



# The effect of leitner's learning box on the improvement of vocabulary teaching and learning (Case study: first year students at Parsabad Moghan branch, Islamic Azad university, Parsabad Moghan, Iran)

Nader Asadi\* and Zahra Ghorbanzadeh

Department of Humanitarian, Ahar Branch, Islamic Azad University, Ahar, Iran.

## ARTICLE INFO

### Article history:

Received: 15 February 2013;

Received in revised form:

13 September 2015;

Accepted: 18 September 2015;

### Keywords

Leitner's learning box,  
Vocabulary,  
Flash cards,  
First year students.

## ABSTRACT

The goal of this paper was to investigate the effect of using Leitner's learning box in studying inter-mediate to advanced vocabularies among first year students at the Islamic Azad University-Parsabad Moghan Branch in Parsabad Moghan City, Iran. This research was carried out in a class with diversified students from engineering to humanitarian fields. The participants were haphazardly assigned into two homogeneous groups each consisting of twenty five students. The test was performed in fall semester 2012. The control group received the conventional treatment while the experimental group received the Leitner's learning box to use it for learning vocabulary. Before initiating the treatment, two similar tests were prepared as the pre-test and post-test to discover the vocabulary knowledge of the students at the initial and final stages of the study. The analysis of obtained results in the post-test manifested significant differences between the two groups such that the students in the experimental group outperformed the students in the control group in terms of their vocabulary knowledge. Thus, it was concluded that the use of Leitner's learning box in studying vocabulary for first year students at the university led to a higher level of vocabulary improvement.

© 2015 Elixir All rights reserved

## Introduction

"If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh." (Harmer 1993) One of the most challenging parts of language learning is the acquisition of vocabulary. Vocabulary as a main component of English language learning has drawn many attentions in past years. Laufer (1997) indicates that learning the vocabulary is at the heart of language learning and its use. Indeed, vocabulary makes the essence of English language. Vocabulary is an intrinsic part of language teaching as well as learning. Vocabulary is essential for critical thinking, close reading, concise writing and other skills (Levines., 2005). Many researchers concur that there is very little research performed in the field of vocabulary learning and that the most effective means of vocabulary learning is still unclear (Folse, 2004; Hunt and Beglar, 2005; Annette and De Groot, 2006).

In the English language teaching and learning literature, a recurring theme has been always the neglect of vocabulary. It was often given little priority in language programs and was often left to be looked after itself and received only incidental attention in textbooks and language programs (Hedge, 2008; Richards and Renandya, 2002). Many authors remark that at one time it was widely assumed that lexical instruction is not essential as it can happen by itself; thus, the vocabulary teaching was not popular (Moir and Nation 2008). However, today, the importance of vocabulary and its significance in language learning have become more accepted. Griffiths (2006) indicates, for instance, that recently the significance of teaching vocabulary has been acknowledged.

Several research studies recently conducted have dealt with lexical problems of language learners. Many researchers have shown that lexical problems frequently interfere with communication; in other words, communication collapsed when people do not use the right words. Then, there is a raised interest in vocabulary as a component of every language (Allen., 1983; Bowen., Madson and Hilferty., 1985).

One way to add new words to one's vocabularies is looking up words in the dictionary and learning what they mean. But this is, indeed, a rather slow process to raise word power. Another way, however, is to learn vocabulary through Leitner's learning box with prepared flash cards.

In one research on flash cards, Ehri and Roberts (1979) investigated whether first graders learn printed words better in contexts or in separated state. Post-test scores stated that context-trained children have learned more about the semantic identities of printed words, while flashcard-trained children could read the words faster and learned more about orthographic forms. According to a research performed by Din and Wienke (2001), it was stated that the flash card use approach is an effective training and learning method for high school teachers and students in chemistry study and further they can be can be utilised to effectively help teachers teach and students learn chemistry vocabulary. Moreover, in a very recent study concerning the use of flash cards, Baleghizadeh and Ashoori (2011) investigated the effects of using flash cards and word lists on EFL students' learning of foreign language vocabulary. The result of their research indicated that there is no significant difference in the efficiency of flash cards compared to word lists, and further offered partial support to the hypothesis that

flash cards could lead to better learning than word lists. As it was mentioned few researches have been done on the vocabulary learning and teaching as well as on the effective techniques for that.

Although vocabulary has been the subject of several studies, few researches have revealed the effective techniques of vocabulary teaching and learning. Thus, it is of great importance to find the most effective techniques for vocabulary teaching. Based on a research performed by Allen (1983), all experienced language teachers verify the important role of words and know that the lack of them leads to feeling of insecurity.

Vocabulary is an indispensable part of English language learning process. It would be impossible to learn a language without vocabulary. The important role of vocabulary has been emphasized in all different methods in language teaching and learning. Rivers (1981) states that vocabulary cannot be taught; it can be presented, explained, included in all kinds of activities, but it must be learned by the individual.

Students complain that they cannot remember the words they have learned. For solving this problem, educators attempt to include learning devices into their classes. This study aims to present a new vocabulary learning tool (LLB). The researchers believe that an awareness of individual differences in learning makes EFL educators and curriculum designers more sensitive to their roles in teaching and learning. Furthermore, it will permit them to match teaching and learning so as to develop students' potentials in EFL learning as well as to assist students to become cognizant of the ways they learn most effectively. It also helps the students to develop techniques to become more motivated and independent learners. The understanding of the students' beliefs of vocabulary learning and their related techniques use enables teachers and researchers to design appropriate materials and activities to help them improve their vocabulary learning so as to enhance their lexical competence.

Vocabulary learning problems may be barriers to successful language learning. Thus, solving these problems may be of great help to both students and teachers. If we want to provide guidelines and solve vocabulary acquisition problems, it is necessary to discover those problems and perceive their nature.

Rahimi and Sahragard (2008) remark that learning a foreign (or second language) at intermediate and advanced levels of proficiency involves the acquisition of thousands of words. Language learners look for effective techniques to increase opportunities for retaining new words in long-term memory, but forgetting is a common problem. Language learners often complain that they forget new words soon after learning them. The importance of vocabulary learning also poses some challenges for teachers. They like to know in what ways instructional programs might foster the acquisition of so many words. This paper will address the use of Leitner's learning box using four steps flash cards as a technique to positively facilitate teaching and learning vocabulary.

#### Definitions and descriptions

Before starting the investigation of the Leitner's learning box on the vocabulary knowledge, it is necessary to clarify some of the fundamental concepts involved in it.

#### Vocabulary

Vocabulary is the set of words that a person is familiar with in a language. A vocabulary usually grows and evolves with age and education level, and serves as a useful and fundamental tool for communication and acquiring knowledge.

Language teaching specialists generally agree that vocabulary is one of the most important aspects for foreign language learners to acquire since it is critical in conveying the meaning of a message. Vocabulary, in the abstract, represents a set of words for a language or a set of words that its speakers might use (Hatch and Brown, 1999). A word as a "single unit of language" (Oxford Advanced Learner's Dictionary 2000), conveys meaning on its own and is not part of any linguistic pattern that might change the word's meaning in connection with other words.

Vocabulary learning strategy emphasizes the importance of classroom activities since mainstream students are usually exposed to a foreign language only during class. Language activities should be age-appropriate for the learner and appeal to their needs (Coady, 1997). Classroom activities can be carried out on any teaching method as long as the teacher considers the level of language proficiency of the students. Meanwhile, the various factors that affect vocabulary learning in the foreign language class need to be considered by the teacher, who also needs to be aware that second language learners have different academic needs than students learning their first language. Although different types of learner personalities prefer different lexical learning strategies, it is important that students are exposed to various kinds of instruction in order to successfully acquire productive knowledge of words.

#### Leitner's learning box (LLB)

In this box, flashcards are sorted into groups according to how well you know each one. The working procedure is as follows: you try to recall the correct answer written on a flashcard. If you succeed, you send the card to the next group. But if you fail, you send it back to the first group. Each succeeding group has a longer period of time before you are required to revisit the cards. In this study we use boxes consist of five compartments.

#### Flash Card

A flash card is a cardboard consisting of a word, a sentence, or a simple picture on it. It should be noted that the letters on it must be visible and large enough for everyone sitting in the front and the back of the classroom. To make sure that everyone can see the letters on the card, it is better to write words with capital letters. Both sides of the flash card should be used in teaching vocabulary. On one side, the new word is written in  $L_2$  and perhaps with a picture beside it and on the other side is the translation, synonyms and a typical sentence in which it is used. These flash cards can be made by both teachers and learners. Various kinds of flash cards are available on the market. Flashcards for EFL teaching or self-study have been used for years and are a useful tool for teachers and learners. For this study, the flashcards are created using vocabularies from 504 Absolutely Essential Words (Bromberg., Liebb., and Traiger; 2005) which is taught for first year students at Islamic Azad University-Parsabad Moghan Branch. A four-step vocabulary flash card of the mentioned book is consisted of word entity, synonyms, translation (here to Persian) and an example as shown in figure 1.

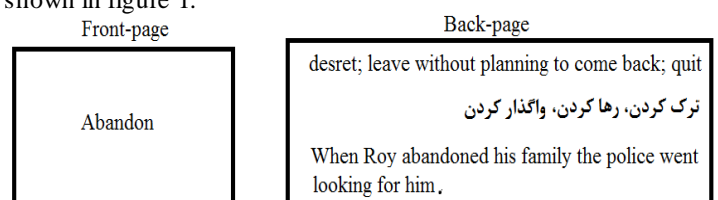


Figure 1. A four-step vocabulary flash card

Vocabulary flash card can be fun, colourful, and creative way to aid in memory and retention of vocabulary words. Flash cards are a tried and tested teaching and learning device inside and outside the classroom, for children and adults alike. Some of these flash cards are designed to perfect your English while others can help you learn a new language entirely. The key to using flash cards is to look at the word or definition on one side, and test yourself to see if you can remember the answer written on the other. So you can perfect your knowledge of the vocabulary on the list and improve your overall vocabulary.

## **Method**

### **Research goals**

The aim of this article is to increase the students' vocabulary knowledge through using four-step vocabulary flash cards which are used in Leitner's learning box (LLB). The study has two major purposes as follows:

### **Theoretically**

The finding of this study empowers and enriches the theory of teaching vocabulary and using LLB with vocabulary flash cards.

The result of the study can be used as a reference for those who desire to conduct a research in English teaching and learning process.

### **Practically**

The research gives an effective way to solve the problem in teaching vocabulary.

Leitner's learning box and its vocabulary flash cards can motivate the students to learn English so as to be more interested in learning vocabulary and enhanced their vocabulary knowledge.

Many teachers can adopt this strategy throughout the world.

Teachers can also utilize them to judge students' performance and knowledge. This research has aimed to enable teachers and students in sharing the responsibility for setting learning goals and for increasing progress toward meeting those goals. This research probably helps students become self-directed and autonomous learners; teachers are no longer knowledge transmitters but mentors. Students can become active learners by taking more responsibility in learning and having more involvement in learning process.

At the first glance this strategy may seem time consuming and useless in practice by the time went by, however the students consistently believe that the learnt words and their functions will last for a long time. Nation (2003) states and encourages the use of bilingual cards and first language translation as the best ways for increasing vocabulary range. He contends "forget all the criticism you have heard about rote learning and translation; research has repeatedly shown that such learning is very effective".

### **Research Questions**

Based on the mentioned problems and the study purpose, the following questions were posed:

**Q<sub>1</sub>:** Is there any noticeable difference between the impact of traditional teaching method and the LLB method on vocabulary knowledge of university first year students?

**Q<sub>2</sub>:** Does using LLB have a positive effect on students' vocabulary knowledge and learning?

### **Hypotheses of the Study**

According to a review of literature and the aforementioned lines of reasoning the following alternative hypothesis was formulated.

**H<sub>1</sub>:** There is no significant difference between the mean scores of the students in the experimental group who use LLB and the mean scores of those students in the control group who do not use LLB.

**H<sub>2</sub>:** Using LLB does not have a positive effect on vocabulary knowledge of first year students of university in the experimental group at the end of the study and treatment.

**H<sub>3</sub>:** Traditional teaching treatment does not have a positive effect on vocabulary knowledge of first year students in the control group at the end of the study.

### **Leitner's learning box system**

#### **Human Brains and repeated actions**

Because vocabularies pile up, and sooner or later the situation becomes unbearable and frustrating. We do not only miss our goals, but even worse: we spoil our joy of learning. Many of us often restudy the whole material over and over. Again and again, we are bored by pieces of information we knew long ago, and come across certain "hard nuts" we never manage to retain. This makes the need for selective learning quite obvious. We need to pick the more difficult information and focus on it, so that we do not waste our time. In fact, experimental evidence suggests that testing with feedback is superior to restudying the same material over (Richardson and Bjork., 1988). In addition, gradually reducing the amount of pending tasks is likely to boost our motivation.

#### **Leitner's system**

In the early 70's a German psychologist named Sebastian Leitner devised a learning system that makes selective learning possible with less effort than the traditional method of studying a set of flashcards sequentially. Leitner's simple idea has a remarkable effect on learning performance. The followings are the most important advantages of using Leitner's learning box:

#### **Selective learning is made easy**

Each box represents a level of proficiency. At every moment, you can choose between reviewing long-known stuff or the most difficult cards.

#### **Visible results increase your motivation**

Your current vocabulary knowledge is made clear by the number of flashcards contained in each box. This makes this method incorruptible.

#### **Recall failure is remedied**

LLB method takes no pity on the flashcards you fail to answer correctly; they are demoted to the first row of box. Then, they have to climb their way up the boxes again, and your success is guaranteed to some extent.

#### **Immediate feedback**

Each learner's response is checked at once, such that the learner need not wait until their answers are corrected to get to know which answers were correct or wrong, instead of waiting for long times.

#### **Sorting and messing up**

Selective grouping of items and random rearrangement of items are possible with flashcards used in LLB.

#### **Stress-free training**

Worries about one's personal image are a common cause of stress. This is, indeed, true for children as well as for adult learners. By the use of the mentioned system, the user can progress at their own pace being allowed to concentrate on the learning material itself rather than on extraneous factors.

#### **Self-teaching skills are fostered**

With LLB system, the students are confronted with situations in which they have no teacher to turn to when they do

not know an answer. Success will gradually help them get confident of their own skills.

Leitner's system consists of a cardboard box separated into a number of compartments (usually into five). The compartments are filled with flashcards sorted into levels of difficulty. The flashcards are moved from one compartment to another, according to the current level of knowledge. When a flashcard is answered correctly it is promoted to the next compartment. While, when a flashcard is answered incorrectly it is demoted to the first compartment. The overall procedure of the Leitner's learning box system is shown in figure 2.



Figure 2. Leitner's learning box system

#### Experimental Analysis and Obtained Data

##### Pilot Study

A pilot study is a small scale experiment which is designed to examine logistics and assemble information prior to a larger study so as to improve the latter's quality and efficiency. In fact, tests used in this study were designed in such a way that new words constituted the questions. The authors made a one hundred item multiple-choice test and did a pilot study on a smaller group. This pilot study was carried out with one class 25 students before the main phase of the study for the selection of one hundred vocabulary items multiple choice test to be employed and administered during the main research. To validate the test valid, the authors made a correlation between the students' grades (out of 20 which is equal to 5 in USA) on their final exam and their grades on the researcher's test in the pilot study.

##### Study Design

A quantitative study was selected because the nature of this research and the research questions. In addition, the proper design for this study was experimental. Two groups were selected. One group served as the experimental group and received treatment (LLB) while the other group served as the control group and received only the routine instruction. To verify the homogeneity of the two groups a language proficiency test was carried out for this purpose. It should be mentioned that the control and the experimental groups were matched for every items except for the treatment. Both groups were 50 first year students at Islamic Azad University-Parsabad Moghan Branch. In order to measure the effectiveness of the treatment, the pre-test / post-test design was selected. In this case, 100 vocabulary items were selected from 504 Absolutely Essential Words as a base book at this level. Before starting the treatment, the authors made a one hundred item multiple-choice test and did a pilot study on a smaller group. The one hundred item multiple-choice test was split into two equal halves based on odd and even numbers as the pre-test and post-test.

##### Participants

The population of the study was chosen from first year students who had the English language course. They were randomly selected among the 100 students who participated in a

general proficiency test and their close homogeneity was confirmed by utilizing the statistical technique of *T*-test. They had three hours of English per week with a non-native professor. Therefore, all the students came from the same linguistic background and the professor was the same for the two groups. Those selected students were haphazardly assigned into two groups of 25 to form the experimental and the control groups of the study to be tested on the effect of LLB.

##### Materials

The instruments used in this study included a general test of language proficiency, a pre-test/post-test and a questionnaire. The aim of a general test was to divide the students into two almost homogeneous groups. The pre-tests and post-tests were a vocabulary test prepared by the researcher based on 504 Absolutely Essential Words book. During the last session, in order to probe the students' perspective on LLB and to see whether they were satisfied by the teaching method or not, a questionnaire was applied. The questions were about their interests and the way they liked the situation to see whether the new technique used in this study increased their vocabulary knowledge and was fun for them or not and also to get an idea or a point of view about the way used in experimental class.

##### Process and Trend

First, the general test was administered to 100 subjects. The time given was twenty minutes and the correct answer to each item received one point. There was no penalty for false responses. After taking the exam, each subject was rendered a grade based on student performance on the test. Out of 100 students, 50 students whose grades were between one standard deviation above and below the mean were selected, and divided randomly into two groups. Then, a pre-test and post-test were taken the students. At the first session, the vocabulary pre-test was administered to find whether the students know the meaning of the chosen words or not. The time given for this test was thirty minutes and the students were asked to answer the 50 item vocabulary test. The correct answer to each item received one point and there was no penalty for false responses.

The whole research project took place in fall 2012 semester and the students were taught twenty two lessons of the book "504 Absolutely Essential Words". During the semester, the new words of each lesson were presented to the experimental group students through LLB while the control group students did not receive this type of treatment and the new words were presented through synonyms, definitions and mini contexts. At the end of the semester vocabulary development of the students in all two groups were tested using the post-test. On the basis of these tests the efficacy of this new technique of vocabulary teaching was determined.

The treatment of the study took 22 sessions and in each session 12 new words were taught to the experimental group. The synonyms of the new words were given through LLB to make clear the meaning of each new word.

##### Grades and Scoring

General proficiency test (GPT) taken by 100 participants were scored by the authors, who assumed one point for the correct response and zero for the wrong one. Hence, the Students' scores were calculated or ranged from 0 to 20 (Iranian score system) in general proficiency test which is used to their homogeneity. The vocabulary pre-tests and post-tests taken by 50 participants were scored by the researchers, who assumed one point for the correct response and zero for the wrong one. So the scores of the participants in the pre-tests and post-tests of

both groups (experimental and control) were calculated or ranged from 0 to 20.

#### The Obtained Data

The data gathered on variables were analyzed by the following methods through SPSS software. 1) Descriptive Statistics was used to determine the mean and standard deviation of each group on the pre-tests and post-tests. 2) Independent *T*-test was used to find the difference between the levels of the students of both groups on post-tests. 3) Matched *T*-test was used to compare the two mean scores of the students of both groups in pre-test and post-test on vocabulary tests.

#### Results

##### Pre-test Data

After students took the vocabulary pre-test and post-test, the mean scores, the medians, the standard deviations, the variances, the minimum and the maximum of the vocabulary pre-test and post-test scores of the control and the experimental groups were calculated respectively. The related results are given in Table 1 and 2.

**Table 1. The results obtained for Control Group in pre-test and post-test**

Variables	Pre-test	Post-test
Mean	13.95	14.35
Median	14.00	15.00
Standard Deviation	0.780	0.945
Variance	0.595	0.845
Minimum	12	13
Maximum	16	16

**Table 2. The results obtained for Experimental Group in pre-test and post-test**

Variables	Pre-test	Post-test
Mean	14.05	16.85
Median	14.00	17.00
Standard Deviation	0.855	0.895
Variance	0.724	0.794
Minimum	13	15
Maximum	16	18

As Table 2 shows, like the control group, the mean of experimental group's post-test scores (17.00) is larger than the mean of pre-test scores (14.05). Therefore, from these numbers can conclude on the average the way of teaching has caused the improvement of students' scores in both relevant groups, but it is important to know that such a conclusion is only a descriptive conclusion. It should be tested about being meaningful this progress.

As Table 1 and 2 show the mean of the two groups is similar in pre-test, but the mean of the two groups was different in post-test. The result of pre-test showed that the two groups were almost at the same level of vocabulary knowledge and the mean of two groups were not of great difference.

##### Post-test Data

After giving treatment (LLB) to the experimental group, the research questions of the study were to be answered "Is there any significant difference between the impact of traditional teaching method and using LLB on vocabulary knowledge of first year students in the university? Does using LLB have a positive effect on students' vocabulary knowledge?" to answer these questions the researcher used two comparisons.

First the performances of the two groups compared and second the performances of the two groups in the pre-test and post-test compared to investigate their progress and the influence of using LLB. Table 1 and 2 show the results. The

post-test results show that there is a significant difference between the control and the experimental group regarding their vocabulary knowledge. The *T* observed is 9.609 and *T* critical at our selected significance level of 0.05 for degree of freedom 24 is 2.054. In other words, the *T* observed exceeds the *T*-critical implying that the experimental group performed significantly better in the post-test. As Table shows the post-test results reject the first null hypothesis and it was concluded that there is a significant difference between the experimental and the control group in terms of their vocabulary knowledge at the end of the study.

Overall, the experimental group represented a greater increase than the control group. The based on the results the second null hypothesis was rejected and it was concluded that using LLB has a positive effect on the experimental groups' progress in their vocabulary knowledge at the end of the study.

#### Discussions

The results of the study indicated that though both traditional and LLB methods enhanced vocabulary development of the students from the pre-test to the post-test, the experimental group seemed to be better than the control group. That is, the experimental group students had significantly better vocabulary gain scores than the control group students at the end of the study. During the 16-week study, both groups followed the same course book which provided the students with a number of the new vocabularies (words). While the control group students learned vocabulary only through traditional method, the experimental group students learned vocabulary only through LLB as a new method.

The experimental group students in the present study were shown explicitly the LLB strategy which they could try to achieve better vocabulary learning. The students discussed this strategy was more effective than other strategies, and received help and feedback from the teacher. When they failed to only memorize a new word, they tried to use LLB strategy, as they were aware of the existence of another strategy which they could fall back on. Thus, the instruction seemed to help them to learn better new words their performance. The vocabulary instruction through LLB empowered students in learning the relevant vocabulary. During the instruction period, students themselves found that they benefited from this strategy. It seemed that after a certain amount of practice and use, they knew how and when to use this strategy for remembering new words and for retrieving it when needed.

#### Conclusion and Future Works

This study examined the influence of LLB on the vocabulary knowledge of two groups of first year students at Islamic Azad University-Parsabad Moghan Branch, Parsabad Moghan City, Iran. Through the analysis of the findings from the students' vocabulary pre-tests and post-tests, it was concluded that the contribution of LLB in teaching vocabulary to students led to a higher level of vocabulary improvement. Using LLB facilitates their involvement in the class work by sharing answers, trying to participate, paying attention, giving the examples, encouraging to take part in the lesson, participating as volunteers, interacting with each other in a low-risk, warm-up activity, and utilizing the new words in the example. The findings revealed that participants in the experimental group, who had received the treatments on LLB, significantly enhanced better performance in a vocabulary test. Therefore, accordingly, through rejecting the first and second null hypotheses, the researchers can claim that LLB is a useful



way of enhancing vocabulary learning and can play an important role in teaching and learning vocabulary to first year students.

The result of this study indicated that there was significant difference in the efficiency of LLB compared to traditional teaching method. It was confirmed that learning vocabulary through LLB would lead to better learning than traditional method.

The results of present study have several important achievements:

1) since vocabulary is a very important part of the language, a teacher must equip himself/herself with up-to-date techniques and methods of teaching them. The results of this research can be valuable for language teachers at the inter-mediate to advanced levels.

2) the present study showed a new technique in vocabulary learning and teaching such as four-step vocabulary flash card in order to facilitate vocabulary learning for students and also provide an opportunity for them to use or review their vocabulary in every situation.

3) LLB is very practical and useful for those who prepare themselves for international exams such as TOEFL, IELTS and GRE.

4) the results of this study proved that LLB is an effective way of enhancing vocabulary learning for students.

5) this study introduced a strategy (LLB) that make vocabulary learning interesting and easy for students.

#### References

- Allen, F. V.** (1998). *Techniques in Teaching Vocabulary: Teaching techniques in English as a second or foreign language*. New York: Oxford University Press: ISBN 0-19-434130-5.
- Baleghizadeh, S., and Ashoori, A.** (2011). *The Impact of Two Instructional Techniques on EFL Learners' Vocabulary Knowledge: Flash Cards versus Word Lists*. *MEXTESOL Journal*, 35(2).
- Bowen, J. J., Madson, H., and Hilferty, A.** (1985). *TESOL techniques and procedures*. London: Newbury House.
- Coady, J., and Huckin, T.** (1997). *Second Language Vocabulary Acquisition*. USA: Cambridge University Press.
- Annette M. B. and De Groot** (2006). Effects of stimulus characteristics and background music on foreign language vocabulary learning and forgetting. *Language Learning*, 56(3), 463-506.
- Din, F. S., and Wienke, E.** (2001). *The Effect of Flash Card Use on Students' Comprehension of Chemistry Vocabulary*. ERIC Document 458115.
- Ehri, L. C., and Roberts, K. T.** (1979). *Do beginners learn printed words better in contexts or in isolation?* *Child Development*, 50(3), 675-685.
- Folse, K. S.** (2004). *Vocabulary Myths*. Ann Arbor, MI: University of Michigan Press.
- Griffiths, C.** (2006). Language learning strategies: Theory and research. *Iran. ILI Language Teaching Journal*, 2(1).
- Hatch, E., and Brown, C.** (1999). *Vocabulary, semantics, and language education*, Cambridge: Cambridge University Press.
- Harmer, J.** (1993). *The Practice of Language Teaching*. New York: Longman.
- Hedge, T.** (2008). *Teaching and Learning in the Language Classroom*. Oxford: Oxford University Press.
- Hunt, A., and Beglar, D.** (2005). A framework for developing EFL reading vocabulary *Reading in a Foreign Language*, 17(1), 23-59. ISSN: 15390578.
- Laufer, B.** (1997). *The lexical plight in second language reading*. Cambridge: Cambridge University Press.
- Levine, H., Levine, N., Levine, R.,** (2005). *Vocabulary for the High School Student*. Amsco School Publications, Inc.
- Moir, J., and Nation, P.** (2008). *Vocabulary and good language learners: Lessons from good language learners*. Cambridge: Cambridge University Press.
- Murray Bromberg, Julius Liebh, Arthur Traiger** (2005). *504 Absolutely Essential Words*. Barron's.
- Nation, P.** (2003). *The role of the first language in foreign language learning*: *The Asian EFL Journal*, 5(2).
- Richards, J. C., and Renandya, W. A.** (2002). *Methodology in Language Teaching: An Anthology of Current Practice*. Cambridge: Cambridge University Press.
- Richardson-Klavehn, A., Bjork, R. A.** (1988). Measures of memory. *Annu. Rev. Psychol.* 36:475-543
- Rivers, W. M.** (1981). *Foreign language skills*. Chicago: University of Chicago Press.