Vocabulary Learning Strategies: A Short Way to Long Term Retention

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Abstract  According to Oxford (1990), strategies are steps taken by students to enhance their own learning. This research attempted to investigate the impact of teaching vocabulary learning strategies on short-term and long-term retention of vocabulary items. The sample participants included 303 females randomly selected from one all-female governmental Pre-university school (PUC) in Iran. They were then divided into control and experimental groups and different proficiency levels. Researchers have generally equated the effect of instruction with its duration rather than its quality or intensity. The results obtained, through repeated measure ANOVA, revealed that strategy training could enhance long-term retention of vocabulary items significantly – the experimental group students outperformed the control group within the same period of instruction. Comparing different experimental proficiency groups, high proficiency level participants excelled their low and intermediate counterparts. Finally, from among different strategies “grouping” was proved to be an effective strategy for all proficiency level participants.

Keywords  Strategy, Proficiency, Short Term Retention, Long Term Retention, Vocabulary Learning Strategies

1. Introduction

There is an old Chinese proverb which Wenden (1987) reminds us of. It reads as follows: Give a man a fish and he eats for a day, teach him how to fish and he eats for a lifetime. In the field of language teaching and learning and particularly vocabulary teaching, the main concern of the present study, this proverb implies that if students are provided with answers, or taught vocabulary items in the ordinary way, only their immediate problem is solved. But if the students are taught vocabulary learning strategies, to work out the answers for themselves, they may be empowered to manage their own learning. Learners need to learn how to learn and teachers need to learn how to facilitate the process (Oxford, 1990, p. 201). Most teachers tend to teach in the way they were taught or in the way they preferred to learn. The effectiveness of vocabulary learning strategies resides in the fact that it requires learners to be more active in comparison to those who are less strategically engaged in the task. Thus, language learners are seen as active participants in the learning process (Williams & Burden, 1997).

According to Bialystok (1981) the conception that students are no longer passive receptacles of knowledge, and that they have to actively participate, places a great responsibility on the learners. It is an ideal class to have thinking participants who can influence their own vocabulary learning. Raising students' awareness regarding these strategies might make them not only more prepared for learning, but also more analytic about the learning strategies they employ. Reid (1998) stated that developing an understanding of these strategies will enable students to take control of their learning and to maximize their potential for learning. By training these strategies learners cannot be spoon-fed any more. If they desire to learn new vocabulary items with much ease and for a longer period of time, application of vocabulary learning strategies is the best way. In other words, strategy instruction can help students in different ways: Firstly, by strategy training students will be better trained and by gaining the skill in using those strategies they will be independent and confident learners, and secondly, they will be more motivated when they understand the relationship between strategy use and their success (Chamot & O'Malley, 1996).

The general concept of using strategies to enhance learning is not new. As Griffiths (2003, p. 2) exemplified, "Generation of us must have used the first-letter mnemonic strategy to remember information such as the colors of rainbow (Roy G. Biv = red, orange, yellow, green, blue, indigo, and violet) which is a good example of making acronyms." As mentioned by Griffiths, some other strategies such as 'highlighting' important ideas or new vocabularies are often so simple that it is easy for experienced students to take them for granted.

But, it must be remembered that strategies have to be learnt initially before they can be used to enhance learning. A salient problem is that some students never manage to acquire this kind of procedural knowledge and they need to
be taught in a direct way.

The word strategy comes from the ancient Greek word 'strategia' which means steps or actions taken for the purpose of winning a war. The war like meaning of strategia has fortunately fallen away, but the control and goal-directedness remain in the modern version of the word (Oxford, 1990).

This study assesses the role of strategy training both in short-term retention and in long-term retention. Some writers have conducted short-term experiments and the results are not encouraging for the language teachers (Hauptman, 2004), and the vocabulary retention of new words ranges from 5.88% (Pitts, White & Krashen, 1989), 7.69% (Hulstijn, 1993), 6.66% (Day, Moura & Hiamatsu, 1991) to approximately 20% (Dupuy & Krashen, 1993; Horst, Cobb & Meara, 1998). However, in the present paper, the results of the short-term test indicated that the performance of the experimental groups was higher than the control groups due to strategy application.

Extensive research has identified the learning strategies used by L2 learners and somewhat a smaller body of research has documented the effectiveness of helping less successful students (Chamot, 2004). The idea was first brought by Stern (1975) and Rubin (1975) who studied language learning of successful learners to help under achiever learners. Based on this premise, other researchers as well tried to focus on successful language learners. Rubin (1975) suggested that good L2 learners are willing and accurate guessers and have a strong drive to communicate; are often uninhibited; are willing to make mistakes; focus on forms by looking for patterns and analyzing; take advantage of all practice opportunities; monitor their speech as well as that of others, and finally pay attention to meaning. Furthermore, it is assumed that more proficient language learners use a greater variety and often a greater number of learning strategies (Lee & Oxford, 2008; O’Malley & Chamot, 1990; Wharton, 2000). If good language learners are good models for the use of appropriate learning strategies, the findings of the present study will also be significant for low achievers to teach them how to use strategies in an orchestrated fashion like good language learners.

2. Oxford's Vocabulary Learning Strategies

The history of learning strategies goes back to Rubin (1975) who pioneered much of the work in the field of strategies. From then, different classification and taxonomies came into vogue (Cohen, 1990; O'Malley & Chamot, 1990). From among those researchers tackled language learning strategies Oxford's (1990) classification is the most comprehensive detailed system embodying direct and indirect strategies.

Oxford's (1990) classification embodied direct and indirect strategies with 6 categories, 19 strategies and 62 sub-strategies. Direct strategies consist of 'memory', 'cognitive' and 'compensation' strategies. Indirect strategies support and manage language learning without directly involving the target language hence, they underpin the business of language learning and include 'metacognitive', 'affective' and 'social' strategies. In another article Nemati (2009) focused on just memory strategies and its effect on long term retention.

With the emergence of the concept of language learning strategies scholars have attempted to link these strategies to other aspects of language such as vocabulary as well. Studies such as O’Malley and Chamot (1990) confirmed that most language learning strategies are used for vocabulary tasks too. In the same vein, all memory strategies based on Oxford taxonomy can be used for vocabulary learning tasks the effect of which has been a motive to conduct the present research on vocabulary retention.

The present paper did not consider all direct strategies: some were not directly related to vocabulary, and some like 'repeating', 'taking notes', and 'associating' were difficult to administer. Strategies like 'dictionary use' were not considered because of the prior knowledge and familiarity of the participants with the dictionary. After this filtration, 7 strategies were left to be used for teaching vocabulary items in the experimental group as follows: grouping, placing new words into context, using imagery, analyzing expressions, highlighting, using linguistic clues and finally using other clues (cf. Figure 1).

![Figure 1. Strategies used in the study](image-url)
3. Research Hypotheses

In this paper, the following research questions were raised:

1). Teaching direct VLSs to experimental groups does not impact EFL learners' short-term and long-term vocabulary scores in comparison to control groups.

2). Teaching direct VLSs does not impact different proficiency (low/intermediate/high) EFL learners' long term vocabulary scores in the experimental group.

3). All the seven strategies improve the low/intermediate/high proficiency learners' short term and long term vocabulary scores in the experimental group similarly.

4. Instruments

Nelson Proficiency Test

An already available standard proficiency test (NELSON Series 400B) was utilized to divide the participants into high, intermediate and low proficiency levels. This instrument, in the form of multiple choice questions, consisted of one cloze comprehension passage as well as vocabulary, grammar and pronunciation sections.

Treatment material

The treatment handout prepared by the researcher included 21 unknown vocabulary items selected from the pilot study. The treatment material started with a general definition of vocabulary learning strategy, continued with an elaboration and exemplification of each strategy and finished with some exercises all in the form of a handout to be used by participants in the experimental groups.

Vocabulary Knowledge Scale (VKS)

In this paper, the Vocabulary Knowledge Scale (VKS) developed by Paribakht and Wesche (1993) was utilized to measure depth of vocabulary knowledge.

Participants of the study

To select the participants multi-stage randomization technique was exploited. Finally, 303 female pre university students from Shiraz, Iran, were selected as participants. Then, they were randomly divided into control and experimental groups. Nelson proficiency test was then administered to divide the participants into different proficiency levels.

| Level     | Control | Experimental |
|-----------|---------|--------------|
| Low       | 30      | 74           |
| Intermediate | 45    | 55           |
| High      | 52      | 47           |
| Total     | 127     | 176          |

In all, 45 and 55 participants were grouped, with a cutting criterion of 0.5 SD below and above the mean, as 'intermediate' proficiency level in control and experimental groups respectively. Those falling below and above the - 0.5 SD to + 0.5 SD range were grouped as 'low' and 'high' participants in each group.

5. Procedure

The main part of this study was carried out in three steps. Both control and experimental groups experienced the three steps of pre-test with VKS, training, post-test1 (immediately after training) and post test 2 (two weeks after post test1) with VKS. Training for experimental group consisted of a) strategy awareness, b) explanation and example of each strategy in handout while such information was absent in the control group teaching. In what follows, the way these strategies were taught in the experimental group is elaborated on:

For the first strategy (grouping), 3 words with meanings related to one topic were selected (mortage, mansion and dwell). A practice section was also incorporated for each strategy so as to guarantee the participants' understanding of the strategy. For the second strategy (making acronym), the words dignity, stable and adequate were selected. The students learnt that they could make an acronym like SAD to learn and remember those vocabularies better. Pictures of herd, loop and summit were shown to the participants for strategy three (imagery). As regards the fourth strategy (analyzing expressions) the students were taught, through examples, to use the meaning of each prefix, suffix and root and build up the ultimate meaning of the word by adding up the meaning of the subparts. The vocabulary items introduced here were: subsequent, incredible and convert. Different types of highlighting were introduced for strategy five (highlighting). As an example, the three words slender, shattered and grasped, all in bold face, were included in a paragraph. They were also underlined to highlight them better. Then, the students were asked to match the meaning of each term with the given synonyms. For the last two strategies (guessing based on linguistic clues and nonlinguistic clues), the new words were presented in sentences so that the students could guess the meaning of those alien words. For zeal, gravel, and revive, the sentences embodied linguistic clues to conjecture the meaning of the term. For adjacent, frail, and solitary non linguistic clues were practiced to unveil the terms' meaning.

6. Data Analysis and Results

To ensure the homogeneity of control and experimental groups, at the starting point of the study, the researcher made use of a series of independent sample t-tests using the total scores obtained by control and experimental groups in pre-test.

The results of the independent sample t-tests, Table 2, revealed non-significant differences between the two groups for each of the seven strategies, direct strategies and its three sub-parts. The results verified the homogeneity of the two groups in the pre-test.

Hypothesis 1: Teaching direct VLSs to experimental groups does not impact EFL learners' short-term and
long-term vocabulary scores in comparison to control groups.

Table 2. Independent sample t-tests for the pre-test scores

| Strategy   | Groups | N  | Mean  | SD  | t     | df  | Sig.   |
|------------|--------|----|-------|-----|-------|-----|--------|
| Direct     | Cont.  | 127| 26.63 | 4.3 | 0.36  | 301 | .71(NS) |
|            | Exp.   | 176| 26.44 | 4.4 |       |     |        |

To find out the rate of improvement, their gain scores were utilized. 'Gain 1' refers to the difference between the total mean scores in pre-test and post-test 1 and 'gain 2' refers to the difference between the total mean scores in pre-test and post-test 2 (Table 3).

Table 3. Descriptive statistics of 'gain' and the results of independent sample t-tests

| Research Groups | N | Mean  | SD  | t     | Sig.   |
|-----------------|---|-------|-----|-------|--------|
| Gain 1 Control  | 127| 43.79 | 51.21| 12.70 | .000(HS) |
| Experimental    | 176| 43.80 | 53.21| 13.08 | .000(HS) |
| Gain 2 Control  | 127| 43.80 | 53.21| 13.08 | .000(HS) |
| Experimental    | 176| 43.80 | 53.21| 13.08 | .000(HS) |

Table 4 below provides descriptive statistics on performance of the participants as regards direct strategies.

Table 4. Descriptive statistics for direct strategies (Iran)

| Direct Strategies | Pre-test | Post-test 1 | Post-test 2 |
|-------------------|----------|-------------|-------------|
| Control Experimental | 26.51   | 70.30       | 68.60       |
|                   | 26.21   | 77.43       | 79.42       |
| Total             | 26.34   | 74.45       | 74.89       |

Table 5. Repeated measure ANOVA for control and experimental groups

| Subjects Effects | Source of Variation | SS   | df | Mean Square | F     | Sig.   |
|------------------|---------------------|------|----|-------------|-------|--------|
| Within-Subjects  |                     |      |    |             |       |        |
| Effects          | Direct              | 442196.0 | 2 | 221098.0   | 3059.0 | .000   |
| Direct           | stra. × Groups      | 4701.7 | 2 | 2350.8     | 32.5  | .000   |
| Error            |                     | 43220.9 | 602  | 72.2     |       |        |
| Between-Subjects |                     |      |    |             |       |        |
| Effects          | Groups              | 7608.1 | 1 | 7608.1     | 32.2  | .000   |
| Error            |                     | 70549.2 | 301 | 235.9     |       |        |

Some insightful results emerged from the mean columns in the table above. First teaching direct strategies to the experimental group and the ordinary teaching to the control group both increased the mean scores from pre to immediate post-test though the rate of improvement was more for the experimental group (26.21 to 77.43) than the control group (26.51 to 70.30). As regards delayed post-test the mean score of the control group decreased (68.6) compared to the immediate post-test score (70.3). In contrast, the mean score of the experimental group increased from 77.43 in immediate post-test to 79.42 in delayed post-test.

For the direct strategies the Pillai's trace value was 0.92 that was significant at \(P < .000\). This allowed the researcher to use repeated measure ANOVA. Based on the within-group data, all the participants, irrespective of the groups, improved highly significantly due to the teaching phase \(F = 3059, P < .000\). When group-wise improvements were verified, differential changes were observed \(F = 35.5, P < .000\), that is, the interaction effect between groups and direct strategies was highly significant. The result of between-subjects effect also confirmed a highly significant difference between control and experimental groups \(F = 32.2, P < .000\) in favor of the experimental group. This asserted that teaching through direct strategies was a contributing factor.

The above figure clarified that for the experimental group learning was more and forgetting was less compared to the control group. Hence the null hypothesis, "Teaching direct VLSs to experimental groups does not impact EFL learners' short-term and long-term vocabulary scores in comparison to control groups." was rejected at the .01 level.

Hypothesis 2: Teaching direct VLSs does not impact different proficiency (low/intermediate/high) EFL learners' long term vocabulary scores in the experimental group.

In the second hypothesis the impact of teaching strategies is considered only in the experimental group and among different proficiency levels in long term. To find an answer to the hypothesis, one-way ANOVA was first utilized among different proficiency level participants of the experimental group to determine whether the three groups were homogeneous. To achieve this goal, their total pre-test scores on direct strategies were utilized (Table 6).

In Table 7 above the mean score and the number of participants in each proficiency group were tabulated for the pre-test score of direct strategies. The result of the one-way
ANOVA above revealed that there was no significant difference between the pre-test scores of high, intermediate and low proficiency level participants in the experimental group. In other words, they were homogeneous during the pre-test phase.

One-way ANOVA was applied to find out the effect of teaching direct strategies in post-test 2 in the experimental group.

**Table 7. One-way ANOVA in different experimental proficiency groups for post-test 2**

| Sum of Squares | df | Mean Square | F   | Sig. |
|----------------|----|-------------|-----|------|
| Direct stra. post 2 Between Groups | 1857.95 | 2 | 928.97 | 4.72 | .010(S) |
| Within Groups Total | 33826.90 | 174 | 196.66 |      |
| Total | 35684.85 | 176 |      |      |

Table 8. Post hoc Tukey test multiple comparisons for VLS

| Strategy | Low | Mid | High | Mean pre | Mean post 1 | Mean post 2 |
|----------|-----|-----|------|----------|-------------|-------------|
| Grouping | 3.63 | 11.25, (7.62)* | 11.56, (7.93) |
| Acronyms | 3.64 | 10.4, (6.77) | 10.70, (7.70) |
| Imagery | 4.06 | 11.02, (6.96) | 11.28, (7.22) |
| Analyzing | 3.98 | 9.93, (5.59) | 10.28, (6.30) |
| Highlighting | 3.7 | 10.75, (7.05) | 10.75, (7.05) |
| Linguistic | 3.58 | 9.85, (6.27) | 10.5, (6.93) |
| Non-linguistic | 3.83 | 10.50, (6.68) | 10.89, (7.06) |
| Intermediate Mean pre | 3.58 | 12.16, (8.58) | 12.40, (8.82) |
| Mean post 1 | 3.58 | 10.76, (7.18) | 11.03, (7.45) |
| Mean post 2 | 3.83 | 11.65, (7.82) | 11.90, (8.07) |
| Analyzing | 4.01 | 10.16, (6.15) | 10.6, (6.59) |
| Highlighting | 3.5 | 11.76, (8.26) | 11.87, (8.37) |
| Linguistic | 3.43 | 10.50, (7.07) | 11.16, (7.73) |
| Non-linguistic | 3.65 | 10.90, (7.25) | 11.25, (7.60) |
| High Mean pre | 3.76 | 12.44, (8.68) | 12.57, (8.81) |
| Mean post 1 | 3.93 | 11.51, (7.58) | 11.63, (7.70) |
| Mean post 2 | 4.04 | 12.55, (8.51) | 12.76, (8.72) |
| Imagery | 3.89 | 11.29, (7.40) | 11.4, (7.51) |
| Highlighting | 3.65 | 11.87, (8.22) | 11.89, (8.24) |
| Linguistic | 3.44 | 11.39, (7.95) | 11.71, (8.27) |
| Non-linguistic | 3.78 | 11.93, (8.15) | 12.08, (8.30) |

* The scores in parentheses show the mean difference.

Similarly for the delayed post test, differences were observed (F= 4.72, P= .01). To find out the source of differences Post hoc Tukey test was run to see between which sub-groups these differences lie.

As it is observed from the result of post hoc Tukey test (Table 9), in all cases the source of difference lied between the high and low proficiency groups in post test 2. Revealing that, while using those strategies high proficiency groups improved more in comparison to low students and teaching through strategies was more effective for them.

Hypothesis 3: All the seven strategies improve the low/intermediate/high proficiency learners’ short term and long term vocabulary scores in the experimental group similarly.

To assess this hypothesis, the mean score of pre and post tests were used.
The above table indicated that for low proficiency level experimental participants, grouping had most improved the scores of the students both from pre to immediate post-test (7.62) and from pre to delayed post-test (7.93). For the first measurement highlighting (7.05) and imagery (6.96) and for the second measurement acronyms (7.7) and imagery (7.22) ranked second and third meaning that after grouping, their teaching had most improved the low experimental participants.

7. Conclusions

Although these strategies are extremely powerful learning tools many students are either ignorant of them or they use them ineffectively. As stated by Oxford (2003), students are not always aware of power of consciously using learning strategies to make learning quicker and more effective. Some conclusions can be drawn from the study.

Firstly, the main point examined was the rate of improvement in control and experimental groups in short-term and long-term tests as regards their application of all the direct strategies together, seven cases. The findings indicated that the experimental group outscored its parallel control group both in short-term and in long-term retention tests. This meant that teaching through direct strategies was an effective and better way of learning and remembering the vocabulary items. The underlying rationale of learning seems to be that understanding is remembering, while this is a fallacy. The purpose of education is to remember what is learnt. Finding ways that can help students retain what they have already learnt is of crucial importance in any educational setting.

Secondly, significant differences were observed among different proficiency groups in long term retention. The source of difference lied in high and low students. The results are in line with some previous studies such as Rubin (1975) who discussed characteristics of good language learners. Similarly, Chamot and El-Dinary (1999), Khaldieh (2000), Rubin (1975), Takeuchi (2003), Vandergrift (2003), and Yang (2007) asserted that good language learners use wide ranges of strategies. Thus, all the above strategies used by high proficiency students in Iran can provide a basis to aid less proficient language learners.

As regards the third hypothesis for low proficiency group in short term "grouping, highlighting and imagery", were most useful. For long term "grouping, making acronyms and imagery", representing the three sub-parts of memory strategies, were most effective. Hence, the results show — grouping and making acronyms from memory strategies were most effective in long-term retention in both environments. Memory strategies improved the low group much.

The second proficiency group was the intermediate group. For them "grouping, highlighting and imagery", were most helpful for intermediate students both in short-term and in long-term retention tests. The findings showed that for the intermediate group, grouping and non-linguistic clues were common in both short-term and long-term retention tests. This study assessed the positive impact of teaching strategies on all the three proficiency groups namely low, intermediate and high. Hence, the findings of the study may help English teachers to overcome the challenge of teaching heterogeneous groups and help researchers to gain insight into the effect of language proficiency.

The third proficiency group was the high group. The three strategies, "grouping, imagery and highlighting", were most helpful to remember words in short-term test while, "grouping, imagery and non-linguistic clues", were the top ranking strategies in the long-term retention test. From the above data it can be concluded that generally non-linguistic clues can be an effective strategy for high proficient students in long-term retention test. Further, grouping was an effective strategy for all proficiency level participants.

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