THE IMPACT OF TEACHING DIRECT LEARNING STRATEGIES ON THE RETENTION OF VOCABULARY BY EFL LEARNERS

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Abstract

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This study examined the effect of teaching direct learning strategies (memory, cognitive, and compensation) and their subcategories on the vocabulary retention--short term and long term-- of EFL learners. Participants of the study were 60 Iranian female English Language Learners between the ages of 15 and 17. Before the treatment phase of the study, a questionnaire was given to the participants to see if they already use these strategies even before receiving any instruction, and also to raise their consciousness on the use of them. After the treatment, the participants took two equivalent tests with an interval of two weeks to find out the difference between their short term and long term retention of vocabulary. The results indicated that learners' strategy use in short-term retention far outweighs that in long-term retention. The results also portrayed the superiority of *memory strategy* use both in short and long term retention. The next most frequently used strategies were cognitive and compensation strategies respectively. The implications of the findings for incorporating these strategies in teaching will be discussed in detail.

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Introduction

Language learning strategies

Language learning strategies are any set of actions, plans, tactics, thoughts or behaviors that the learners employ to facilitate the comprehension, storage, retrieval, and use of

information (Rubin, 1987; O'Malley and Chamot, 1990). There fore employing strategies of any kind is goal-oriented. To Tarone (1983) this goal is realized by developing linguistic and sociolinguistic competence in the target language.To achieve this end, as Nibset and Shucksmith (1986) state, successful language learners develop a range of strategeis from which they are able to select appropriately and adapt flexibly to meet the needs of a specific context. The purpose-specific nature of language learning strategies becomes evident when Oxford (1990) defines them as specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations.

It was Oxford (1990) who attempted to present a comprehensive taxonomy of language learning strategies, the Strategy Inventory for Language Learning (SILL). The main distinction in this taxonomy is that between direct strategies (working with the language itself) and indirect strategies (general management of learning). Direct strategies are divided into three subclasses: memory strategies (strategies to store and retrieve aspects of the target language), cognitive strategies (strategies for using the language and for understanding how it works), and compensation strategies (strategies for using the language despite gaps in knowledge). Indirect strategies include metacognitive strategies (strategies for planning, organizing and evaluating learning), affective strategies (strategies for approaching the task positively), and social strategies (strategies for working with others to get input and practice).

With the emergence of the concept of language learning strategies, scholars have attempted to link these strategies to language learning skills believing that each strategy enhances learning of vocabulary, pronunciation or improves reading and speaking skill. Studies such as O'Malley and Chamot (1990), O'Malley et al (1985) confirm that most language learning strategies are used for vocabulary (followed by pronunciation) tasks. The importance and popularity of vocabulary learning within the framework of language learning

strategies lies in the fact that all language learning strategies including taxonomies such as that of Oxford (1990) can be used for vocabulary learning tasks (e.g., all strategies in the "memory" category), the effect of which has been the motive to conduct the present research on vocabulary retention.

In this study, Oxford's classification was adopted to train learners to use the three direct learning strategies, i.e., memory, cognitive, and compensation strategies; the assumption was that when learners are trained to use direct learning strategies, their vocabulary retention enhances. However, retention of information can range from minutes up to lifetime; accordingly, the researchers attempted to examine the impact of teaching direct learning strategies on the short-term retention (STR) which focuses on examining the learners' use of strategy just after they have been trained to do so, and long-term retention (LTR) which happens after a two-week interval. The objective was to see if learners' use of these strategies enables them to retain vocabulary for longer periods of time.

Research Questions

The study was an attempt to find answers to the following questio ns:

1- Does teaching direct learning strategies affect the two types of vocabulary retention i.e., short term and long term, by foreign language learners differently?

2- Does teaching each of the different direct learning strategies affect short-term and long-term vocabulary retention of foreign language learners differently?

3- Does teaching subcategories of direct learning strategies affect short-term and long-term vocabulary retention of foreign language learners differently?

3.1. Does teaching different memory strategies affect short-term and long-term vocabulary retention of foreign language learners differently?

3.2. Does teaching different cognitive strategies affect short-term and long-term vocabulary retention of foreign language learners differently?

3.3. Does teaching different compensation strategies affect short-term and long-term vocabulary retention of foreign language learners differently?

4- Is there any difference between the learners' performance on any of these strategies in vocabulary retention and their strategy use as self-reported through the questionnaire?

4.1. Is there any difference between learners' performance on memory strategies and their strategy use as self-reported through the questionnaire?

4.2. Is there any difference between learners' performance on cognitive strategies and their strategy use as self-reported through the questionnaire?

4.3. Is there any difference between learners' performance on compensation strategy and their strategy use as self-reported through the questionnaire?

Method

Participants

Participants in this study were 60 Iranian language learners of an all-girl English language institute with ages from 15 to 17. To ensure that their English language proficiency is the same, several criteria have been taken into consideration. At first, these students have all taken placement tests prior to attending the specified level. After having passed several terms, they are now studying at the same level; this signifies that they have been successful at passing the previous terms obtaining acceptable scores, which meet the standard requirements of the institute. Moreover, the TOEFL (2001) was given to the participants; descriptive statistics revealed that the standard deviation is not high enough to regard learners as heterogeneous (Mean=77.68, SD=6.25).

Instruments

The following instruments were used in this study:

1- A questionnaire that incorporates learners' self-reports on the use of different direct learning strategies;

2- Materials which are prepared for the treatment phase;

3- Materials which are developed to test learners' performance on vocabulary retention.

Questionnaire

The questionnaire used in this study was the Persian equivalent of the SILL, the Strategy Inventory for Language Learning (SILL), developed by Oxford, which separates strategies into two strategy orientations and six strategy categories: (1) a direct learning orientation, consisting of (a) memory, (b) cognitive, and (c) compensation strategy categories, and (2) an indirect learning orientation, consisting of (a) metacognitive, (b) affective, and (c) social strategy categories. This questionnaire included items evaluating only the memory, cognitive and compensation strategies used by the learners, including 15 items: five items related to memory strategy; five items concerned with cognitive strategy, and five with compensation strategy. SILL is a reliable and valid questionnaire and appears to be the only language learning strategy questionnaire that has been extensively checked for reliability in multiple ways (Oxford, 1996). However, the Persian version of SILL used in this study was checked again for reliability and validity. As for reliability, the result turned out to be satisfying (Cronbach alpha= .58).

To check for validity, the 15 items of the strategy questionnaire were subjected to Principal Components Analysis (PCA). The results of the rotated solution revealed the presence of three components showing a number of strong loadings and certain items loading substantially on only one component. The three-factor solution explained a total of 47 percent of the variance, with component 1 contributing 18 percent and component 2 contributing 16 percent and component 3 contributing 13 percent. The interpretation of the three components was consistent with the purpose of the questionnaire, with memory strategy items loading strongly on component 1, cognitive strategy items loading on component 2, and compensation strategy items loading on component 3 (Table 1).

Table 1. Varimax rotation of three factors solution of the questionnaire items

	Component 1	Component 2	Component 3
Nonlinguistic guessing 1(com*)	.815		
Nonlingistic guessing 2 (com)	.811		
Linguistic guessing1(com)	.722		
Linguistic guessing2(c om)	.655		
Translation1(cog*)	.437		
Coinage (com)			
Higlighting1(cog)		.882	
Higlighting2 (cog)		.828	
Translation2 (cog)		.727	
Analyzing expressions (cog)			
Grouping (mem*)			.836
Imagery (mem)			.700
Contextual effect (mem)		.359	.662
Acronym (mem)			.332
Association (mem)			
Percent of variance explained	18	16	13

*com: compensation strategies
*cog: cognitive strategies
*mem: memory strategies

Instruments for the Treatment Phase

According to Chamot (1999), since learning strategies are mental processes with few observable manifestations, teachers need to find ways to make the strategies as concrete as

possible. To do so, the researchers prepared a six-page handout with the following specifications.

Nine subcomponents of the three direct learning strategies were selected. Memory strategy has three subcategories: grouping, contextual effect, and imagery; the subcategories of cognitive strategy are: analyzing expressions, translation, and highlighting; compensation strategy consists of: guessing linguistically, guessing non-linguistically, and word coinage. *Grouping* was introduced as the first subcategory of memory strategy by familiarizing learners with this term and then putting 18 related words (six of which are parts of the head, six are related to sport, and the last six are different vehicles) in a box asking students to put them in the columns provided regarding their relations. The first one was done as an example to help them follow the rest. Then, the significance of *context* was explained to learners, telling them to make use of acronym (as a context) to prolong their word retention. 16 adjectives were selected and put in three acronyms; learners had to write appropriate adjectives regarding the letters included in the acronyms. As far as *imagery* is concerned, learners went through a few lines which elaborated on the use of imagery; afterwards, they were exposed to 8 pictures for which they had to find an appropriate word among the words supplied.

Regarding the subcategories of cognitive strategy, first *analyzing expressions* was introduced to the learners. They were shown how to divide the words into roots, prefixes, and suffixes. A sample was provided followed by 10 words to be analyzed. These words were selected from the learners' textbook. Second, *translation* strategy was explained to the learners. In this part, students were asked to find the Persian equivalent of the underlined words in ten sentences from the words provided at the end. And finally, *highlighting* was elaborated by giving examples reminding the learners that various ways of highlighting assist remembering new words more easily. The students were exposed to a passage in which 10

words were *italicized*. They were asked to find the synonym of these words from the given words.

Finally, the learners went through the subcategories of compensation strategy, including linguistic guessing, non-linguistic guessing and word coinage. Again, the teacher clarified the terms for the students providing examples to lead students to go through the items in this part. This part consisted of 10 sentences with one underlined word, whose meaning students had to guess based on linguistic or non-linguistic factors; moreover, they were obliged to write how they have come to choose the appropriate word. At last, *word coinage* was introduced to the learners. Here, 10 Persian words were given with two English choices, one of them was the right word in English language, while the other could be made by foreign language learners, since they already had some familiarity with these simple items (for example, the word for a person who sells flowers is florist; however, students who are not familiar with this word, may make a word such as flower seller instead).

Instruments to test learners' performance on vocabulary retention

Any kind of teaching requires evaluation and teaching strategies, by itself, is not an exception. In this study, evaluation was made through a test constructed for this purpose. The test was developed with regard to the materials prepared for the treatment phase.

The test included 89 items, examining vocabulary knowledge of the learners. These vocabulary items were taught in the treatment phase by adopting cognitive, memory, and compensation strategies. Based on the following criteria, the researchers selected the vocabulary items for the test:

- Vocabulary items included as many concrete vocabularies as possible avoiding to incorporate rather abstract ones.

- The *item analysis* was conducted prior to the administration of the test with a parallel group of 20 students so as to examine the difficulty level of the items and to make

necessary changes. The results showed that item facility ranged between 0.35 and 0.76 (.35<IF<.76) which meets the standards acceptable in testing.

▪ Since the test was administered twice, to attend to the difference between short-term and long-term retention, reliablity index was measured through test-retest method, which turned out to be .87.

The test, just like the instructional material, examined the nine subcategories of the three direct learning strategies through eight different parts: the first three were subcategories of memory strategies, i.e., grouping, contextual effect, and imagery. The first task was to make use of grouping strategy in order to provide 15 vocabulary items in the spaces provided. The second part required students to pay attention to acronyms (as one type of context) in order to provide appropriate words. There were three acronyms standing for 16 words, in this case, adjectives. After completing this part, part three was designed to examine the use of imagery. Eight pictures were presented to students so that they could find related words.

The next three parts concentrated on subcategories of cognitive strategies. Analyzing expressions, translation, and highlighting comprised these parts. As far as analyzing expressions was concerned, 10 words were given and students were asked to first divide the words into prefixes, roots, and suffixes and then write the meaning of the words. In the following section, that is, translation, students first read 10 Persian sentences which included 10 underlined words. They had to find the English equivalent of these words. A passage followed this part with 10 italicized words. The reason for including this part was to investigate the effect of highlighting strategy on word retention of the learners. Here, they were required to provide the meaning of the italicized words in English.

The last part centered on compensation strategies. First, both linguistic guessing as well non-linguistic guessing were examined through 10 m/c items. The students were again reminded that they could find the meaning of words through linguistic clues such as

antonyms, synonyms or through non-linguistic clues such as general knowledge of the world. And finally, they were exposed to 10 words for which they had to find an appropriate equivalent in English language.

Procedure

In order to follow an explicit way of teaching direct learning strategies, a questionnaire was developed. It was given the students before the treatment phase began. This questionnaire not only functioned as a kind of consciousness raising device, but also obtained some information about the extent of students' familiarity with direct learning strategies with which this study is concerned.

During the treatment phase, students were familiarized with different strategies and when and how to use them in different learning tasks. This phase took almost half of the class time (an hour). Afterwards, the test was administered during the same session. The reason for testing just immediately after training was that the impact of strategy training on short-term retention capacity of learners was going to be examined. After two weeks' time, the test was again administered; here, the aim was to assess the long-term retention of vocabulary. It should be noted that learners were instructed in these tests to provide answers by using the strategy/ies they had learned in the course of training.

Scoring Procedure

The test included three main categories of learning strategies: memory, cognitive, and compensation strategies. 39 questions tested the memory strategy; 30 ones tested the cognitive strategy; and 20 items were allocated to test compensation strategy. As far as the subcategories of memory strategy are concerned, the 39 items were divided into the three subparts: 15 items for grouping, 16 for context effect, and 8 for imagery; also each subcategory in cognitive strategy, i.e., analyzing expressions, translation, and highlighting, had 10 items; the last 20 questions were related to compensation strategy of which 10 items

tested the linguistic and non-linguistic guessing and the other 10 tested the word coinage. It is necessary to mention that for scoring procedure the correct items got one positive point; however, since the number of items was not equal, after scoring, the scale of each subcategory was converted to 40. As a result, the total possible score was 89 before changing the scale and 120 after the scale changed.

Results

As far as the first question is concerned, i.e., whether teaching direct learning strategies affects the two types of retention of vocabulary by EFL learners differently, a t-test was run to compare the STR and LTR of vocabulary. The result revealed that (t_{59}=23.27, ?<.05) teaching direct learning strategies affects the two types of vocabulary retention differently. In fact, learners' performance in STR test (Mean =88.66) far outweighed that of LTR (Mean =73.19) test.

Regarding the next question, i.e., whether teaching different direct learning strategies affects short-term and long-term vocabulary retention of the learners differently, repeated-measures ANOVA results indicated there was a significant difference in using memory, cognitive, and compensation strategies both in STR (F=28.83, ?<.05) and LTR (F= 14.048, ?<.05). The descriptive statistics of these strategies in STR and LTR are summarized in Table 2. As it is evident, memory strategy stood first followed by cognitive and compensation strategies both in STR and LTR.

Table 2. Descriptive statistics for direct learning strategies in STR and LTR tests

		Memory	Cognitive	Compensation	Total
STM	Number	60	60	60	60
	Mean	93.98	91.86	80.13	88.66
	SD	10.68	14.18	13.33	9.33
	Max	112.40	116	108	106.58
	Min	61.60	60	44	59.76
LTM	Number	60	60	60	60
	Mean	77.37	75.46	66.73	73.19
	SD	14.84	13.08	14.60	10.48
	Max	107.40	104	92	93.13
	Min	35.96	52	32	47.99

The next questions are concerned with the subcategories of three direct learning strategies mentioned. Repeated-measures ANOVA results pointed to the significant difference between the three subtypes of memory strategies in the STR test (F=149.37, ?<.05) and in the LTR test (F=1966.78, ?<.05). In both tests, imagery ranked first followed by grouping and then context effect as the least effective one. Table 3 reports the descriptive statistics for the subcategories of memory strategy in STR and LTR.

Table 3. Descriptive statistics for the subcategories of memory strategy in STR and LTR

		Grouping	Context	Imagery
	Number	60	60	60
STM	Mean	34.44	24.04	35.50
	SD	4.52	4.60	5.34
	Number	60	60	60
LTM	Mean	28.32	17.29	31.75
	SD	6.09	4.70	7.00

Cognitive strategies in these two tests were also studied to figure out their effect upon vocabulary retention (refer to Table 4 for the descriptive statistics of the subcategories of cognitive strategy). The difference between its three subcategories, i.e., analyzing expressions, translation, and highlighting was significant both in STR and LTR tests (STR: $F_{(2, 59)}$ =64.639, ?<.05 and LTR: $F_{(2,59)}$ =207.92, ?<.05). In both tests, analyzing expressions stood in the first rank followed by highlighting and translation.

Table 4. Descriptive statistics for the subcategories of cognitive strategy in STR and LTR

		Analyzing	Translation	Highlighting
	Number	60	60	60
STM	Mean	36.47	26.47	28.93
	SD	4.60	7.11	6.76
	Number	60	60	60
LTM	Mean	37.66	17.06	20.73
	SD	3.84	7.50	7.45

The subcategories of compensation strategy were compared with the same procedures taken for the analysis mentioned in memory and cognitive strategies; the result showed the superiority of guessing using non-linguistic clues over the other two; in fact, guessing using

linguistic clues and word coinage came to stand at the second and third place (STR: $F_{(2,59)}$ = 51.656, ?<.05 and LTR: $F_{(2,59)}$ = 52.463, ?<.05). In fact, comparing the means of the three corroborated the standing of non-linguistic guessing at the top of linguistic guessing and word coinage (refer to Table 5).

Table 5. Descriptive statistics for the subcategories of compensation strategy in STR and LTR

		Linguistic guessing	Non-linguistic guessing	Word coinage
STM	Number	60	60	60
	Mean	27.20	33.87	19.07
	SD	8.86	7.12	7.60
LTM	Number	60	60	60
	Mean	22.00	30.80	13.93
	SD	9.83	8.30	8.25

Attending to the fourth null hypothesis, the researchers examined whether there is a difference between performance of learners in the test, which required employing direct learning strategies, and their self-report on the questionnaire. As was mentioned above, the researchers administered the questionnaire prior to teaching. The questionnaire contained 15 items, five of which were related to memory, five to cognitive, and another five to compensation strategy. Since it was a Likert-type questionnaire, the total score for each strategy amounted to 25. However, the number of items examining the memory, cognitive, and compensation strategies in the test were 39, 30, and 20 respectively. In order to make the data comparable, the scale of both the test and the questionnaire was converted to 100.

In order to compare the performance of learners in the test (STR test) and what they report to use through the questionnaire, a t-test was conducted. As far as memory strategy is concerned, there was no difference between learners' performance on this strategy and their report on its use through the questionnaire (t_{59}=1.982, ?>.05).

Regarding cognitive strategy, the results signify that there is no difference between students' performance on cognitive strategies and their self-report on their use (t_{59}=1.564 ?>.05). Furthermore, regarding the compensation strategy, the results reveal that there is a

difference between students' performance on compensation strategies and their self-report on their use (t_{59}=2.084 ?<.05). In fact, the learners reported to use more compensation strategies in the questionnaire than they really did in the test.

On the whole, it can be said that memory and cognitive strategies were used as the students reported to use them through the questionnaire, whereas compensation strategy was reported to be used, while, in practice, they did not employ this strategy in the test. This shows that training does have an impact on learners' strategy use; although they were not using compensation strategy at the beginning of the study, after the treatment, they show improvement in the use of this strategy.

Conclusion

Considering the results, first of all, using direct learning strategies after being trained to do so, learners outperformed in STR test in comparison with what they did in LTR test. This means that training learners to use direct learning strategies enabled them to use the strategies just for a brief period of time, i.e., immediately after the training procedure, while a two-week time span reduced the number of strategies used in STR test.

Second, the *memory* strategy either tested in a short time period or after an interval i.e., two weeks' time, turned out to be the most effective strategy used by the learners. On the other hand, *cognitive* strategy was ranked second; compensation strategy had the least effect on the vocabulary retention of students. Regarding the subcategories of these strategies, imagery, analyzing expressions and non-linguistic guessing were the most effective ones either tested in STR or LTR. The results of this study imply that instruction and use of learning strategies must be incorporated into the existing curriculum. The teacher should supply students with plenty of opportunities to be trained to use strategies through informed explicit strategy training.

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