

## The Effect of Concept Mapping on Iranian EFL Learners' Vocabulary Learning and Strategy Use

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**Abstract.** This study aimed to investigate the effects of concept mapping on the extent to which Iranian EFL learners retain new vocabularies and the degree of awareness toward vocabulary learning strategies they tended to use. To this end, a total of 40 Iranian EFL students were asked to participate in this study. They were randomly assigned to two equal groups; namely, experimental and control. The participants of the experimental group received four treatment sessions (learning vocabulary through concept mapping) during two weeks while the participants in the control group did not receive any treatment. To compare students' performance in the experimental and control groups, two instruments i.e. a vocabulary test and a vocabulary strategy use questionnaire were administered both before and after the treatment. The results indicated that concept mapping significantly improved students' L2 vocabulary learning and it was also effective for enhancing learners' awareness of vocabulary learning strategy use. Therefore, the results revealed that concept mapping was beneficial for promoting learners' vocabulary learning in EFL classrooms.

**Keywords:** Concept mapping, learning strategy, strategy use

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## 1. Introduction

When students learn English, they usually face many difficulties not only in specific skills but also in vocabulary learning (Allen, 1983). Learners tend not to have long term retention of the new words and therefore cannot recall the words when necessary due to the learning habits and strategies they employ (Coady, 1997). Much of the research (e.g., Noge Thuy, 2013) indicates that enlarging L2 vocabulary has been considered as one of the objectives of EFL learners. When learning English, students try hard to improve their vocabulary knowledge (Nosratinia & Sarabchian, 2010). However, students have to cope with many difficulties in learning vocabulary, especially in recalling the word meanings (Ward & Annita, 1998). Low vocabulary knowledge makes an obstacle for learners in acquiring language knowledge and participating in class activities (Noge Thuy, 2013). It is frustrating when students find out they cannot communicate effectively because they do not know enough words needed. Students usually forget the words they learn or fail to use words (Borkovska, 2007). They cannot transfer words into their long-term memory and recall them when necessary. Although they spend most of their time learning vocabulary, the results are disappointing. It can be seen that students' low level of vocabulary retention is due to lack of appropriate vocabulary learning strategies. They are not provided with different vocabulary learning techniques and are not

Some instructors who are aware of this problem might not know how to help their learners in this regard. Therefore, it is important to identify techniques that provide optimal opportunity for EFL learners' learning of new words. Different methods and approaches have been applied to teach or learn L2 vocabularies (e.g., Shen, 2003), but concept mapping and its influence on language learning is an unexplored and under-researched topic in L2 acquisition studies, especially in the context of Iran.

In the present study, the researcher attempts to find out the effects of concept mapping on the extent to which Iranian EFL learners retain new vocabularies and the degree of awareness toward vocabulary learning strategies they tended to use. More specifically, the researcher

wants to see whether or not learners' vocabulary knowledge is improved through concept mapping. Moreover, it is within the scope of this study to examine if concept mapping technique increases learners' awareness of other vocabulary learning strategies.

## 2. Literature Review

Concept mapping is originally derived from cognitive theory that sprang out of Ausubel's (1963) "Assimilation Theory" (Novak,1991). According to this theory, the key determinant of an individual's learning is his or her previous knowledge(Novak,1991). This theory took learning as most productive and meaningful when connecting prior knowledge with new information. That is, the acquisition of new knowledge hinges upon what is already known (Novak,1991).

Novak (1991) developed "the notion of concept mapping in the 1960s, in an attempt to represent visually the structure of information" (p.45). In this view, concept maps were techniques for visualizing the relationship among different concepts (Novak & Gowin,1984). According to Zimmaro and Cawley (1998), concept maps visually represented an individual's knowledge of a subject and graphically illustrate the relationships between concepts and ideas. Concept maps were employed in various educational settings, and commonly had encouraging impact on acquiring knowledge and boosting attitudes (Nesbit & Adesope,2006) According to Coffey (2003), employing concept maps allows learners to easily embody and pass on their tacit knowledge. By enabling learners to use their previous knowledge to recognize novel concepts,and by connecting unknown information with known information, concept maps provided learners with profound perception (Novak & Canas,2010) by creating essential connections in a hierarchical way prior to performing any activity, concept maps could bring about better understanding of the material. In three different investigations of the students' attitudes towards the use of concept mapping as a strategy to improve language learning skills,Chuarut and Debacker (2004), Nobahar, Tabrizi, Shen (2003) and Susan and Ansarian (2013) found that most of the students generally showed satisfaction with using concept mapping in their language learning. They concluded that the use of concept mapping boosted the

students' attitudes, motivation, and engagement in the EFL teaching and learning.

While Novak and Canas (2010) associated the use of concept maps mainly with teaching/learning purposes, Ngoc Thuy (2013) adopted a broader view of the educational functions of concept maps as a tool useful for promoting language vocabulary learning. The technique of concept mapping has become a subject of investigations and there are three applications: semantic mapping, cognitive mapping, and webbing.

William's (1994) study showed that "semantic mapping enables students to visualize the relationships and categorize these relationships" (p.28). Teachers can introduce concept maps in circles, squares or ovals with connected lines. To this end, teachers can write the main idea on the board and ask students to brainstorm about the reading topic; the students can then put the words in circles which connect to main idea. As it is evident, the literature on the effects of concept mapping on L2 vocabulary learning and strategy use is filled with inconclusive findings. To this end, the researcher formulated the following research questions.

1. Does concept mapping enhance L2 vocabulary learning?
2. Does concept mapping affect students' use of vocabulary learning strategies?

The current study aims to confirm or reject the following hypotheses:

1. Concept mapping does not enhance L2 vocabulary learning.
2. Concept mapping does not enhance learners' awareness of other vocabulary learning strategies.

### **3. Methodology**

#### **3.1. Participants**

A total of 40 Iranian EFL learners voluntarily took part in the study. They enjoyed intermediate level of English proficiency and they were native speakers of Persian. They were studying English at intermediate levels in different language academies in Shiraz. By giving them a pretest, the researcher determined to what extent both groups were

homogeneous. They were randomly assigned in two intact classes each including 20 learners. All participants were male whose age ranged from 15 to 17.

### **3.2. Treatment materials**

The materials used in the current study was “Reading Skillfully 2” (Mirhassani& Rahimi, 2006). There are 16 chapters in this book and each chapter is taught about forty-five minutes. The target words which were taught during the treatment sessions were selected from the first four chapters based on learners’ scores in a vocabulary knowledge test

## **4. Procedures**

### **4.1. Concept mapping instruction**

Before starting concept mapping treatment sessions, the researcher invited the students of the experimental group to attend the class in order to be instructed how to draw a concept map of a reading passage and show them how to use this strategy. To do this strategy, the researcher provided the learners with a reading passage which involved 10 target words. After reading and discussing the passage, the teacher drew the concept map of the target words and after drawing the concept map of the target words, the learners were asked to read another passage and draw the concept map of its target words. This session lasted for one hour.

### **4.2. Treatment sessions**

During the treatment sessions, the participants of the experimental group drew concept maps for the texts they read. For all treatment sessions, the following steps were taken:

- to do this strategy, the students were first asked to read the passage and find underlined words.
- then, the researcher asked some questions about the content of reading.
- the teacher then drew students’ attention to any confusing or difficult words that could prevent students’ comprehension.

-in the next step, while the learners in the experimental group were assigned into groups of 5 and were asked to draw the concept map of a reading text collaboratively using the target words, the learners in the control group were just asked to read the text without drawing any concept maps.

-after the students drew concept maps, they were given an immediate post-test at the end of that session regarding the target words of the passage.

-the vocabulary strategy use questionnaire was administered at the end of fourth treatment session and a delayed post-test was administered two days after the fourth treatment session.

## **5. Testing Instruments**

### **5.1. A vocabulary knowledge test**

Target words chosen for this test, were selected from the first four chapters of Reading Skillfully 2 (Mirhassani& Rahimi, 2006). For this test which was validated by experts, the learners were asked to indicate whether they were familiar with the words by writing their Persian definitions. Based on the learners' answers, twenty-eight words with which the learners were less familiar were chosen as the target words.

### **5.2. A vocabulary pre-test**

In order to measure learners' knowledge of target words, a multiple choice vocabulary test was administered as the pre-test. For this test, the learners were presented with the list of 28 English target words along with four Persian definitions. Among the four definitions one was the correct definition of the target words.

### **5.3. Immediate post-tests**

In order to examine the effect of concept mapping on learners' vocabulary knowledge an immediate post-test was administered at the end of each treatment sessions. Each post-test included target words that the learners practiced through concept mapping in that treatment session. For this test, the learners were provided with English target words along with their Persian definitions among the four definitions

one was the correct definition of the target words that the learners had to choose. The reliability of this test was measured by correlating learners' aggregate scores in the four post tests and their scores in the delayed post test for the control group which resulted in 0.78 of reliability.

#### **5.4. A delayed- post-test**

In order to measure the long term retention of target words by the learners, a delayed vocabulary test which was similar to the pre-test was administered to learners. This 28 item tests included all vocabulary items that the learners took as a post-test two days after the fourth treatment sessions.

#### **5.5. Vocabulary learning strategy use questionnaire**

This questionnaire aimed at measuring students' perceptions of vocabulary learning strategy. It included 25 items and was administered once before the first treatment session and once at the end of the four treatment session. The questionnaire was adapted from Mizumoto and Takeuchi (2013) and measured learners' knowledge of vocabulary strategies based on 5-point likert scales. First, it should be mentioned that the questionnaire consisted of 6 subsections. These subsections are as follows: self-management, input-seeking, imagery, writing rehearsal, oral rehearsal, and association.

#### **5.6. Data analysis**

During the data analysis procedure, both descriptive and inferential statistics were utilized. First, learners' vocabulary scores were obtained based on the vocabulary pre-test, post-tests and the delayed post-test. Then, learners' vocabulary strategy awareness scores were also estimated. Independent samples *t*-tests were performed for the participants vocabulary learning in the post tests and delayed post test. Paired *t*-tests were also employed to examine learners' improvement from pre-test to post-test in terms of vocabulary learning strategy awareness.

## **6. Results and Discussion**

Table 1 presents descriptive and inferential statistics for learners' scores in the pre-test, the four immediate post-tests, and the delayed post-test regarding the first research question asked whether concept mapping can

be regarded as an effective strategy with which the quality of vocabulary learning and retention enhanced.

**Table 1.** Descriptive and inferential statistics for the learners' scores in the pre-test, post tests, and the delayed post test.

	Control mean	Experimental mean	Mean difference	T - value	P - value
1. pre test	4.75	4.85	0.1	.255	.80
2. session 1	3.20	5.30	2.1	6.214	.000
3. session 2	3.50	5.65	2.15	5.023	.03
4. session 3	3.40	5.45	2.05	7.092	.000
5. session 4	3.35	5.50	2.15	5.765	.02
6. post-test (final)	9.20	21.10	11.9	12.620	.000

As can be seen in Table 1, students' performance in the experimental and control groups in the pre-test was very close to each other, since the pre-test mean scores of the experimental and control groups were 4.85 and 4.75 respectively. This indicates that the two groups were homogeneous in terms of their knowledge of vocabulary.

According to Table 1, students' performance within the experimental group in the vocabulary test after each of the four treatment sessions was better than that of the participants in the control group. That is to say, the experimental group students outperformed those of the control group in learning the new targeted words in each of the treatment sessions. Moreover, it should be mentioned that the difference between the two groups after each session was found to be significant since the p-value in each of the sessions was less than .05.

A delayed post-test was given to the participants to check to what extent learners in each group had learned all of the targeted words. It was found that the total mean of the students' performance in the delayed post-test for the experimental group (M=21.10) was more than that of the control group (M=9.20). Moreover, the difference between the means of the two groups was found to be significant (P-value=.000). Based on the statistics provided in Table 1, it can be concluded that concept mapping can be regarded as an effective strategy with which the quality of vocabulary learning and retention could be enhanced.

The second research question asked whether the use of concept mapping in the experimental group enhanced the participants' perceptions of vocabulary learning strategy use. To this end, the vocabulary learning strategy use questionnaire was given to the participants in both groups before and after the treatment. The questionnaire consisted of 6 themes of sub-sections. Table 2 shows the descriptive statistics of each the six sections of the questionnaire within both experimental and control groups.

**Table 2:** Table 2: Descriptive statistics for the questionnaire

Questionnaire Themes	Total	Total	Total	Total
	Exp-pre	Exp-post	Con -pre	Con - post
1. self - management	3.12	3.27	3.06	3.05
2. Input – seeking	3.0	3.37	2.82	2.85
3. Imagery*	2.86	3.74	2.70	2.80
4. Writing rehearsal	2.90	2.96	2.96	2.90
5. Oral rehearsal	2.86	3.13	2.76	2.83
6. Association*	3.0	4.16	2.86	2.80

**Note:** exp-pre: experimental-pretest;exp-pos: experimental-posttest;con-pre: control-pretest;con-post: control posttest

First it should be mentioned that the questionnaire consisted of 6 subsections. These subsections are as follows: self-management, input-seeking, imagery, writing rehearsal, oral rehearsal, and association. Table 3 indicates *t*-test results for the experimental groups' pre-test and post-test differences with regard to the 6 subsections of the questionnaire.

**Table 3:** *t*-test results for learners' strategy awareness

Questionnaire themes/experimental	Mean difference	t- value	p-value
1. self-management	0.15	1.029	.159
2. Input-seeking	0.37	1.394	.166
3. Imagery*	0.92	5.954	.000
4. Writing rehearsal	0.06	.157	.875
5. Oral rehearsal	0.27	1.341	.182
6. Association*	1.16	6.995	.000

As can be noticed in Table 3, the mean difference between the experimental group students' responses to each of the subsections of the questionnaire in the pretest and post test was not significant, except for the "imagery" and "association" subcategories. This means that experimental group students' perceptions of vocabulary learning strategy use has changed significantly only in terms of "imagery" and "association" during the administration of the pre-test and post-test with regard to the control group.

Since only two subsections of the vocabulary learning strategy use questionnaire underwent a significant change for the experimental group, the descriptive statistics for each of the items of the two subsections of the questionnaire is provided below. Table 4 and 5 provide descriptive statistics for "imagery" and "association" subsections respectively.

**Table 4:** Descriptive statistics for the experimental groups' scores in the imagery subsections.

Theme = Imagery / experimental	SD	Mean	SD	Mean
	Pretest	(before treatment)	Posttest	(after treatment)
1. When I try to remember vocabulary, I make a mental picture of what can be associated with a words meaning.	1.291	2.7	1.221	4.1
2. When I try to remember vocabulary, I link my personal experiences to it.	1.439	2.6	1.266	3.9
3. When I try to remember vocabulary, I create an image of the spellings or orthographic forms.	1.321	3.1	1.265	3.1
4. When I try to remember vocabulary, I use the key word method (key word mnemonic technique).	1.379	2.8	1.262	3.8
5. When I try to remember vocabulary, I imagine whether the meaning of the word is negative or positive.	1.262	3.1	1.291	3.83
Total		2.86		3.74

As can be seen in Table 4, the imagery component as one of the constructs of the questionnaire consisted of 5 items. The mean score for each of the items of this subsection has been provided. Taking a close

look at mean of the items in the post-test, it can be noticed that the highest mean score in the posttest belonged to the item “When I try to remember vocabulary, I make a mental picture of what can be associated with a words meaning” (M= 4.1). It can be concluded that concept mapping helped students to create mental associations between words and meanings by creating a pictorial visualization of the words. The second highest mean in the post-test belonged to the item ”When I try to remember vocabulary, I link my personal experiences to it” (M= 3.9). This again indicates the fact that concept mapping helps learners practice linking the new words with the outside objects or events.

Table 5 provides descriptive statistics for the last subsection of the questionnaire which was “association”. This section consisted of 3 items. The mean score for each of the items of the questionnaire in the pretest and posttest has been provided.

**Table 5:** Descriptive statistics for the experimental groups’ scores in the association subsection

Theme: association / experimental	SD	Mean	SD	Mean
	Pretest	(before treatment)	Posttest	(after treatment)
1. When I try to remember vocabulary, I associate it with the synonyms ( e . g . , begin and start ) or antonyms ( e . g . , positive and negative ) I already know .	1.258	3.2	1.345	4.3
2. When I try to remember vocabulary, I also memorize the synonyms or antonyms of the word.	1.320	3.1	1.277	3.9
3. When I try to remember vocabulary, I memorize words similar to it (in meaning, sound, or shape) or the related words in a group.	1.358	2.7	1.209	4.3
Total		3.0		4.16

As can be seen in Table 5, the highest mean in the posttest belonged to the item “When I try to remember vocabulary, I memorize words similar to it (in meaning, sound, or shape) or the related words in a group” (M= 4.3). This is very similar to what is done in concept mapping. This shows that the treatment provided to the experimental group has impacted the way learners treated the new information.

## 7. Discussion

The first research question asked whether concept mapping had any statistically significant effect on L2 vocabulary learning or not. Descriptive statistics (Table 1) has indicated that the experimental group that received concept mapping treatment outperformed the control group in the post tests and the delayed post test. Therefore, it can be concluded that concept mapping has been effective for enhancing L2 vocabulary learning. As a result, the first null hypothesis of the current study that stated concept mapping does not enhance L2 vocabulary learning is rejected.

The second research question posed in the current study asked if concept mapping has any statistically significant effect on EFL students' perceptions of vocabulary strategy use. The results revealed that learners' mean score only improved from pre test to post test in terms of imagery and association (Table 3). Thus, it can be concluded that concept mapping was effective for students' perceptions of vocabulary learning strategy use. Consequently, the second null hypothesis that stated concept mapping had no statistically significant effect on learners' awareness of other vocabulary learning strategies is rejected since it is clear that concept mapping had positive effect on students' L2 vocabulary learning strategy use. Learners' mean scores in the pre test indicated that the control and the experimental groups initially had the same perception of vocabulary strategy use.

However, learners' performance on the strategy use questionnaire after the treatment sessions illustrated a significant improvement in students' perception of vocabulary strategy use in the experimental group. A number of previous studies also provided evidence for the beneficial effects of concept mapping on vocabulary learning. For example Pascarella and Pflaum (1982) and Vogt (1983) found that concept mapping was an effective tool for promoting L2 learners' vocabulary knowledge. On the other hand, Erfani and Farjam (2015) failed to find any significant effect of concept mapping for improving l2 learners' speaking skills. Riswanto and Pishghadam and Ghanizadeh (2013) also indicated the beneficial effects of concept mapping on learners' writing skill. Fi-

nally, Zimmeran (2009) reported that concept mapping could promote learners vocabulary knowledge.

As it can be seen, the results of the current study are compatible with a number of previous studies that reported the beneficial effects of concept mapping for improving l2 learners vocabulary knowledge as well as other aspects of l2 proficiency. Meanwhile, the present study provided further insight into effectiveness of concept mapping for L2 classrooms by indicating that drawing concept maps can enhance awareness of other learning strategies.

The results also offer several pedagogical implications to be applied in the teaching settings. The ultimate goal of vocabulary instructions is to help students become independent learners by utilizing strategies for discovering, remembering, and consolidating new words. This goal cannot be achieved without teachers' efforts. Teachers should motivate students in their vocabulary learning with different vocabulary tasks. They should provide students with not only vocabulary knowledge, but also the strategies to access, learn and consolidate the vocabulary knowledge. The findings of this study indicated that one way to achieve these goals is possibly to ask learners to do some meta-cognitive strategies such as concept mapping on reading text that they read. The findings of the current study can also provide insight for curriculum designers. Realizing the effectiveness of concept mapping on EFL learners' vocabulary learning, curriculum designers incorporate this technique in their textbooks. In this way, curriculum designers incorporate this technique in their textbooks.

## References

- Allen, F. V. (1983). *Techniques in vocabulary*. NY: Oxford University Press.
- Abdollahzadeh, F., & Amiri, M. (2009). The effect of semantic mapping as a vocabulary instruction technique on EFL learners with different perceptual learning styles. *The Journal of Applied Linguistics*, 2( 1), 1-28.

Abu-Hussein, H. M. (2007). *Strategies of Teaching Vocabulary and Students? Usage of Semantic Fields? Words in Proper Contexts in Irbid*. Unpublished M.A. Thesis, Yarmouk University.

Bleckley, B. (2006). *Rethinking vocabulary instruction*. Retrieved November 26, 2008, from Pedagogyinpractice: <http://pedagogypractice.blogspot.com>

Borkovska, J. (2007). Psycholinguistic considerations in the study of L2 vocabulary acquisition. In R. Carter and M. McCarthy (Eds.) *Vocabulary and language teaching* (pp. 141-159). London: Longman

Bravo, M. A., & Cervetti, G. N. (2008). Teaching vocabulary through text and experience in content areas. In A. E. Farstrup, & S. J. Samuels (Eds.), *What research has to say about vocabulary instruction*, (pp. 130-149). New York: International Reading Association.

Brown, H. D. (2001). *An interactive approach to language pedagogy*. NY: Longman.

Chularut, P., & DeBacker, T. K. (2004). The influence of concept mapping on achievement, self-regulation, and self-efficacy in students of English as a second language. *Contemporary Educational Psychology*, 29 248-263. doi:10.1016/j.cedpsych.2003.09.001

Coady, J. (1997). *Second vocabulary acquisition*. New York: Cambridge University Press.

Coffey, K. (2003). The Role of Vocabulary Knowledge in Iranian EFL Students' Reading Comprehension Performance: Breadth or Depth?. *Theory and Practice in Language Studies*, 1(11), 1575-1580. <http://dx.doi.org/10.4304/tpls.1.11.1575-1580>

Debate, E. V. (2006). Applying current approaches to the teaching of reading. *English Teaching Forum*, 44(1), 159-167.

Erfani, J., & Farjam, M. (2015). *The effect of concept mapping in Reading comprehension: Pedagogy*. New York: Cambridge University Press.

Farch, C., & Kasper, G. (1980). Processes and strategies in foreign language learning and communication. *Inter-language Studies Bulletin*, 5, 47-118.

- Mizumoto, M. H., & Takeuchi, S. J. (2013). *A study of teaching sixth graders' English vocabulary memory strategies and background variables*. Selected papers from the fourteenth international symposium and book fair on English teaching, pp. 571-80. Taipei: Crane Publishing
- Nilforoushan, S. (2012). The effect of teaching vocabulary through semantic mapping on EFL learners? awareness of the affective dimensions of deep vocabulary knowledge. *English Language Teaching*, 5(10), 164-172.
- Nisbet, T., & Adescope, P. (2006). The effects of semantic and thematic clustering on the learning of second language vocabulary, *Second Language Research*, 13(2), 138-163.
- Nobahar, H., & Tabrizi, M. (2013). *Effect of concept mapping in reading comprehension*. Tabriz University.
- NogcThuy, P. (2013). Best practice in vocabulary teaching and learning. In J.C. Richards & W.A. Renandya (Eds.), *Methodology in language reading: An anthology of current practice*, (pp. 48-64). New York: Cambridge University Press.
- Novak, D., & Canas J. (2010). Editor's note. In P. Nation (Ed.), *New ways in teaching vocabulary*, (pp. 121-122). Alexandria: TESOL.
- Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. New York, NY: Cambridge University Press.
- Nosratinia, J. D., & sarabchian, D. (2010). A twelve-year longitudinal study of science concept learning. *American Educational Research Journal*, 28(1), 117-153.
- Novak, J. D., (1997). Coeditors, special issue on concept mapping. *Journal of Research in Science Teaching*, 28(10), 212-232.
- Novak, J. D. (1991). Clarify with concept maps: A tool for students and teachers alike. *The Science Teacher*, 58, 45-49.
- Pascarella, J., & Pflom, M. (1982). *The effect of explicit teaching of concept mapping strategy on Korean EFL learners' reading comprehension practice*. Cambridge: Cambridge University Press.
- Risewanto, M., Pishghadam, R., & Ghanizadeh, A. (2013). The impact of concept mapping as a prewriting activity on EFL learners' writing ability. *Iranian Journal of Applied Linguistics*, 9(2), 101-126, New York: Cambridge University Press.

Shen, W. W. (2003). Current trends of vocabulary teaching and learning strategies for EFL Settings. *Feng Chia Journal of Humanities and Social Sciences*, 7, 187-224.

Simpson, D. (1994). *Semantic Mapping: An Alternative to Traditional Note-taking Methods in the Eleventh-Grade English Class*. Unpublished Ph.D. Dissertation, the University of Memphis.

Susan, J., & Ansarian, B. J. (2013). *Intermediate vocabulary*. England: Longman Group Limited.

Thornbury, S. (2002). *How to Teach Vocabulary*. London: Pearson Education Limited, Longman.

Vogt, Y. (1983). Current trends of vocabulary teaching and learning strategies for EFL Settings. *Feng Chia Journal of Humanities and Social Sciences*, 7, 187-224.

Zaid, M. A. (1995). Semantic mapping in communicative language teaching. *FORUM*, 33(3), 616-632. Retrieved December 23, 2013, from <http://exchanges>.

Zimmaro, D. M., & Cawley, J. M. (1998). *Concept map module*. Schreyer institute for innovation in learning, The Pennsylvania New York: Cambridge University Press.

Zimmeran, A. M. (2009). Semantic mapping in communicative language teaching. *English Teaching Forum*, 33(3), 1-6, Retrieved April 18, 2011 from [eca.state.gov/forum/vols/vol33/no3/p6.htm](http://eca.state.gov/forum/vols/vol33/no3/p6.htm)

## Appendix

### Appendix A

VLSs Questionnaire for Japanese EFL Learners (originally in Japanese)

#### Self-management

1.I regularly review the vocabulary I learned to check if I remember it.  
always often sometimes rarely never

2.I keep a vocabulary book or word list to check the vocabulary anytime  
I wish. always often sometimes rarely never

3.I try to make it a rule to memorize a certain number of words in a  
specific time period(e.g.,”I will memorize 10 words a day”) always often  
sometimes rarely never

4.I try to learn extra vocabulary in addition to what I am taught in  
class. always often sometimes rarely never

5.I try to take time for vocabulary learning always often sometimes rarely  
never

6.I consciously set aside time to study vocabulary in order to prepare  
for tests(such as TOEIC,TOEFL,or Eiken: English Proficiency Test).  
always often sometimes rarely never

7.I use my own methods for remembering, checking,or reviewing vocab-  
ulary. always often sometimes rarely never

#### Input-seeking

8.I try to expose myself to English vocabulary by reading or listening a  
lot. always often sometimes rarely never

9.I try to manage the learning environment so as to expose myself to  
English vocabulary. always often sometimes rarely never

10.I try to make use of the media(TV, radio, Internet, mobile phone, or  
movies) to learn vocabulary always often sometimes rarely never

11.I study vocabulary with the intention of using it. always often some-  
times rarely never

**Imagery**

12. When I try to remember vocabulary, I make a mental picture of what can be associated with a word's meaning. always often sometimes rarely never

13. When I try to remember vocabulary, I link my personal experiences to it. always often sometimes rarely never

14. When I try to remember vocabulary, I create an image of the spellings or orthographic forms. always often sometimes rarely never

15. When I try to remember vocabulary, I use the keyword method (keyword mnemonic technique) always often sometimes rarely never

16. When I try to remember vocabulary, I imagine whether the meaning of the word is negative or positive. always often sometimes rarely never

**Writing Rehearsal**

17. when I try to remember vocabulary, I write it repeatedly. always often sometimes rarely never

18. when I try to remember vocabulary, I write it on a note or a card. always often sometimes rarely never

19. when I try to remember vocabulary, I remember not only the meaning but also the spelling of the word by writing it. always often sometimes rarely never

**Oral Rehearsal**

20. when I try to remember vocabulary, I say it aloud repeatedly. always often sometimes rarely never

21. when I try to remember vocabulary, I vocalize it to remember not only the meaning but also the pronunciation of the word. always often sometimes rarely never

22. when I try to remember vocabulary, I say the sample sentence aloud. always often sometimes rarely never

**Association**

23. when I try to remember vocabulary, I associate it with the synonyms (e.g., begin and start) or antonyms (e.g., positive and negative) I already know. always often sometimes rarely never

24. when I try to remember vocabulary, I also memorize the synonyms or antonyms of the word. always often sometimes rarely never

25. when I try to remember vocabulary, I memorize words similar to it (in meaning, sound, or shape) or the related words in a group. always often sometimes rarely never

**Appendix B****In the name of God**

Dear students: if you are familiar with any of the following words, please circle the word familiar and write its Persian equivalence, otherwise circle the word unfamiliar.

1. inventions	familiar	unfamiliar	.....
2. popular	familiar	unfamiliar	.....
3. parachute	familiar	unfamiliar	.....
4. attached	familiar	unfamiliar	.....
5. strap	familiar	unfamiliar	.....
6. safely	familiar	unfamiliar	.....
7. special	familiar	unfamiliar	.....
8. soles	familiar	unfamiliar	.....
9. needles	familiar	unfamiliar	.....
10. thief	familiar	unfamiliar	.....
11. intelligent	familiar	unfamiliar	.....
12. dangerous	familiar	unfamiliar	.....
13. difficult	familiar	unfamiliar	.....

14. advantage	familiar	unfamiliar	.....
15. pets	familiar	unfamiliar	.....
16. dial	familiar	unfamiliar	.....
17. identifies	familiar	unfamiliar	.....
18. flexible	familiar	unfamiliar	.....
19. switches	familiar	unfamiliar	.....
20. industrials	familiar	unfamiliar	.....
21. factory	familiar	unfamiliar	.....
22. beat	familiar	unfamiliar	.....
23. punished	familiar	unfamiliar	.....
24. agree	familiar	unfamiliar	.....
25. making	familiar	unfamiliar	.....
26. spank	familiar	unfamiliar	.....
27. countries	familiar	unfamiliar	.....
28. borrowed	familiar	unfamiliar	.....
29. threatening	familiar	unfamiliar	.....
30. fines	familiar	unfamiliar	.....
31. eliminate	familiar	unfamiliar	.....
32. international	familiar	unfamiliar	.....
33. concern	familiar	unfamiliar	.....
34. disappeared	familiar	unfamiliar	.....
35. inevitable	familiar	unfamiliar	.....
36. preserving	familiar	unfamiliar	.....
37. pop up	familiar	unfamiliar	.....
38. universal	familiar	unfamiliar	.....

**Appendix C****Test 1**

Choose the best answer

**1. invention**

- |         |    |        |    |      |    |        |    |
|---------|----|--------|----|------|----|--------|----|
| روزنامه | ۱. | اختراع | ۲. | کتاب | ۳. | سازمان | ۴. |
|---------|----|--------|----|------|----|--------|----|

**2 . attached**

- |       |    |       |    |      |    |      |    |
|-------|----|-------|----|------|----|------|----|
| ضمیمه | ۱. | پایان | ۲. | تمیز | ۳. | شروع | ۴. |
|-------|----|-------|----|------|----|------|----|

**3. popular**

- |        |    |      |    |     |    |       |    |
|--------|----|------|----|-----|----|-------|----|
| عصبانی | ۱. | تنبل | ۲. | خوب | ۳. | محبوب | ۴. |
|--------|----|------|----|-----|----|-------|----|

**4. safely**

- |            |    |            |    |            |    |         |    |
|------------|----|------------|----|------------|----|---------|----|
| با خوشحالی | ۱. | با اطمینان | ۲. | با ناراحتی | ۳. | با خوبی | ۴. |
|------------|----|------------|----|------------|----|---------|----|

**5. sole**

- |        |    |     |    |     |    |     |    |
|--------|----|-----|----|-----|----|-----|----|
| کف کفش | ۱. | چوب | ۲. | صاف | ۳. | قسم | ۴. |
|--------|----|-----|----|-----|----|-----|----|

**6. needle**

- |     |    |      |    |      |    |      |    |
|-----|----|------|----|------|----|------|----|
| آهن | ۱. | سوزن | ۲. | چاقو | ۳. | قاشق | ۴. |
|-----|----|------|----|------|----|------|----|

**7. thief**

- |        |    |      |    |      |    |      |    |
|--------|----|------|----|------|----|------|----|
| پرستار | ۱. | سارق | ۲. | پلیس | ۳. | دوست | ۴. |
|--------|----|------|----|------|----|------|----|

## Appendix D

### Test 2

Choose the best answer

#### 1. intelligent

۱. قوی      ۲. با هوش      ۳. تنبل      ۴. قد بلند

#### 2. dangerous

۱. ناراحت      ۲. خطرناک      ۳. خوب      ۴. زیرک

#### 3. pet

۱. سرگرمی      ۲. بیرون      ۳. جنگل      ۴. حیوان خانگی

#### 4. dial

۱. یاد آوری      ۲. فراموشی      ۳. شماره گیر      ۴. تلفن همراه

#### 5. identify

۱. کشیدن      ۲. هل دادن      ۳. جابجا کردن      ۴. شناسایی کردن

#### 6. flexible

۱. قوی      ۲. مداوم      ۳. قابل تغییر      ۴. شروع

#### 7. switch

۱. برگ      ۲. سکه      ۳. کلید      ۴. خودکار

## Appendix E

## Test 3

Choose the best answer

## 1. industrial

۴. آسان	۳. خطرناک	۲. صنعتی	۱. اقتصادی
---------	-----------	----------	------------

## 2. beat

۴. کار کردن	۳. ضربه زدن	۲. رفتن	۱. فشار
-------------	-------------	---------	---------

## 3. punish

۴. کمک کردن	۳. تمیز کردن	۲. مجازات کردن	۱. تشویق کردن
-------------	--------------	----------------	---------------

## 4. make fun of

۴. بجا آوردن	۳. خرید کردن	۲. بیرون آوردن	۱. مسخره کردن
--------------	--------------	----------------	---------------

## 5. spank

۴. آوردن	۳. ضربه زدن به منظور تنبیه	۲. تشویق کردن	۱. به سخره گرفتن
----------	----------------------------	---------------	------------------

## 6. factory

۴. پالایشگاه	۳. کارخانه	۲. خانه	۱. باغ
--------------	------------	---------	--------

## 7. agree

۴. خوب بودن	۳. ناراضی بودن	۲. موافق بودن	۱. مخالف بودن
-------------	----------------	---------------	---------------

## Appendix F

### Test 4

Choose the best answer

#### 1. borrow

۱. فروختن      ۲. قرض گرفتن      ۳. قرض دادن      ۴. خریدن

#### 2. threaten

۱. تهدید کردن      ۲. تشویق کردن      ۳. ناز کردن      ۴. بالا آمدن

#### 3. eliminate

۱. باز پس گرفتن      ۲. بوجود آوردن      ۳. از میان بردن      ۴. پاس دادن

#### 4. concern

۱. اشتیاق      ۲. نگرانی      ۳. احساسات      ۴. آوردن

#### 5. inevitable

۱. سازش پذیر      ۲. اجتناب ناپذیر      ۳. حفظ      ۴. آمدن

#### 6. preserving

۱. حفظ      ۲. تمیزی      ۳. تغییر      ۴. اجتناب

#### 7. pop up

۱. مردن      ۲. از میان بردن      ۳. بوجود آوردن      ۴. تغییر

**Appendix G**

Choose the best options

**1. invention**

روزنامه	۱.	اختراع	۲.	کتاب	۳.	سازمان	۴.
---------	----	--------	----	------	----	--------	----

**2. attached**

پایان	۱.	تمیز	۲.	ضمیمه	۳.	شروع	۴.
-------	----	------	----	-------	----	------	----

**3. popular**

خوب	۱.	محبوب	۲.	عصبانی	۳.	تنبل	۴.
-----	----	-------	----	--------	----	------	----

**4. safely**

با ناراحتی	۱.	تمیز	۲.	با خوشحالی	۳.	با اطمینان	۴.
------------	----	------	----	------------	----	------------	----

**5. sole**

قسمت	۱.	صاف	۲.	کف کفش	۳.	چوب	۴.
------	----	-----	----	--------	----	-----	----

**6. needle**

آهن	۱.	سوز	۲.	چاقو	۳.	قاشق	۴.
-----	----	-----	----	------	----	------	----

**7. thief**

پرستار	۱.	دوست	۲.	پلیس	۳.	سارق	۴.
--------	----	------	----	------	----	------	----

**8. intelligent**

قوی	۱.	تنبل	۲.	باهوش	۳.	قد بلند	۴.
-----	----	------	----	-------	----	---------	----

**9. dangerous**

۱. خوب      ۲. زیرک      ۳. ناراحت      ۴. خطرناک

**10. pet**

۱. جنگل      ۲. بیرون      ۳. حیوان خانگی      ۴. سر گرمی

**11. dial**

۱. یاد آوری      ۲. فراموشی      ۳. شماره گیر      ۴. تلفن همراه

**12. identify**

۱. هل دادن      ۲. کشیدن      ۳. جابجا کردن      ۴. شناسایی کردن

**13. flexible**

۱. قوی      ۲. قابل تغییر      ۳. سرگرمی      ۴. شروع

**14. switch**

۱. خودکار      ۲. سکه      ۳. دکمه      ۴. صفحه

**15. industrial**

۱. صنعتی      ۲. اقتصادی      ۳. آسان      ۴. خطرناک

**16. beat**

۱. کار کردن      ۲. ضربه زدن      ۳. فشار      ۴. رفتن

**17. punish**

۱. تشویق کردن      ۲. مجازات کردن      ۳. تمیز کردن      ۴. کمک کردن

**18. make fun of**

۱. بیرون آوردن      ۲. مسخره کردن      ۳. بجا آوردن      ۴. بیرون آوردن

**19. spank**

۱. ضربه زدن به منظور تنبیه      ۲. آوردن      ۳. تشویق      ۴. خریدن

**20. borrow**

۱. فروختن      ۲. قرض دادن      ۳. قرض گرفتن      ۴. خریدن

**21. threaten**

۱. تشویق کردن      ۲. تهدید کردن      ۳. بالا آمدن      ۴. ناز کردن

**22. eliminate**

۱. بوجود آوردن      ۲. از میان بردن      ۳. پاس دادن      ۴. باز پس گرفتن

**23. concern**

۱. اشتیاق      ۲. نگرانی      ۳. آوردن      ۴. احساسات

**24. inevitable**

۱. اجتناب ناپذیر      ۲. حفظ      ۳. آمدن      ۴. سازش پذیر

**25. preserving**

۱. تغییر      ۲. اجتناب      ۳. حفظ      ۴. تمیز

**26. pop up**

۱. از میان بردن      ۲. تغییر      ۳. مردن      ۴. بوجود آوردن

**27. factory**

۱. باغ      ۲. پالایشگاه      ۳. خانه      ۴. کارخانه

**28. agree**

۱. مخالف بودن      ۲. موافق بودن      ۳. ناراضی بودن      ۴. خوب بودن