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Full Length Research Paper

Memory vocabulary learning strategies and long-term retention

Azadeh Nemati

Department of Studies in Linguistics, University of Mysore, Karnataka State, India.
E-mail: azadehnematiar@yahoo.com. Tel: +91 9886492506.

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The present study was an attempt to compare the impacts of teaching through memory strategies on experimental group comparison to control group, where students were taught the meaning of new vocabulary items through giving synonyms and mini-contexts. The results are reflected in the students' short-term and long-term retention. The participants of the study comprised 310 Indian pre-university females. The results indicated 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. As many learners do not develop sufficient mastery of the vocabulary explicit instruction of memory strategies and giving strategy awareness can facilitate them to store and retrieve new vocabulary items. Also, it was shown that being over-dependent on survey tools are open to question, in spite of being widely used.

Key words: Memory strategies, vocabulary learning strategies, short-term retention, long-term retention, imagery.

INTRODUCTION

Although some teachers may think that vocabulary learning is easy, learning new vocabulary items has always been challenging for the learners. Different ways of learning vocabularies are usually utilized by the students such as using flash cards, notebook, referring to bilingual and monolingual dictionaries to decipher the meaning, or giving some synonyms and antonyms to name but a few. In spite of these efforts and invariably experiencing so many difficulties vocabulary is by far the most sizable and unmanageable component. This raise a fundamental query that why learning vocabulary is such challenging and unproductive experience? Which method could be used to make vocabulary less of struggle?

One possible answer to the problem of vocabulary is applying teaching vocabulary learning strategies. Research into language learning strategies began in the 1960s and since the mid 1980s, vocabulary learning has been drawing growing attention from ESL researchers, particularly, the 1990s, witnessed a noticeable number of publications, vocabulary is now a current focus in ESL pedagogy and research (Wei, 2007).

Generally speaking, vocabulary can be taught in different ways each of which with its own merits and demerits. Learning vocabulary from context or 'incidental learning' as opposed to 'direct intentional learning' are two different ways of learning vocabulary. According to Nation (2001) extensive reading is useful for vocabulary growth and is called incidental learning.

On the other hand, vocabulary can be learnt 'intentionally' through some strategies and plans. There exist conflicting views among language professionals concerning the relative superiority of two approaches of 'contextualized' and 'de-contextualized' ways of learning. Oxford and Scarcella (1994), for example, observe that while 'de-contextualized learning' (word list) may help students memorize vocabulary for tests students are likely to rapidly forget words memorized from lists.

According to Nielson (2006) at early stages of language development, 'de-contextualized' vocabulary instruction has been found to be more effective in building a fundamental vocabulary than the contextualized reading. Later he suggested that teachers of beginner level learners need to include greater amount of 'de-contextualized' vocabulary instruction (word list) gradually increasing toward more context based vocabulary learning (extensive reading) as the language ability of the learners

develops. Of 'de-contextualized' vocabulary memorization strategies, '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 and Chamot, 1990; Oxford, 1990).

According to "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 and Lockhart, 1972; Craik and 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. Such implications extend to pedagogy as well, suggesting that exercise and learning strategies which involve a deeper engagement with words should lead to higher retention compared to shallow activities. Given the above hypothesis, the present article seeks to introduce, from among different ways of learning and teaching vocabulary, memory vocabulary learning strategies which involve in deep processing and will consequently lead to better retention.

Furthermore, taking into account the most suitable exercises without considering other factors that can affect learning is not of much use to the students. Teachers' awareness of other factors such as neurolinguistics, different functions of the brain, learning and forgetting, which is a part of learning plays crucial roles in teaching.

The word strategy comes from the ancient Greek term strategia meaning generalship or the art of war and as Oxford (1990) mentioned more specifically strategy involves the optimal management of troops, ships or aircraft in a planned campaign.

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 (O'Malley and Chamot, 1990; Cohen, 1990). From among those researchers tackled language learning strategies Oxford classification is the most comprehensive detailed system embodying direct and indirect strategies. She defined language learning strategies as, "steps taken by students to enhance their own leaning, they are tools for active, self-directed involvement, which is essential for developing communicative competence" (1990, p.1).

Oxford (1990) classifications embodied direct and indirect strategies with 6 categories, 19 strategies and 62 sub-strategies. Direct strategies directly involve with the target language and require mental processing of the language. It consists of 'memory', 'cognitive' and 'compensation' strategies. Similarly, 'indirect strategies' as the word conveys are strategies which are indirectly involved in learning. In other words, these 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.

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) confirm that most language learning strategies are used for vocabulary tasks too. In the same vain, 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.

Memory strategies which are the main concern of this article fall into four sets of "creating mental linkage", "applying image and sound", "reviewing well", and "employing actions". Other researchers dealt with systematic reviewing and different types of mnemonic strategies (Pimsleur, 1967; Nemati, 2008).

In this study from among the four sets of memory strategies classified by Oxford (1990), the three sub-strategies of grouping, making acronym and using imagery were selected. These strategies enable learners to store material and then retrieve it when needed for communication.

Grouping refers to classifying language material into meaningful context to make the material easy to remember by reducing the number of discrete elements. Based on Oxford (1990) using acronyms is a kind of placing new words into a context in order to remember them better. Placing new language information to concepts in memory by means of meaning visual imagery either in the mind or in an actual drawing is called using imagery.

Memory strategies were selected to find the effect of using them both in storing (as evaluated by immediate post-test) and retaining vocabulary items for longer period of time (as reflected in delayed post-test) which is the aim of learning.

RESEARCH QUESTIONS

To accomplish this investigation, the following research questions were formulated:

1. Is there any difference between learners' performance in each sub-strategies and their strategy use as self reported by them?
1.1. Is there any difference between learners' performance in each sub-strategies and their strategy use as self reported by control group?
1.2. Is there any difference between learners' performance in each sub-strategies and their strategy use as self reported by in experimental group?
2. Does teaching each of sub-strategies of memory VLSs impact learners' short-term and long-term vocabulary scores in comparison to control groups?
3. Does teaching memory VLSs impact learners' short-

term and long-term vocabulary scores in comparison to control groups?

Participants

The subjects of this study comprise 310 female Pre University (PUC) students from a whole female governmental school in Mysore, India (an ESL based environment). Kannada, the mother tongue of the State of Karnataka, was the medium of instruction in that selected school. The participants have been exposed to English for 7 year (from 5th standard) and their age range was from 16 to 18. The students were selected through multi-stage random sampling and they were randomly assigned to control and experimental groups. Finally, 140 students served as control group and 170 students as experimental group.

Instruments of the study

To collect the data required, the following questionnaires were employed:

Self-report questionnaire: This self-report questionnaire seeks answers regarding the use of some memory vocabulary learning strategies and was based on a five-scale Likert measurement including never, seldom, sometimes, usually and always as its options. The questions of this self report were drawn from Strategy Inventory Language Learning (SILL) version for speakers of other languages learning English (version 7.0 in Oxford, 1990) (Appendix 1).

Vocabulary Knowledge Scale (VKS): One of the most commonly accepted views of vocabulary acquisition maintains that it occurs along a continuum of development (Waring, 2002). The simplest continuum view of vocabulary is from less knowledge of words to more knowledge of words. Within the last five to 6 years, the vocabulary knowledge scale of Paribakht and Wesche (1993) has gained significant popularity in second language vocabulary assessment and is being used in a variety of studies (Waring, 2002). The particular aim of this VKS is to construct a practical instrument for use in studies of initial recognition and use of new words. It came into vogue as a reaction to the shortcomings of multiple choice tests. Having employed a 5–point scale, this instrument combines self-report and performance items to elicit self perceived and demonstrated knowledge of specific words in written form. The rating scale ranges from total unfamiliarity through recognition of word and some idea of its meaning to the ability to use word with grammatical and semantic accuracy in a sentence. This instrument was employed for pre-test and the two post-tests (Appendix 2).

Treatment material: This prepared material by the researcher included 9 unknown vocabulary items selected from the pilot study (for each strategy 3 items) to be taught by memory strategies in experimental groups. 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 hand out to be used by participants in experimental groups. A practice section was also incorporated for each strategy so as to guarantee the participants' understanding of the strategy (Appendix 3).

Procedure

Pilot study

A pilot study was carried out with one class (30 students) before the main phase of the study for the selection of vocabulary to be employed and taught during the main research.

First, a self-report questionnaire, in the form of Likert scale, including 6 questions dealing with memory strategies of grouping, placing new words in to context and using imagery was given to the participants to see whether the questions of the self-report were understood by the students correctly and to get an idea about the time required by the subjects to answer each questionnaire. The calculated reliability by Cronbach alpha was 0.72. Cronbach alpha uses "when measures have items that are not scored simply as right or wrong such as Likert scale where the individual may receive a score from 1 to 5 depending on which option was chosen" (Aray, Jacobs and Razavieh, 1972, p. 285).

Second, vocabulary level test of Nation (2001) was given to the students to measure the vocabulary size of students and to prepare the final vocabulary items required for the treatment. After analyzing the results the following words with which the students were least familiar were selected: "Mortgage", "mansion", "dwell" for the first strategy (grouping), "dignity", "stable" and "adequate" for the second strategy (making acronyms) and "herd", "loop", "summit" for strategy three (making images). All the above mentioned strategies based on Oxford taxonomy make memory strategies.

From the above selected vocabulary the researcher made a strategy-enriched material to be used in the main phase for the experimental group which was explained in the previous part.

Main study

The main study was carried out in three steps: Pre-test, treatment along with post test 1 (the so called, immediate post test), and post test 2 (the so called delayed post test). The allotted time for teaching in both control and experimental groups was the same. Below each step will be explained briefly:

Pre-test: A pre-test was administered 14 days before commencing the main study to both control and experimental groups. The self-report questionnaire and vocabulary knowledge scale (VKS) encompassing 9 questions were distributed during the regular class time to both groups. The same VKS was also utilized in the two post tests later.

Control group: Teaching in the control group involved different modes of vocabulary presentation such as follows:

a) Presentation of the words in isolation.
b) Giving pronunciation of the words orally.
c) Writing those words on the board.
d) Giving a short explanation about their parts of speech.
e) Elaboration of the meaning of each word through introducing synonyms (and antonyms if needed).
f) Using minimal contexts, that is, some meaningful sentence.

Experimental group: For teaching to the 170 students who serve as experimental group along with applying the method which was used for control group and explained before the researcher made use of the strategy-enriched material. That is first, the students were familiarized with the concept of strategy and its definition, a kind of "strategy awareness". Then, they were asked to read the description provided for each strategy, which included some explanation and examples.

For the first strategy (grouping), the students were asked to group the following 3 vocabulary items with the same theme "mortgage, mansion and dwell". For the second strategy (making acronym) which according to Oxford is a kind of new context 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). After finishing the explanation, they were asked to do the related exercises for each group of words while utilizing the teachings of each strategy.

Worth nothing that for contextualization and providing sentences for all the words their first dictionary meaning was taken care of and taught. The sentences were obtained from different dictionaries such as COLLINS COBUILD dictionary (1990), Oxford Advanced Learners' Dictionary, 7th edition (2007), and online dictionaries such as answer.com.

Post-test 1: To measure the short-term improvement of the students in control and experimental groups, immediately after finishing the teaching phase both in control and experimental groups, the first post-test was administered. The test was the same as the vocabulary knowledge scale used in the pre-test.

Post-test 2: Two weeks after the first post-test 1, the same test which called "delayed" test or post-test 2 was administered again. Delayed recall after 2 weeks under experimental conditions is normally referred to as "long-term retention" (Yongqi, 2003, p. 12). The reliability estimate for VKS was established through test retest administration. The result of the Pearson Correlation was 0.76 indicating that the instrument could elicit acceptably reliable feedback.

Data analysis

To answer the first research question concerning the difference between learner's performance and their view in self report some paired t-tests were run between what students said in their self repot and post test 1. The results of which have been shown in the Table 1.

The results of t-test in Table 1 depicted that there was a significant difference between what the participants said in self-report and what they actually did for grouping and making acronyms. This signify that the participants of control group overestimated themselves for all the three sub-strategies based on their mean although for imagery this difference was marginal and the difference was not significant. In fact, learners reported to use these strategies more in the questionnaire than they did in the test.

While for experimental group because of the teaching effect through strategies the mean values of post-test 1 for grouping and using imagery were higher than what they said. For making acronyms students over estimated themselves in a case that even after teaching their score of self report was still higher than that of post-test 1.

Before analyzing the data for question 2 and 3 and to be sure that the control and experimental groups were homogeneous enough to start the study an independent t-test was run to see if the two groups performed significantly different on pre-test or not. Table 2 shows the result of independent sample t-test between control and experimental groups.

As it is shown in the Table 2 there was not a significant differences between pre-test of the two control and experimental groups at 0.05 level of significance regarding sub-strategies as well as memory strategy. In other words, the students of the two groups were not aware of the meaning of the words to be taught in the pre-test and proved the homogeneity of the groups.

To find the effect of teaching these vocabulary learning strategies by sub-strategies and answer the second research question the researcher made us of repeated measure ANOVA the result of which will be shown in the ensuing parts.

The following table reveals the mean score of the control and experimental groups in the three sub-strategies and memory strategies. From Table 3 it was clear that a significant increase was observed from pre to post-test 1 for both groups and a decrease from post-test

Table 1. Paired T-Test between self-report of each strategy and post-test 1 of each sub-strategy in control and experimental groups.

Group	Sub-strategies		Mean	St.d	t	df	Sig. (2-tailed)
Control	1	S*	47.857	21.360	3.792	139	.000
		P**	39.047	17.488			
	2	S	56.875	23.911	5.511	139	.000
		P	44.166	11.295			
	3	S	44.553	23.141	1.748	139	.083 (NS)
		P	40.592	12.518			
Experimental	1	S	53.897	20.900	3.604	169	.000
		P	61.323	18.413			
	2	S	65.882	22.001	8.440	169	.000
		P	48.774	14.466			
	3	S	46.691	24.797	2.621	169	.000
		P	52.205	13.584			

*S means self report and **P means post-test 1.

Table 2. Independent Sample t-tests to identify the difference between pre-test scores of two groups.

Strategy	Groups	N	Mean	SD	S. E. of Mean	t	df	Sig. (2- tailed)
One (grouping)	Cont.	140	4.3	1.1	.09	.8	308	.39(NS)
	Exp.	170	4.4	1.0	.08			
Two (acronyms)	Cont.	140	4.2	1.1	.09	.9	308	.35(NS)
	Exp.	170	4.1	.8	.06			
Three (imagery)	Cont.	140	4.4	1.2	.09	1.5	308	.12(NS)
	Exp.	170	4.2	.8	.06			
Memory	Cont.	140	13.0	2.8	.23	.6	308	.49(NS)
	Exp.	170	12.8	1.6	.12			

Table 3. Descriptive statistics for sub-strategies and memory strategies.

Strategy	Groups	N	pre		Post 1		Post 2	
			Mean	SD	Mean	SD	Mean	SD
One (grouping)	Cont.	140	4.32	1.14	7.68	2.09	7.00	2.01
	Exp.	170	4.42	1.05	10.35	2.20	9.55	2.29
Two (acronyms)	Cont.	140	4.29	1.14	8.30	1.36	7.12	1.79
	Exp.	170	4.17	.85	8.85	1.73	9.05	1.28
Three (imagery)	Cont.	140	4.42	1.16	7.87	1.50	7.11	1.94
	Exp.	170	4.24	.83	9.26	1.63	9.01	1.36
Memory	Cont.	140	13.05	2.78	23.83	3.99	21.25	5.15
	Exp.	170	12.87	1.59	28.47	4.66	27.63	4.09

1 to post-test 2 again for both groups, while the increase was higher for experimental group and the decrease was less for that group in the delayed post-test. For example for memory strategies on the whole, the mean increased to 23.83, 28.47 for control and experimental groups respectively and decreased to 21.25 and 27.63 in post-tests 2. Tables 4 to 7 reveals the results of repeated measure ANOVAs for each sub-strategy and as a result for memory strategies.

The Pillai's trace value for strategy one is .80 with P<.000 so the researcher could proceed to the next part. The result of the repeated measure ANOVA for grouping

Table 4. Repeated measure ANOVA for control and experimental groups in strategy 1.

Subjects Effects	Source	Type III SS	df	Mean Square	F	Sig.
Within-Subjects Effects	Strategy 1	3829.3	2	1914.6	616.1	.000
	Stra 1*Groups	321.5	2	160.7	51.7	.000
	Error	1914.2	616	3.1		
Between-Subjects Effects	Groups	727.7	1	727.7	165.7	.000
	Error	1352.1	308	4.3		

Table 5. Repeated measure ANOVA for control and experimental groups in strategy 2.

Subjects effects	Source	Type III SS	df	Mean square	F	Sig.
Within-Subjects Effects	Strategy 2	3463.9	2	1731.9	986.9	.000
	Stra 2*Groups	166.7	2	83.3	64.6	.000
	Error	1097.5	616	1.7		
Between-Subjects Effects	Groups	142.1	1	142.1	64.2	.000
	Error	679.7	308	2.2		

Table 6. Repeated measure ANOVA for control and experimental groups in strategy 3.

Subjects effects	Source	Type III SS	df	Mean square	F	Sig.
Within-Subjects Effects	Strategy 3	3291.0	2	1645.5	887.2	.000
	Stra 3*Groups	181.1	2	90.5	48.8	.000
	Error	1142.4	616	1.8		
Between-Subjects Effects	Groups	248.5	1	248.5	99.8	.000
	Error	766.7	308	2.4		

Table 7. Repeated measure ANOVA for control and experimental groups for memory strategies.

Subjects effects	Source	Type III SS	df	Mean square	F	Sig.
Within-Subjects Effects	memory	31570.4	2	15785.2	1203.8	.000
	memory* Groups	1782.4	2	891.2	67.9	.000
	Error	8050.6	616	13.1		
Between-Subjects Effects	Groups	2969.6	1	2969.5	156.2	.000
	Error	5836	308	19.0		

sub-strategy revealed that although teaching vocabularies in both groups was highly significant ($F = 616.1$, $p < .000$) regardless of the groups, when group-wise changes were verified, again differential changes were observed between control and experimental groups. In other words, the interaction between strategy 1 and group was highly significant ($F = 517.7$, $p < .000$). From the mean value it is evident that experimental group outperformed. The result of between subject effect also showed that there was a significant difference between control and experimental group ($F = 165.7$ and $p < .000$).

For the second sub-strategy or learning the meaning of unknown vocabulary items by making acronyms which is a kind of contextualization the value of Pillai's trace was .87 and $p < .000$. The result of repeated measure ANOVA for strategy two is presented in Table 2.

Teaching vocabularies through making acronyms was a contributing factor with $F = 64.6$ and $p = .000$ between control and 3 experimental group although teaching regardless of the group was also significant ($F = 986.9$, $P < .000$). From the mean values in Table 2 it was clear that in immediate post test both group had a significant increase in which the increase of experimental group was higher while the decrease of that group was also lower from immediate to delayed post test. Implying that, forgetting was less for the experimental group.

Regarding using imagery for teaching and learning (sub-strategy 3) comparing the mean of pre and post-test of the two groups showed that again both groups have improvements after treatment however, the improvement

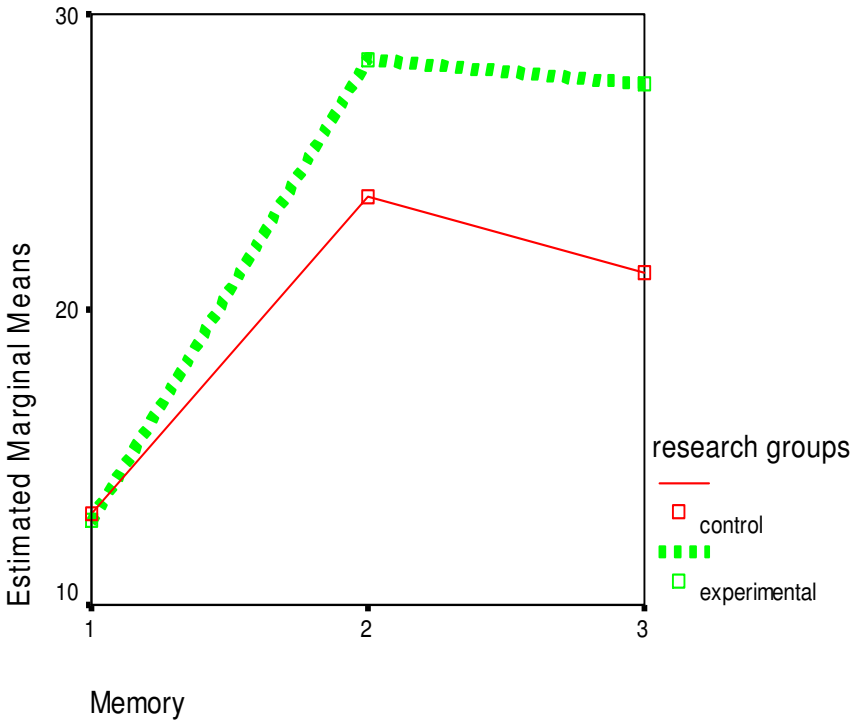

Figure 1. Mean score of pre, immediate and delayed post-tests for control and experimental groups for memory strategies.

of experimental group in comparison to the control group was more. The Pillai's trace value for strategy 3 was .85 and p < .000 so the researcher could proceed to repeated measure ANOVA for strategy 3.

For sub-strategy 3 (imagery) also the interaction between group and strategy was highly significant (F = 48.8, p < .000). Although both groups have improved, from the mean it was shown that from immediate to post-test 2 the decrease in experimental group was less than that of control group.

As for the third research question, that is, the effect of memory strategies in short-term and long-term retention the result of ANOVA and the figure will clarify the point. The value of pillai's for memory was .88 and P < .000.

It is evident that the result of teaching memory stra-tegies in experimental groups was highly significant since, on one hand the interaction of memory strategies and group was highly significant (F = 67.9, p < .000) on the other hand, the result of between subject groups also showed a highly significant difference (F = 156.2, p < .000). This implied that, teaching memory strategies was successful both in storing and retrieving. From Figure 1 it was also clear that the students of experimental group outperformed control group both in immediate test which showed better storing of the material and in delayed post-test which was the sign of better retrieval.

As it is also clear from the above figure both groups improved from pre-test to post-test 1 while the improve-ment for experimental group was higher. Furthermore,
from post-test 1 to post-test 2 for both experimental and control groups there was a decrease. In Figure 1, it is illustrated that this decrease was higher for control group, which showed forgetting was more.

DISCUSSION AND CONCLUSION

In this article the effect of teaching vocabulary items through memory strategies as reflected in the result of immediate test and delayed test was examined. The results of this study reiterate the long-term effectiveness of teaching through memory strategies and giving aware-ness to the students because in spite of the importance of memory strategies students rarely uses these strategies especially that only 4% of the brain is actively utilized during traditional language teaching (Danesi, 2003).

As it is read in Oxford (1990) memory strategies, some-times 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 taking a walk from room to room, but after literacy became common place, people forget their previous reliance on memory strategies.

These days, memory strategies have occupied the lion's share of attention probably because vocabulary learning has largely been constructed as a memory pro-

blem (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 grouping and acronyms act as those hooks that help learners retrieve better in the long run.

The importance of teaching vocabulary through memory strategies is justifiable in different ways. First, as mentioned earlier it is plausible based on depth of processing hypothesis. As stated earlier, according to this theory how well information is remembered is not a function of how long a person is exposed to that information, but instead depends on the nature of the cognitive processes that are employed to process that information.

This theory can be described by comparing the levels of processing to the levels in a pyramid. The bottom levels represent preliminary, shallow processing, and are concerned with physical and sensory features. The top levels of the pyramid represent deep processing and are concerned with the extraction of meaning where depth refers to greater degree of semantic involvement.

One example of this deep level processing is memory or mnemonic strategies. Thus, the out performance of experimental group by using memory strategies can be defended by this theory. In the short-term, information can be maintained at any level, but in the long-term information is most likely to be remembered if it is pro-cessed at the deep, meaningful way (Craik and Tulving, 1972). This is an important concept because it illustrated the fact that simple rehearsal will not facilitate long-term recall, however, elaboration at deeper levels will promote long-term recall.

Thus, deeper, richer semantic processing, such as me-mory strategies will be more likely to enhance learning than shallower processes such as rote repetition (Schmitt and Schmitt, 1995). It can also be justified either by neurolinguistics. It is a branch of neuroscience which deals with various aspects of the relationship between the brain and language) bolsters the importance of teaching vocabulary strategies.

Although, knowing about the brain may have no direct implication to teaching it can have influence in teaching methods. Knowledge about the brain provides a solid theoretical basis upon which the formalist paradigm can be rebuilt to meet contemporary conditions and expecta-tions it is useful to have knowledge for practical reasons (Danesi, 2003).

Knowing about the brain and the two hemisphere of the brain can give teachers insight to find teaching methods which are congruent with the brain mental labor of human in a patterned fashion. The right hemisphere is the seat of imagination and spatial thinking while; the left hemisphere is responsible for analytical, reflective and verbal thinks.

Thus, by employing pictures or creating visual images of words learners can use their right hemisphere more. Of course, it is noteworthy that these mental pictures can be used for abstract words as well by associating the word with the same concrete objects and symbols. Using

the brain was what the reformist wanted from the demise of Audio-lingual method till now. They struck to design methods that would activate the brain in a learning pro-ductive fashion such as, suggest opedia, or total physical response.

Also, based on the hemisphericity of the brain it is strongly suggests that right hemisphere is an effective distributor of new information (Danesi, 2003). Thus teaching through right brain is more effective.

On the other hand, teaching should target at increasing retention without increasing study time. Because, stu-dents forget much of what they learn, applying memory strategies is a good way to benefit from learning that provides long lasting knowledge.

The importance of applying images for learning new items are related to long-term memory is clear. There are three main activities attributes to long-term memory viz, storage, retrieval and forgetting. First, chunks of informa-tion will transfer to long-term memory by applying visual images. Second, visual images may be the most potent device to aid recall. And the last one, 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 exceed its information for verbal materials furthermore, a large proportion of learners have preference for visual images.

Regarding the reliability of questionnaires in language learning as a means of data collection method there is no agreement. On one hand, some researcher believe that from among different data collection method such as interview, think-aloud protocols or observations, question-naires can be cost-effective and allow the researchers and participants to gain a rapid understanding of the participants' strategy use (Oxford and Burry-Stock, 1995; Bedell and Oxford, 1996; McDonough, 1999). Further-more, they examine large samples of students, fairly easy as well as large number of variables.

On the other hand, in spite of being widely used, questionnaires are not without their criticism and over-dependence on survey tools are open to question. Students may not respond truthfully, either because they cannot remember or because they wish to present themselves in a socially acceptable manner as in this study. From among criticism to self-report questionnaires which may be more serious than the other problems is the vagueness of the wording (Gu, Wen and Wu, 1995) that may have caused the learners to provide different answers to the questionnaires. In other words, learners may have a problem in deciding often, sometimes, or usual. As a result, a more qualitative and context-sensitive approach can be favored. The result of this study is in line with the second approach regarding strategies (Gu, Wen and Wu, 1995; Gao, 2004).

REFERENCES

Answers. Com. Retrieved on 8 Feb, 2008, from http://www.answers.com/topic/solitary.

Aray D, Jacobs LC, Razavieh A (1972). Introduction to research in education. USA: Harcourt Brace.
Bedell D A, Oxford R (1996). Cross-cultural comparisons of language learning strategies in the People's Republic of China and other countries. In R. Oxford (Ed.), Language learning strategies around the world: Cross-cultural perspectives (Technical Report #13). Manoa: University of Hawaii Press.
Cohen A D (1990). Language Learning. Insights for Learners, Teachers and Researcher. Boston, Mass.: Heinle and Heinle Publishers**.** Collins Co build Dictionary (1990). Great Britain: Richard Clay Ltd.
Craik FIM, Lockhart RS (1972). Levels of processing: A framework for memory research. J. Verbal Lang. Verbal Behav. 11: 671-684.
Craik FIM, Tulving E (1975). Depth of processing and retention of words in episodic memory. J. Exp. Psychol. Gen. 104: 268-294.
Danesi M (2003). Second language teaching a view from the right side of the brain. Boston: Kluwer Academic Publishers.
Gao X (2004). A critical review of questionnaire use in learner strategy research. Prospect 19(3).
Gu Y, Wen Q, Wu D (1995). How often is often? Reference ambiguities of the Likert-scale in language learning strategy research. Occasional Papers in English Language Teaching, Hong Kong: Chinese University of Hong Kong 5: 19–35.
McDonough S H (1999). Learner strategies. Lang. Teach. 32(1): 1–18.
Nation ISP (2001). Learning vocabulary in another language. Cam-bridge: Cambridge University Press.
Nemati A, Bayer MJ (2008). Vocabulary retention technique through an organized learning scheme. Indian Linguistics 69(1-4): 289-296.
Nielsen B (2006). A review of research into vocabulary learning and acquisition. Retrieved December 10, 2007, from http://www.kushiro-ct.ac.jp/library/kiyo/kiyo36/Brian.pdf.

O'malley JM, Chamot AU (1990). Learning strategies in second language acquisition. Cambridge: Cambridge University Press.
Oxford RL (1990). Language learning strategies: what every teacher should know. Boston: Heinle and Heinle Publishers.
Oxford Advanced learner's Dictionary (2007). Oxford: OUP.
Oxford RL, Scarcella RC (1994).second language vocabulary learning among adults: state of the art in vocabulary instruction. System 22(2): 231-43.
Oxford R, Burry-Stock JA (1995). Assessing the use of language learning strategies worldwide with the ESL/EFL version of the strategy inventory for language learning (SILL). System, 23(1): 1–23.
Paribakht T, Wesche M (1993). Reading comprehension and second language development in a comprehension-based ESL program. TESL Can. J. 11(1): 9-29.
Pimsleur P (1967). A memory schedule. Modern Lang. J. 51(2): 73-75.
Rubin J (1975). What good language learners can teach us. TESOL Q. 9: 41-51.
Schmitt N, Schmitt D (1995). Vocabulary notebooks: Theoretical understanding and practical suggestions. ELT J. 49(2): 133-142.
Wei M (2007). An examination of vocabulary learning of college-level learners of English in China. Asian EFL J. 9 (2) Article 5.
Waring R (2002). A comparison of the receptive and productive vocabulary size of some second language learners. Appeared in immaculate; the occasional paper at Notre Dame Seishin University. Retrieved from http//www1.harenet.ne.jp/~waring/papers/vocsize.html on 13 February 2008.
Yongqi Gu, Peter (2003). Vocabulary learning in a second language: person, task, context and strategies. TESL-E J. 7(2): 1-28.

Appendix 1

Sheet Number: ……..

Dear student the following questionnaire includes two parts. There are 8 questions in the first part. First answer them carefully. Then move to the second part that includes 14 questions. Tick only one of the choices that best apply to you and do not leave any question unanswered.

1- Name/Family Name: ……. . ..…….. . **Age:** ……..

Column	Questions	Never	Seldom	Sometimes	Usually	Always
1	I group words together to study them. For instance, I group names of all vehicles or all words about a topic.					
2	I group words together spatially on a page, notebook or card by forming columns, triangles, squares, circles.					
3	I learn some new words by joining the initial letters of them and making a new word, e.g. CAP= *carrot, apple, papaya*					
4	I use new English words in a sentence so I can remember them.					
5	I image the word form, i.e. I draw the picture of a pair of gloves to learn the word better.					
6	I remember new English words by making a mental picture.					

Appendix 2

VKS and scoring categories

VKS elicitation scale self-report categories

I. I don't remember having seen this word before.
II. I have seen this word before, but I don't know what it means.
III. I have seen this word before and I think it means---------- (synonym or translation).
IV. I know this word. It means ----------. (synonym or translation).
V. I can use this word in a sentence: ----------. (If you do this section please also do section IV).

Appendix 3

Sheet Number: …….

Some vocabulary learning strategies to learn and remember words better

As a language leaner, you may come across new words each day. But do you learn them efficiently and still do you remember them after a period of time? The aim of this hand out is to introduce you a number of vocabulary learning strategies, steps or actions taken by students to improve their learning, that will enable you to learn words easier and remember them after you have learnt them.

1- "Grouping" is the first strategy that can help you remember new words better and for a longer period of time. By this strategy you can classify words into meaningful units either mentally or on a paper to make the retention process easier by reducing the number of discrete elements. Grouping can be done in a number of ways like:

a) Type of words: All nouns or all verbs.
b) Topic: Words related to a specific subject area.

i) Weather (hot - cold – rainy – stormy – windy - snowy).

ii) Parts of body (hand – foot – nose – chest – leg - neck).
iii) Vehicles (car – bus – cab – train – truck - lorry).
3- Similarities: (Warm, hot, tropical).

Now, consider the following words and see how you can group them:

mortgage	mansion	dwell

2- "Making acronyms" is another way to retain and remember new words by placing new words or expressions into a meaningful context such as spoken or written sentences or even a short story. Making acronyms, the abbreviation of several words in such a way that itself forms a word, can act as a new context. You may already have come across acronyms such as RAM (Random Access Memory) in Computer, FBI (Federal Board of Intelligence), NATO (North Atlantic Treaty Organization) and so on. To check your understanding of this strategy, now try to make an acronym with the words given below:

dignity	stable	adequate

3- A good way to retain and remember vocabularies that have been heard or read in a new language is to create "images" of them either in the mind or in actual drawing. It can make mental images of objects like *house* and *tree* more concrete. Even abstract words like evil or truth can be turned into symbols on a piece of paper for the purpose of retaining and remembering. In addition, this strategy could also be used for prepositions such a, above, under, up, etc. These pictures do not need to be artistic. Now, can you match the following words with the pictures?

herd	loop	summit