabel (assimilation theory), who stressed the importance of prior knowledge in being able to learn new concepts. Researchers have found that the strategy of concept mapping can enhance the learners reading comprehension. According to Okebukolu (1992), this technique improves writing ability.

2.3 Jigsaw

According to Richards, Platt, and Platt (1992, p.87), jigsaw is a type of cooperative learning which each member
of a group has a piece of information needed to complete a group work. Therefore it would be a significant strategy to cooperate the learners in the class with an intimate atmosphere. According to Acıkgoz (1992), this strategy is based on group dynamics and social interaction. Then Slavin (1986) made some changes in order to make it more useful. As Aronson (1971) said, Jigsaw is not just a cooperative learning technique but it is the element of interdependence among students, so it is a unique method. As I saw many difficulties in learning vocabularies this strategy can help students in learning vocabularies.

Some researchers have done empirical studies about concept map technique. Mcclare et al. (1998) investigated practicality and characteristics of this technique, the students received 90 minutes of training a list of terms by concept mapping technique. The results were so significant. Besides, Jamison (2003) examined the effectiveness of concept mapping on primary (k-3) and intermediate students vocabulary through reading in which there were one experimental group and one control group, the results were significant. I will teach vocabulary through concept map technique too. Moreover, Fazalizadeh and Amir (2011) from Islamic Azad university central Tehran branch investigated concept mapping on 60 elementary female students grammar knowledge of tenses who were selected randomly on their performance on a standardized teacher-made proficiency test, the scores of two equal experimental and control group were compared and results showed no significance difference in their means.

On the other hand, some researchers have done some empirical researchers on Jigsaw technique. Kazemi (2012) has studied reading comprehension through Jigsaw on 38 participants of Iran Canada and Shokooh institutes who were exposed to the Jigsaw instruction. In the experimental class the students were divided into groups which all had their own reading topic to study. After reading, each home group was split in such a manner that new groups had a single member from each of the old home groups. After the new groups had been assembled, each student in the expert group was responsible for integrating the knowledge of his/her topic into the understanding of the new group he/she was in. After gathering the required data, the results of a paired-samples T-test showed that the students’ post-test reading scores improved significantly (P= 0.000) when compared with their pre-test scores. Moreover, Kuram and Bilmleri (2011) have compared effects of Jigsaw I technique from the cooperative learning methods and traditional teaching method on academic achievement and retrieval of Turkish teacher candidates in the matter of written expression. The sample of the study consists of 70 students studying at the Department of Turkish teaching in the academic year of 2009-2010. One of the classes was randomly specified as control group (N=34) to which traditional teaching method was applied while the other as test group to which the Jigsaw technique (N=36) was applied. The study was predicated on “Non-equal control group pattern”. Learning styles of the groups were determined by the Kolb Learning Style Inventory (LSI). Data about their academic success were collected through Success Test for Written Expression (STWE) applied as pre-test and post-test and views of students about Jigsaw I technique were collected through a form questioning students’ views (SVF). Then, the results obtained from them were analyzed. It was observed as a result of statistical analyses that there was not a significant variation in favor of the test group in terms of academic success and stability between the test group and the control group in teaching the written expression subject. It was also determined according to the results obtained from the study that the students stated positive views for the Jigsaw I technique.

2.4 Advantages and disadvantages of concept mapping and jigsaw techniques

Concept maps are good because they are easy to apply, besides, reveal the stereotypes and activate learners. Concept maps have been used in various ways including to evaluate learners’ performance and diagnose misunderstandings (Ruiz-Primo, Schultz & Shavelson, 1997), design and develop a project, learning materials, and decision making (Coffey, 2007; Hughes & Hay, 2001), visualize information to foster cognitive processing of retrieving knowledge (Tergan, Keller & Burkhard, 2006), support problem solving performance (Kinchin, 2000; Okebukola, 1992), and assist navigation, search, and knowledge management in web-based learning environments (Canas et al., 2003). Higher-order mental functions can be developed by engaging in CM. Jonassen (1996) states that CM is a constructivist-based mind tool, “a way of using a
computer application program to engage learners in constructive, higher-order, critical thinking about the subjects they are studying” (PIV). Mackinnon (2006) showed positive impact of CM on students’ abilities to formulate arguments, lead effective discussions, and substantiate their conceptual frameworks. Contemporary research indicated that CM had a positive effect on student achievement (Asan, 2007; Chiou, 2008; Erdogan, 2009; Kwon and Cifuentes, 2007; Liu, Chen & Chang, 2010), but as all techniques suffer from some shortages, it is also true about Concept mapping. Some disadvantages of concept mapping are a) Implementation of concept mapping could be time-consuming, b) Limited application with regard to some more complex contents (e.g., mathematics).

On the other hand, using jigsaw technique benefits for its being cooperative. One of the primary advantages of the Jigsaw Method and most other cooperative learning strategies is that they tend to eliminate competition in the classroom and increase the cooperation among the students. Jacobs (1990) stated that it is necessary for students to see each other as collaborators and not as competitors. Singh (1991) recognized the goal is not to entirely eliminate competitiveness from students so that they will not be successful in a competitive world, but to teach cooperation as a skill that can be called upon in useful situations. Also, Holliday (2002) found that depending on classmates for success places peer pressure on lower achieving students to increase the level of their work. Peer pressure due to interdependence became an excellent source of motivation for these students. Slavin (1987) discovered that occasionally students working hard on class material were seen as “teacher’s pets” and thus discouraged to put forth large amounts of effort. Using cooperative learning creates a kind of team atmosphere among the groups, which is more acceptable to peers. Academic work is valued because it leads to the success of the group. According to Colosi and Zales (1998), The jigsaw is an effective way of engaging students both with course material and with each other. The peer teaching aspect requires that each student understands the material well enough to teach it to others (individual accountability), and each student is required to contribute meaningfully to a group problem-solving component (group goals). Research on this and other cooperative learning techniques shows significant benefits for students not only in terms of level of learning but also in terms of positive social and attitudinal gains. While there are some drawbacks too like any other strategies; According to A.M. Norintan (2008) in his empirical study, Jigsaw technique was found not effective enough because some students felt that they had doubted whether they had received valid information from their peers, and whether the received information was sufficient for them to answer the questions during examinations, then because the teacher is just a facilitator in the class and because of class time limitation teacher shouldn’t spend valuable time re-teaching prerequisite content. But the benefits of the strategy is much more than its shortages, this strategy is known as one appropriate strategy for teaching and learning.

3. Methodology

3.1 Participants

The participants of this study were chosen from among fifty-five male learners at Mojtama-e Fanni Tehran and College institutes located in Babol. Moreover, they have been studying English for three years. The age range of the participants is 17 to 30 years old.

3.2 Instruments

As to the instruments, the researcher administered the OPT proficiency test to have two homogenized groups. She considered the Vocabulary section of OPT test to homogenize their level of vocabulary proficiency. The researcher used new Interchange 2, third edition by Jack C. Richards in order to teach new vocabularies to the students. The researcher also used a pretest and a posttest of vocabulary (both will be equal) consisting of twenty-six items. This test was made by the researcher out of the New Interchange 2 book, the reliability of which was calculated through KR-21 formula.

3.3 Procedure

Considering the procedure, It is obvious that using these techniques involve their own procedure. In one class the
researcher presented the vocabularies through Jigsaw technique for 8 sessions. Students were supposed to work on puzzles prepared for them, using the new vocabularies. In another class she presented the same vocabularies through concept mapping at the last 20 minutes of the class in 8 sessions. Students were asked to draw a concept-map for each vocabulary based on the concepts associated with that special vocabulary. Moreover, students were required to make sentences for the next session as one part of their homework based on each strategy.

4. Results and Discussion

The present study was an attempt to find justifiable answer to the following research questions:

RQ1: Does Jigsaw technique have any effect on low-intermediate EFL vocabulary learning?
RQ2: Does concept-mapping technique have any effect on low-intermediate EFL vocabulary learning?
RQ3: Is there any difference between Jigsaw and Concept-Mapping on low-intermediate EFL vocabulary learning?

4.1 Result of the OPT used as homogeneity test

To make sure that the participants of both groups were homogenous regarding their general English language proficiency on one hand and vocabulary knowledge on the other hand, OPT test was administered to the participants of both groups. The descriptive statistics for the two groups are displayed in following tables.

Table 4.1 The Descriptive Statistics of the OPT score by the two groups

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPTJigsaw</td>
<td>22</td>
<td>62.7143</td>
<td>5.61674</td>
<td>-0.68</td>
<td>0.421</td>
</tr>
<tr>
<td>OPTConcept-map</td>
<td>22</td>
<td>61.6190</td>
<td>5.59865</td>
<td>-0.752</td>
<td>0.421</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 represents the results of the independent t-test and the Leven’s test for equality of variances.

Table 4.2 The Levene’s and independent t-test of the OPT score by the two groups used as the homogeneity test

<table>
<thead>
<tr>
<th></th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Homogeneity Test</td>
<td>.066</td>
<td>.673</td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.065</td>
<td>.700</td>
</tr>
<tr>
<td>Not assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The mean scores for the concept-map and jigsaw groups were 62.71 and 61.61, respectively. It should be noted that the two groups were also homogenous in terms of their variances. As displayed in table 4.2., the Levene F of .066 had a
probability of 0.673. Since the probability associated with the Levene F was higher than the significance level of .05, it could be concluded that the two groups enjoyed homogenous variances. Moreover, since the probability of t(.056) had the sig (.836), that is higher than the significance level of .05, it could be reason that the two groups were homogeneous regarding their language proficiency.

According to the results, it could be concluded that there was not any significant difference between the mean scores of the two groups on the OPT test. After conducting the OPT test, based on the mean scores obtained, both groups were recognized as homogeneous, each having twenty-two members.

### 4.2 Result of the vocabulary section of the OPT for vocabulary homogeneity test

The mean scores of the two groups on the vocabulary section of the OPT were calculated and compared. The descriptive statistics for the two groups are displayed in following tables. The descriptive statistics are shown in table 4.3 below.

<p>| Table 4.3 Descriptive statistics of the vocabulary section of the OPT test for the two groups |
|----------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|</p>
<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Statistic</td>
<td>Std. Error</td>
<td>Statistic</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>VocabOPTjigsaw</td>
<td>22</td>
<td>38.00</td>
<td>64.00</td>
<td>54.1905</td>
<td>1.88682</td>
</tr>
<tr>
<td>VocabOPTconcept-map</td>
<td>22</td>
<td>36.00</td>
<td>62.00</td>
<td>52.8095</td>
<td>1.97920</td>
</tr>
<tr>
<td>Valid N</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4 shows the results of the independent t-test and the Levene’s test for equality of variances.

<p>| Table 4.4 Independent t-test of the OPT vocabulary section for the two groups |
|----------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Levene’s Test                         | for Equality of                  | t-test for Equality of Means     | 95% Confidence Interval           |</p>
<table>
<thead>
<tr>
<th>Variances</th>
<th></th>
<th></th>
<th>of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
<td>df</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>VocabOPT</td>
<td>Equal variances assumed</td>
<td>.947</td>
<td>.635</td>
</tr>
<tr>
<td>VocabOPT</td>
<td>Equal variances not assumed</td>
<td>.761</td>
<td>39.909</td>
</tr>
</tbody>
</table>

The mean scores for the concept-map and jigsaw groups were 54.19 and 52.80, respectively. As it can be seen, the probability of t(.761) had the sig (.278), that is higher than the significance level of .05, therefore it could be concluded that the two groups were homogenous regarding their vocabulary knowledge prior to the administration of any treatment.

### 4.3 Reliability analysis of the pretest and posttest made by the researcher

The researcher made a twenty-six-item test of vocabulary out of New Interchange 2 book which was administered to the students of the same level before the research, the reliability of which is presented below. The reliability of the vocabulary test (used as pretest and post-test) as seen in table 4.1 below was computed through KR-21 formula which shows the reliability of .784 which means that the test is reliable in this context.
4.4 Pretest-Posttest comparison of vocabulary within both groups

Before comparing the mean scores of the two groups on the posttest, a comparison was made within both groups considering the pretest and posttest for each. Table 4.5 below shows descriptive statistics.

Table 4.6 Descriptive statistics of the two groups considering pretest and posttest

<table>
<thead>
<tr>
<th>Paired Samples Statistics</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jigsaw Pretest</td>
<td>35.0909</td>
<td>22</td>
<td>5.81385</td>
<td>1.23952</td>
</tr>
<tr>
<td>Jigsaw Posttest</td>
<td>54.7727</td>
<td>22</td>
<td>9.31937</td>
<td>1.98690</td>
</tr>
<tr>
<td>Concept Pretest</td>
<td>35.0000</td>
<td>22</td>
<td>5.22813</td>
<td>1.11464</td>
</tr>
<tr>
<td>Concept Posttest</td>
<td>60.0000</td>
<td>22</td>
<td>11.23345</td>
<td>2.39498</td>
</tr>
</tbody>
</table>

In order to find out whether there was a significant difference between the pretest and posttest within each group, a paired-samples t-test was run. Table 4.7 shows the result.

Table 4.7 Result of the paired-samples t-test for both groups

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Mean</th>
<th>SD</th>
<th>T</th>
<th>df</th>
<th>Sig (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jigsaw Pre-test-posttest</td>
<td>-19.68182</td>
<td>5.35756</td>
<td>-17.232</td>
<td>21</td>
<td>.000</td>
</tr>
<tr>
<td>Concept Pre-test-posttest</td>
<td>-25.00000</td>
<td>7.75825</td>
<td>-15.114</td>
<td>21</td>
<td>.000</td>
</tr>
</tbody>
</table>

4.5 Analysis of the research question: Posttest comparison of the jigsaw and concept-map groups

The descriptive statistics for the vocabulary posttest of the two groups are shown in table 4.8 below. The mean of the jigsaw and concept-map groups are 54.77 and 60.11 respectively.

Table 4.8 Group statistics of the posttest for jigsaw and concept-map groups

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jigsaw</td>
<td>54.7727</td>
<td>9.31937</td>
<td>1.98690</td>
</tr>
<tr>
<td>Concept</td>
<td>60.1146</td>
<td>11.23345</td>
<td>2.39498</td>
</tr>
</tbody>
</table>

In order to run a t-test, the researcher had to meet one assumption and that was the homogeneity of variances. As it
can be seen in table 4.8 below, the two groups were homogenous in terms of their variances as a condition to apply the t-test. As displayed in Table 4.8 below, the Levene F of 1.085 had a probability of .303. Since the probability associated with the Levene F was higher than the significance level of .05, it could be reasoned that the two groups enjoyed homogeneous variances on the post-test of the vocabulary test.

Table 4.8 Independent t-test for the posttest of jigsaw and concept-map groups

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
</tr>
<tr>
<td>JigCon</td>
<td>Equal variances assumed</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
</tr>
</tbody>
</table>

The mean scores for the jigsaw and concept-map groups were 54.77 and 60.11 respectively. As it can be seen in table 4.8 above, the probability of t(1.68) had the sig (.001), that is much lower than the significance level of .05. Based on the results, it could be concluded that there was a significant difference between the mean scores of the two groups on the posttest of the vocabulary test. The concept-map group performed better on the post-test of vocabulary test. Thus, it could be concluded that the null-hypothesis which was ‘There is no difference between applying jigsaw and concept-mapping techniques on vocabulary learning of Iranian low-intermediate EFL learners’ was rejected, putting emphasis on the superiority of the concept-map technique.

5. Conclusion

This study was an attempt to empirically find an answer to the series of research questions. The first research question of the study was “is there any difference between Jigsaw and Concept-Mapping on low-intermediate EFL vocabulary learning?”

In order to find an answer to the above-mentioned research questions, an independent t-test was run (table 4.8 in section four). The mean scores for the jigsaw and concept-map groups were 54.77 and 60.11 respectively. As it was shown in table 4.8 above, the probability of t(1.68) had the sig (.001), that is much lower than the significance level of .05. Based on the results, it could be concluded that there was no significant difference between the mean scores of the two groups on the posttest of the vocabulary test. Both the concept-map and Jigsaw groups improved their vocabulary learning. Thus, it could be concluded that the null-hypothesis3 which was ‘There is no difference between applying jigsaw and concept-mapping techniques on vocabulary learning of Iranian low-intermediate EFL learners’ was accepted, putting emphasis on both concept-map technique and Jigsaw technique as well. Besides the null-hypothesis 1 in which jigsaw technique didn’t have any effect on vocabulary learning of Iranian low-intermediate was rejected. Moreover the null-hypothesis 3 in which concept-mapping technique didn’t have any effect on vocabulary learning was rejected.

It is concluded that students who learn with their classmates in Jigsaw technique in a supportive environment are active learners rather than being passive learners because they can somehow play the role of teacher. They don’t just sit down silently on their chairs, they are involved in making responses to make sure that their team has learned new item successfully. It is also concluded that students involved in concept-mapping group has improved in learning new items. Because their background knowledge helped them in learning new items of vocabulary so meaningful learning in a friendly interactive class occurred. They used their relevant knowledge, ideas, as their own selective strategy to learn new materials.
The results obtained in this study shows that the participants of both groups vocabulary learning had significant improvement after eight week instruction through Jigsaw and concept-mapping technique. There were some reasons for their progression. First the Jigsaw group had more chance to cooperate, learn, teach, interact, and bridging the gaps of other teammate individuals for accomplishing the responsibilities. Here the students were not only responsible for their own learning but also for their teammates, so the cooperative atmosphere helped them in learning new items. Besides the teacher was just a backstage assistant as they were their own teachers. In the process of teaching each other and learning effective social interaction occurred which was the indicator of a healthy classroom.

On the other hand regarding to the results of concept-mapping group and their obvious improvements, it is worth indicating that participants using ideas, pre known items, relevant to the new ones helped them to participate in the process of teaching and learning new items more actively while they were learning others ideas and background knowledge, they were sharing their information and trying to solve the missing word at the center. They were enjoying learning in a friendly manner along with a teacher who was just a guide. Future studies with more participants, better instruments and longer research time are recommended using other useful strategies in the realm of vocabulary acquisition.

References


