The impact of imagery strategy on EFL learners’ vocabulary learning

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Abstract

Vocabulary has always been one of the significant issues related both with teachers and learners of foreign languages. This study aimed to explore if imagery strategy was helpful for lower-intermediate student's English vocabulary learning in comparison to direct translation. Participants in this study were 40 EGP learners. Half of them were in the experimental group and the others were in the control group. The experimental group received imagery instruction as a treatment for a semester. The pre-test and post-test were administered in order to examine the effects. Results revealed that the experimental group outperformed the control group in terms of English vocabulary mastery.

Keywords: imagery strategy; direct translation; vocabulary learning strategy

1. Introduction

Considering language learning, vocabulary is central to language and of great importance to typical language learner (Zimmerman, 1998). Without a sufficient vocabulary, one cannot convey his message effectively or express his ideas in both oral and written forms (Fauziati, 2005). Vocabulary plays a significant role for communication, because the communication would be stopped if people hear or read words that people fail to understand (Scott, Jamieson-Noel & Asselin, 2003). According to Schmitt (2000), the center of learning and communication is vocabulary. Moreover, Punch and Robinson (1992) considered that the basic elements of communication and words should be increased and further advocated that “vocabulary instruction is a vital focus for teaching at the elementary level”. However, Oxford (1990) found that “language learners have a serious problem remembering the large amounts of vocabulary necessary to achieve fluency”. Therefore, to deal with their vocabulary learning difficulties is a big concern.

One of the components to master English as a foreign language is vocabulary mastery. It means that the students have ability in understanding and using the words and meaning. The students know the words and their meaning. It also plays an important role in English language skills. The greater vocabulary students master, the better they perform their language. By having limited vocabulary, the students will find difficulties mastering English skill.

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The basic role of vocabulary knowledge in second or foreign language learning has been recently recognized by theorists and researchers in the field. Accordingly, some types of approaches, techniques, exercises and practice have been suggested into the field to teach vocabulary (Schmitt, 2000). It has been suggested that teaching vocabulary should not only consist of teaching specific words but also intend at equipping learners with strategies necessary to expand their vocabulary knowledge (Hulstjin, 1993, cited in Morin & Goebel, 2001).

Learner-oriented language teaching and learning has pointed the significance of lexical memorization out, which stands at the center of the whole process of vocabulary acquisition, on the grounds that most of the learners do not have a clue about how to memorize new words, how to combine the words they have learned, and how to retain these words as part of their mental lexicon. The embarrassing tip–of–the–tongue cases have cast frustration and disappointment over many English learners. Both the English learners and the researchers are to unlock the mystery related to word and memory (Oxford (1990). Researches in this field have turned to psychology for a possible explanation. Investigations on the effectiveness of some kind of mnemonic strategy known as key word were widely conducted and introduced to ESL learners (Atkinson & Rough, 1975). And other strategies believed to facilitate vocabulary memorization were also added to the strategy list.

It's worth mentioning here that memory strategies, one kind of the language learning strategies, are considered vital in vocabulary teaching (Nation, 2004). Oxford (1990) supported that memory strategies are considered as "powerful mental tools" for language learners to deal with vocabulary learning difficulties, because they "make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p.8). Johnson and Obi (1993) also claimed that the use of mnemonic strategies may help learning disabled students in the area of spelling and benefit their long-term memory of vocabulary. Wu and Chang (2005) also revealed that memory is the important medium for learning and gaining knowledge and also supported that teaching students memory strategies would enhance elementary school students' English vocabulary learning. Research evidence also indicated that students' English performance are related to the use of language learning strategies (Li, 2005; Nisbet, Tindall & Arroyo, 2005; park, 1997; yang, 1996a) and that strategies could be taught (Brown, 2002; Dörnyei, 1995; Nation, 2004; Oxford, 1990). Beside, Lan and Oxford (2003) suggested to implement strategy instruction at the Intermediate level, because young learners were capable of learning and using strategies.

As it was mentioned by Oxford (1995) memory strategies, sometime called mnemonics, have been used for thousands of years. She brought the example of orators in ancient times that could remember a long speech by linking different parts of speech with different rooms of a house or temple, and then talking a walk from room to room, but after literacy became commonplace, people forget their previous reliance on memory strategies. These days, memory strategies have occupied the lions' share of attention probably because vocabulary learning has largely been constructed as a memory problem (Yongqi, 2003). The only principle that these strategies reflect is that for learning and retrieving better some "hook or memory aids" are needed. In this study, imaging word form acts as those hooks that will help learners retrieve better in the short run.

One of the most interesting areas for such research concerns the role of memory strategy instruction, an area which has been the focus of both theoretical and practical activity. Memory strategies involving deep semantic processing of target word have shown to be more effective than memorization techniques involving shallow processing such as oral rote repetition (O'Malley & Chamot, 1990; Oxford, 1990).

Memory strategy instruction has become a growing area of research within language learning strategies over the last twenty five years. The collected studies result that providing language learners with some memory strategies on vocabulary learning which involve in deep processing will consequently lead to better retention.

It should be noticed that memory strategies could build up learners' learning autonomy, facilitate their vocabulary and develop a long–term retention of English vocabulary. Nation (2002) also indicated the effectiveness of mnemonic devices in vocabulary teaching. Many studies in Iran have investigated vocabulary learning strategies at different educational levels, but few have surveyed vocabulary learning strategies at intermediate university level. Based on the advantages of strategy–based instruction, it would be worth exploring the effect of an explicit strategy instruction on Intermediate students’ vocabulary learning. Strategy which is the main concern of this research falls into one category: "imagery strategy". The researchers have made an attempt to find out the effect of using this strategy for storing and retaining vocabulary items for longer period of time which is the aim of learning.

Hsiao and Oxford (2002) maintains that "Memory strategies are particular Mnemonic devices that aid learners in moving information to long–term memory for storage purposes and retrieving it from long–term when needed for use” (p.371). Most memory strategies (traditionally known as mnemonic) involve relating the word to be retained
with some previously learned knowledge, using some form of imagery, or grouping. The category of memory strategy, in this study involves (imagery).

Based on Oxford’s (1990) explanation, memory strategies served as "a highly specific function: helping students store and retrieve new information"(p.37). She found out that "language learners have a serious problem remembering the large amounts of vocabulary necessary to achieve fluency" (p.39). To deal with the learning problem, memory strategies were of great help. Thus, memory strategies become a key group in Oxford’s strategy classification system. Back to 1981, Memorization is part of direct strategies under Rubin’s classification. However, there was no subgroup for memorization under O’Mally, Chamot, Stewner-Manzanares, Russo and Kupper’s (1985) and O’Mally and Chamot’s (1990) frameworks. Take subgroups of memory strategies in Oxford’s (1990) study for example, memory strategies fell into ten sub-strategies, including grouping, associating/elaborating, placing new words into a context, using imagery, semantic mapping, using keywords, representing sounds in memory, structured reviewing, using physical response or sensation, and using mechanical techniques.

In general, there is a tendency that the strategies with "deep" semantic processing are used more frequently than the strategies with "shallow" sensory processing. This finding is consistent with previous research results in Kudo (1999); Lawson and Hogben (1996); Schmitt (1997); Wang (2004); and Chen (2005).

According to the Depth of processing Hypothesis (Craik & Lockhart, 1972; Carik & Tulving, 1975), memory performance depends on the depth to which the stimulus is analyzed. In other words, " shallow" sensory processing in which stimulus is analyzed in terms of its visual or acoustic properties contributes to short–term memory; in contrast, " deep" semantic processing in which stimulus is analyzed for meaning and related to existing cognitive strategy leads to long–term memory. Furthermore, according to Nattininger (1988), manipulating relationships among words such as semantic mapping, and grouping words are very useful for classroom activities to increase learners’ recall of words.

One possible explanation for the inefficient use of deep processing strategies is that these strategies are more sophisticated and require greater cognitive than those with shallow processing (Chen, 2005). Therefore, they might be too difficult and time–consuming for the Iranian EFL learners to employ. Another reason might be that these strategies are either not practiced or not introduced at all in the EFL classrooms in Iran. Teachers need to explain these strategies by giving examples, and go into detail on how to use semantic mapping, and relating words together that would facilitate the vocabulary learning process.

A good way to remember what has been heard or read in the new language is to create a mental image of it (Oxford, 1990). Here are some illustrations. First, Adel, a Spanish bank manager learning English, tries to remember the American phrase Tax shelter, which he has just heard. He uses a mental image of a small house protecting or sheltering a pile of money inside. Second, Quang remembers a whole set of verbs related to household chores (e.g., cooking, cleaning, washing, cutting, and buying) by making a mental image of the situation in which he first heard these words during an English class in the refugee camp. The imagery used to remember expressions does not have to be purely mental. Drawings can make mental images (of objects like house or tree, or descriptive adjectives like wide or tall) more concrete. Even abstract words like evil or truth can be turned into symbols on a piece of paper for the purpose of remembering. For many prepositions, such as the equivalent of above, over, under, among, between, below, or into, learners can draw diagrams with arrows to illustrate meanings. These visual products do not need to be artistic. Just about anyone can draw stick figures, sketches, or diagrams to communicate a concept worth remembering (Oxford, 1990).

The great role of applying images for learning new words are related to long-term is clear. These three main activities belong to long-term memory, storage, retrieval and forgetting. First, chunks of information will convey to long-term memory by applying visual images. Second, visual images maybe the most powerful device to aid recall. And finally, applying memory strategies can promote long-lasting retention which is the aim of education. In addition, as Oxford (1990) put, the mind storage capacity for visual information exceeds its information for verbal materials. Furthermore, a large part of learners have great interest for visual images.

1.1. Memory strategy: imagery strategy

In the light of above-mentioned and discussed facts, it is necessary to consider Wilkins’ (1972) famous saying that “without grammar, very little can be conveyed, without vocabulary nothing can be conveyed” (p.111). And these words sum up the great importance of vocabulary very well. Vocabulary acquisition is currently receiving much more attention in L2 pedagogy and research.

The bulk of research that has explored the effects of memory strategies on vocabulary acquisition has examined language acquisition in terms of imagery as well. These studies have found an effect of these memory strategies on vocabulary acquisition. Underling these studies is "depth of processing hypothesis", the more cognitive energy a
person exerts when manipulating and thinking about a word, the more likely it is that they will be able to recall and use it later (Craik & Lockhart, 1972; Craik & Tulving, 1975). Research to date lends support to the claim that teaching vocabulary through memory strategies facilitates storing and retrieving new vocabulary items.

Some studies have explored the effects of memory vocabulary learning strategies (e.g., An, 2006; Chia–Wen Chuc, 2008; Nemati, 2009). An (2006), selected twelve vocabulary learning strategies from Schmitt's (1997) strategies, taught 12 Sixth graders and 11 fifth graders through 6 readers in an in-school English club program. These strategies were verbal repetition, grouping words together to study them, written repetition, flash cards, keyword method, grouping, studying the sound of a word, studying a word with a pictorial representation of its meaning, association, using physical action, marking words, and writing words in their personal word notebooks. She introduced two of 12 strategies when students learned a new reader. The findings were that verbal repetition, studying the sound of words and keyword method were mostly used, while studying a word with a pictorial representation of its meaning, grouping and writing words in their word notebooks were least used. Students with high perception managed several strategies when applying them.

Chia–Wen Chuc (2008) examined the effects of memory strategy instruction on elementary school students' vocabulary learning. The results of this study suggested that after memory strategy instruction, participants in the experimental group applied memory strategies more frequently and their vocabulary productive performance improved. It supported the positive influences of strategy training. Moreover, memory strategy instruction facilitated elementary school students’ word spelling ability. In addition, both more and less proficient learners' vocabulary productive ability significantly improved.

In another study, Nemati (2009) made an attempt to compare the impacts of teaching through memory strategies on experimental group in comparison to control group, where students were taught the meaning of new vocabulary items through giving synonyms and mini-contexts. The results were reflected in the students' short-term and long-term retention. The results revealed that the students of experimental group outperformed both in short-term and long-term scores, portrayed the superiority of memory strategies in short-term and long-term retention.

Hence the purpose of the study is to investigate the effect of imagery strategy on Iranian EFL learners’ vocabulary recall. Simply put, the study is an attempt to compare the impact of teaching through imagery strategy on the experimental group in comparison to the control group, where students will be taught the meaning of new vocabulary items through traditional direct translation.

This study intends to address the following research question:

**Research question:** Does imagery strategy have any significant impact on Iranian EFL learners' vocabulary learning?

Accordingly, the following null hypothesis is formulated for the above-mentioned research question:

**H0:** Using imagery strategy has no significant impact on Iranian EFL learners' vocabulary learning.

### 2. Method

#### 2.1. Participants

A total of forty EGP female studying at Islamic Azad University (Miandoab Branch), ranging in age from 19 to 27 participated in the study. The proficiency test, NELT (Nelson English Language Test), was administered to 80 students; from this pool, 40 students who scored 70 participated in the study. Twenty students served as control group and 20 students as experimental group randomly. The control group was treated with traditional direct translation and the treatment group received memory strategy training (imagery). The same vocabulary course book was taught by the researchers in both groups. The participants who were one-year students with various majors, including: physical education, accounting, electronic, computer, and management took two-hour general English course as an elective course per week for one semester so as to enhance their reading and vocabulary in general English. Following the random grouping of the participants, a pre-test was administered based on their general English course book to have an understanding of their mastery level of the vocabulary before treatment.

#### 2.2. Instrumentation

This study was conducted with forty EGP students chosen from among 80 students based on their proficiency scores. In order to make sure as to the homogeneity of the two groups in terms of their level of proficiency, the NELT (Nelson English Language Test) was administered. The same course book entitled *Facts and figures* by Ackert and Lee (2004) was used by all the participants. The course book focused on different topics related to general English including topics for animals, plants, music, and work and leisure. The vocabulary items were selected from the glossary in this textbook. A total of 200 words from the list of glossary from this textbook were chosen as the target training words. In addition, there were two English vocabulary tests involved in the study; that is, the pre-test and the post-test, which were prepared by the researchers to evaluate the participants’ knowledge of
vocabulary. Both of the tests shared the same test form including six parts, and each part included six questions. Totally, the tests consisted of thirty questions and each question was given one point. Thus, the students who answered all the questions correctly obtained 30 points. Furthermore, this study composed of a pilot study which included a teacher made test. The test was administered to a sample which was similar to the main population. This pilot study aimed at determining item characteristics and the reliability and validity of the test, so that the researchers could control the problems that the participants encountered in the test administration. Therefore, KR21 was applied to examine the reliability which was 0.84 for the pre-test and 0.79 for the post-test. As Fraenkel and Wallen (2003) pointed out that the reliability of teachers’ self-made tests was accepted when KR 21 was higher than 0.70.

2.3. Procedure

Prior to the research, the proficiency test NELT was administered in order to assure the homogeneity of the participants. The subjects of the study were randomly assigned into two groups; that is, one experimental group (imagery) and one control group (direct translation group). Following this, all of the participants took an English vocabulary test as a pre-test before the instruction in the first week of the semester in September 2010. The test was aimed at assessing the participants’ mastery of vocabulary knowledge.

After the pre-test, the main phase of the study began in which one experimental group was instructed about the memory strategy for a semester. The two groups of the study were taught one session a week for 16 weeks. During the instruction, 200 English words from the textbook were selected to be taught for the experimental group of the study following the memory strategy instruction. The treatment material started with a general definition of vocabulary learning strategy and continued with an elaboration and exemplification of each strategy all in the form of a handout to be used by the participants in the experimental group. A practice section was also incorporated for the strategy so as to guarantee the participants’ understanding of the strategy.

In order to teach in the control group, different modes of vocabulary presentation were involved in the experiment. That is to say, each vocabulary was presented in isolation on the board. Then, the teacher provided the students with an oral pronunciation of words, explained their parts of speech, and finally offered a direct translation of words in Persian. This approach was pursued every session for the whole semester during which the learners were not offered any vocabulary learning strategy. However, the teaching and learning approach was totally different for the experimental groups. Prior to teaching and learning session, the participants were familiarized with the concept of strategy and its definition, a kind of strategy awareness; then they were provided with some practical examples to master applying the intended strategy.

To teach in the experimental imagery group, the learners were required to create a mental image of word which was going to be taught or the pictures of words such as swim, catch and fly were shown to the participants to assist them to create an image of the word. Later, the learners practiced the words in the text and then did the related exercises for each group of words while utilizing the intended strategy. It is worth noting that Oxford Advanced Learners Dictionary was allowed to be used during the class activity in order to help students to be active in strategy based instruction.

In the last phase of the study, a post-test was administered to two groups of the study in order to measure the effects of imagery strategy and compare its effect with the direct translation method of vocabulary acquisition. The post-test had a similar format like the pre-test which consisted of 30 questions. After collecting the data, the obtained scores, were submitted to statistical analysis.

2.4. Design

The design of the study was quasi-experimental, including one experimental group and one control group. The experimental group was taught only one kind of memory strategy (imagery) which was considered as the independent variable of the study. However, the control group was instructed based on the traditional direct translation in their vocabulary learning process. The participants' vocabulary scores were considered as the dependent variable.

3. Data Analysis

Following the data collection, the participants’ performances in both groups were measured on the pre-test and post-test with respect to vocabulary learning. To answer the research question, the collected data were then submitted to statistical analysis which included two independent samples t-tests to compare the impact of imagery strategy on vocabulary learning on the pre-test and post-test.
Research Question: Does imagery strategy have any significant impact on Iranian EFL learners' vocabulary learning?

Table 1: Descriptive Statistics for Imagery Strategy Measurement: Pre-test

| Groups                  | N   | Mean  | Std. Deviation | Std. Error Mean |
|-------------------------|-----|-------|----------------|-----------------|
| Imagery group           | 20  | 9.500 | 4.39497        | 0.98274         |
| Direct translation group| 20  | 9.100 | 4.06396        | 0.90872         |

Table 1 indicates the mean scores of both the experimental and control groups in the pre-test. The mean score for the imagery group is 9.500 and for the direct translation group is 9.100. Therefore, it is implied that the two groups of the study did not differ significantly in the pre-test in terms of vocabulary proficiency.

Table 2: Independent Samples t-test for Imagery Strategy Measurement: Pre-test

| Levene's Test for Equality of variances | T-test for Equality of means |
|----------------------------------------|-----------------------------|
| F           | Sig.  | T   | df | Sig. (2tailed) |
| Equal variances assumed                | 0.113 | 0.738 | 0.299 | 38 | 0.767 |
| Equal variances not assumed            | 0.299 | 37.769 | 0.767 |

As shown in table 2, there was no statistically significant difference between the two groups of the study (\( p=0.767 \)). Therefore, the participants' vocabulary proficiency in both groups did not differ significantly on the pre-test.

In order to measure the performance of the participants in terms of memory strategy instruction (imagery strategy), a post-test was administered to the two groups of the study. Therefore, to compare the participants' performance another independent samples t-test was conducted as statistical analysis.

Table 3: Descriptive Statistics for Imagery Strategy Measurement: Post-test

| Groups                  | N   | Mean  | Std. Deviation | Std. Error Mean |
|-------------------------|-----|-------|----------------|-----------------|
| Imagery group           | 20  | 24.250| 3.64005        | 0.81394         |
| Direct translation group| 20  | 17.850| 3.81513        | 0.85309         |

Table 3 indicates the mean scores of the two groups on the post-test in terms of memory strategy instruction (imagery strategy). The mean score for the imagery group is 24.250; however, the mean score of direct translation group is 17.850. It can be understood that the experimental group outperformed the control group in terms of vocabulary learning after the treatment.
Table 4: Independent Samples t-test for Imagery Strategy Measurement: Post-test

|                            | Levene's Test for Equality of variances | T-test for Equality of means |
|-----------------------------|----------------------------------------|-----------------------------|
|                            | F          | Sig. | T     | df | Sig. (2tailed) |
| Equal variances assumed     | 0.004  | 0.951 | 5.428 | 38 | 0.000          |
| Equal variances not assumed | 5.428  | 37.916 | 0.000 |    |                |

Table 4 reveals the participants’ performance on the post-test with respect to vocabulary learning. As it can be observed, the participants’ performance in the experimental group did improve as a result of imagery strategy instruction (p = 0.000). That is to say, considering vocabulary learning and instruction, the difference between the two groups of the study was statistically significant on the post-test.

In sum, the results of the research obtained from independent samples t-tests revealed that the imagery group of the study did improve in the post-test with respect to the memory strategy instruction and traditional direct translation. However, this effect on the participants' vocabulary learning through traditional way was less significant in comparison to the memory strategy instruction.

4. Discussion

In this article the effect of one memory strategy (imagery) on vocabulary recall of Iranian EGP learners was examined. The underlying rational is depth of processing hypothesis. According to this theory, how well information is remembered is not a function of how long a person is exposed to that information, but rather depends on the nature of the cognitive processes that are employed to process that information (Craik & Lockhart's 1972). The present study has focused on the impact of one memory strategy (imagery) instruction on vocabulary learning.

Using the statistical analysis, the researchers found some evidence that memory strategy instruction did result in the learners’ vocabulary learning performance. The results of the study are in congruent with Craik and Lockhart's (1972) depth of processing theory which claims that the more cognitive energy a person exerts when manipulating and thinking about a word, the more likely it is that they will be able to recall and use it later (Craik & lockhart, 1972; Craik & Tulving, 1975). This hypothesis implies that it is not important how recently learners have learnt something. What is of more importance in learning is, in fact, the depth of processing; in other words, students must be taught on how to process information deeply. Therefore, memory strategies on vocabulary learning involve learners’ in deep processing and consequently lead to better retention. Regarding the vocabulary teaching and its effect on vocabulary learning, one research question was addressed in this study. The findings of the study reveal that the learners' vocabulary learning is affected and hence improved through memory strategy instruction significantly.

In this study, a significant effect was found on the memory strategy instruction: imagery. In other words, the obtained findings indicate that this memory strategy engage learners in more cognitive activity, deeper processing, and higher retention in vocabulary learning. The findings of the study are in line with the findings of Chia-Wen Chuc (2008) who concluded that memory strategy instruction facilitated elementary school students’ word spelling ability. Similarly, the results of the study give more support to the findings of Nemati (2009) who suggest that teachers should consider using memory strategies improve short-term and long-term retention.

5. Conclusion

The present study was designed to investigate the effect of one memory strategy on vocabulary recall of Iranian EGP learners. The research was conducted with 40 college students in Miandoab Azad University at lower–intermediate level. The participants' vocabulary learning performance in both experimental and control groups were collected and measured based on the established criteria. The impact of one memory strategy instruction on the vocabulary learning was determined through comparing the participants' performance in the pre-test and post-test. The findings of the previous researchers lend support to the effectiveness of memory strategy instruction in improving learners' vocabulary learning. The findings of the present study also argue that there is close association between vocabulary learning, deep processing, cognitive engagement, and better retention. Furthermore, this study supports the claim of the depth of processing hypothesis in that the more deeply you process information, the better it is retained. In other words, the deeper the level of processing on an item, the more likely it is remembered.
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