

# The Effects of Use of Learning Strategies Training on Students Foreign Language Vocabulary Learning

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**ABSTRACT:** Foreign language vocabulary learning, in this case is English, is not the same as memorizing words in the context of serial lists. To master a foreign language, words must be recalled and recognized in new and unexpected contexts. The paper describes a research project which investigated how vocabulary can best be learned or taught with 558 primary (6<sup>th</sup> grade) students (four groups of from sixteen intact classes). Four approaches to vocabulary instruction: (1) Vocal rehearsal + phonological awareness training; (2) Sub-vocal rehearsal + phonological awareness training; (3) Vocal and sub-vocal rehearsal + phonological awareness training; and (4) No rehearsal and phonological awareness training were examined in this study and a comparison was made of their effects on students vocabulary acquisition. Pre-test and post-test vocabulary knowledge scales were administrated and an ANOVA analyses was conduct to identify any significant difference among four groups. The results indicate that all three methods resulted in significant vocabulary gains. Furthermore, the difference between first group, vocal rehearsal phonological awareness training; and second group, sub-vocal rehearsal phonological awareness training, was not significant; participants in the third group did significantly better than those.

**KEY WORDS:** Learning strategies, rehearsal, phonological awareness, foreign language, teaching vocabulary, and English as second language.

## Introduction

Learning a new language is a difficult job, especially when it is to be carried out in a foreign language situation; the reason being that a “foreign language situation” provides language learners with little authentic communication in the foreign language (Hodge, 1998). For most learners, it is a long painstaking process. In addition, interference from the learner’s mother tongue, as well as the great difference between the native and the target language, render the task of language acquisition even more difficult.

One thing that students, teachers, materials writers, and researchers can all agree upon is that learning vocabulary is an essential part of mastering a second language (Schmitt, 2008). Vocabulary learning is central to language acquisition, whether the language is the first, the second, or a foreign language (Decarrico, 2001). It is

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related to other aspects of learning and use. It is also crucial to the learner's overall language acquisition (Gao, 2003).

However, the best means of achieving good vocabulary learning is still unclear, partly because it depends on a wide variety of factors (de Groot, 2006). Therefore, one of challenging topics in language learning in general concerns vocabulary learning; that is learning lexicon or words of specific language. Second Language Acquisition (SLA) researches have become heavily interested in vocabulary acquisition, because many strongly believe that vocabulary learning is central to language acquisition, whether the language is first, second, or foreign (Decarrico, 2001).

### Vocabulary and Learning English as Foreign Language

Learning vocabulary in another language is an incremental and recursive process. It involves the integration of different kinds of knowledge of a particular vocabulary item, which is demonstrated by the learner's ability to use that knowledge in communication at different levels (Gass, 1999). Learning a word is a cumulative process involving a range of aspects of knowledge and that learners need many different kinds of meetings with words in order to learn them fully (Nation, 2001:4).

Vocabulary is an essential component in learning a foreign language and understanding another culture. Research has shown that vocabulary is the building block of all four language skills: reading, listening, writing, and speaking. B. Laufer and D.D. Sim (1985) found in their study that among foreign language learners, vocabulary was needed more than subject matter knowledge and syntactic structure. That is vocabulary knowledge should be the top priority when it comes to learning a foreign language.

Despite the many factors that may contribute to the low achievement among most EFL (English as Foreign Language) learners, research demonstrates that vocabulary plays a crucial role in learning a second/foreign language (L2), and for most students it takes substantial time and effort to acquire the target vocabulary, both receptively and productively (Nation, 2001).

Second language (L2) learners at all levels are faced with the difficulty of learning vocabulary. The acquisition of new English vocabulary, one of the important skills necessary for English as Foreign Language (EFL) learners, frequently involves much representational learning. In addition to needing a large number of lexical items, a learner must also know a great deal about each item in order to use it well. This is often referred to as the quality or "depth" of vocabulary knowledge, and is as important as vocabulary size (Schmitt, 2008).

The ability to hear and apprehend a foreign word to be learned is crucial for several reasons. Firstly, in order to learn the word, it is necessary to hear it accurately, to be able to break the word down into its individual sounds and phonemes, and to rehearse the word. People can rehearse a foreign word aloud to themselves or as part

of a class drill, but they can also do it silently, inside their heads, using their inner speech. During the initial stages of foreign language learning, this inner speech is primarily used to play with “funny” sounding words and to rehearse words and utterances to be learned.

The ability to form phonological representations of words and rehearse them is crucial to learning foreign or novel words. Rehearsal is the process by which phonologically encoded information is maintained and refreshed in the phonological loop until it can be stored in long-term memory. Rehearsal of the target language can occur vocally or sub-vocally in inner speech, but the mechanisms for rehearsal are assumed to be the same. This study adopts a version of A. Baddeley, S. Gathercole and C. Papagno (1998) working memory model, which claims that auditory stimuli is automatically encoded and entered into the phonological loop where it is rehearsed in short-term memory.

Sub-vocal rehearsal in the form of inner speech is viewed as one of the first and most basic functions of inner speech, along with language play, and which is key to foreign language learning (de Guerrero, 2005). If the phonologically encoded material is not rehearsed via vocal or sub-vocal rehearsal, it will decay within about two seconds and the words will not be correctly recalled. Inability to rehearse has been found to inhibit word learning.

Phonological Awareness (PA) is one aspect of meta-linguistic awareness and refers to sensitivity to units of sound (Yopp & Yopp, 2000); for example understanding that a sentence can be divided into words, a word can be divided into syllables, and syllables can be divided into onsets and rimes. C.F. Hu (2003:434) writes that initial foreign language learning involves being sensitive to unfamiliar sounds, in unfamiliar patterns, with different stresses and syllable configurations. This sensitivity, includes the ability to reflect on and manipulate speech sounds, has been consistently shown to relate to decoding and to word reading within language (Schatschneider *et al.*, 2004); and across languages (Droop & Verhoeven, 2003; and Gersten & Geva, 2003). In order to successfully comprehend connected text, accurate, and fluent word reading is necessary. Therefore, there is not only a reciprocal relationship between PA (Phonological Awareness) and word reading, but PA is indirectly also related to reading comprehension via decoding skill.

PA and decoding interventions have been demonstrated to be highly effective at improving reading outcomes for *students at-risk of reading difficulty* (Vadasay, Sanders & Peyton, 2006); *students with LD or Learning Disabilities* (Torgesen *et al.*, 2001); *at-risk EL or English Learners in both first* (Gerber *et al.*, 2004); and *second language instruction* (Leafstedt, Richards & Gerber, 2004; and Richards, 2004). For example, in a recent study, students in Spanish instruction schools at risk of reading difficulty received an intensive PA and decoding intervention (Vaughn *et al.*, 2006). Instruction in this case included vocabulary and comprehension strategies using oral texts, so it is difficult to untangle constituent components. However, students who received the explicit, systematic intervention outperformed the control group on PA, fluency, decoding, and comprehension measures at post-test, indicating its efficacy.

Most people in fact associate learning a language with “words”. However, foreign language vocabulary learning is often viewed as a solitary activity to be accomplished by the individual student. Vocabulary is rarely practiced systematically in classrooms. Students are left to learn vocabulary on their own and, then, are expected to apply it in communicative activities in the classroom and perhaps in the target culture. But, to the frustration of students and teachers alike, there is often a large gap between the targeted and the actually learned vocabulary.

Most current studies of vocabulary learning have focused on aspects of *incidental word learning, including reading and guessing* (Hulstijn, Hollander & Greidanus, 1996; and Huckin & Coady, 1999); *the role of cognates in vocabulary learning* (Treville, 1996); *the role of context in vocabulary learning* (Hulstijn, 1997); *the general process of vocabulary acquisition* (Altman, 1997); *vocabulary learning strategies* (Kojic-Sabo & Lightbown, 1999); and *vocabulary testing* (Read, 1997). With the advent of constructive views, language theorists claim that vocabulary, not grammar, is at a heart of language learning, as language consist of grammaticalied lexis, not lexicalized grammar (Lewis, 1993).

Traditionally, the teaching and learning of vocabulary has long been neglected in Second Language Acquisition or SLA research (Zimmerman, 1997). The argument in SLA to focus on form in communicative classroom activities tends to put the acquisition of grammar in the spotlight (Long & Robinson, 1998). Therefore, in favor of syntax, vocabulary has generally been given a secondary place in the language curriculum (Nation, 2001). However, many L2 (Second Language) learners share the difficulties of learning vocabulary, and are often frustrated and discouraged by the unfamiliar words contained in reading texts.

A critical component of reading comprehension, highly interrelated with other component skills, is vocabulary knowledge (Muter *et al.*, 2004). Vocabulary is an important contributor to second language reading comprehension, as well (Proctor *et al.*, 2005). This broad construct includes some meta-linguistic components of word analysis and its relationship to other skills changes over time. Expressive vocabulary is among the most robust predictors of future reading scores, along with phonological awareness, sentence imitation, and story recall (McCardle, Scarborough & Catts, 2001). Later, in development vocabulary becomes increasingly important as a facilitator of word recognition and as a facilitator of reading comprehension (Muter *et al.*, 2004).

Vocabulary instruction has been deemed critical for the reading development and reading success of ELLs or English-Language Learners (Gersten & Baker, 2000). Proficient reading depends on various sub-skills and for students who have limited knowledge of word meanings, comprehension is greatly affected.

Many researchers agree that if a student has a large vocabulary, the student will also have good comprehension of written material; and if a student has a limited vocabulary, his or her comprehension level will also be limited (Maria, 1990). Research indicates that a balanced literacy approach includes direct, explicit, and systematic instruction in specific skills such as decoding, vocabulary, spelling, and

comprehension; and content matter instruction in all relevant curriculum areas and that a whole new pedagogy is not necessary (Goldenberg, 2001). Much of the vocabulary research has suggested several different strategies to developing reading skills in English language learners.

These strategies include explicit vocabulary instruction, repeated reading, class wide peer tutoring, and previewing, but no specific approach to teaching vocabulary has been deemed superior. Y.F. Liao (2004) investigated the vocabulary learning strategies used by 625 Taiwanese EFL (English as Foreign Language) freshmen. Meanwhile, N. Schmitt (2008) vocabulary strategy questionnaire was adopted for this survey. The results showed that meta-cognitive and social strategies were the two least used strategy categories. She argued that the possible reason for the low frequency use might be because English vocabulary learning was viewed as an individual learning process in general; therefore, students tended not to seek other's help when encountering unfamiliar words.

Moreover, based on Y. Gu and R.K. Johnson (1996) who indicated that meta-cognitive strategies can be a positive predictor of general proficiency. Y.F. Liao (2004) concluded that the low frequency used in meta-cognitive strategies may be that these participants' general English proficiency was limited. By examining isolated strategies use, the researcher found that Taiwanese students preferred to use bilingual electronic dictionaries, write the word several times, and study the sounds of the word.

It has also demonstrated the importance of explicit instruction and learning in helping students to acquire vocabulary of a foreign language (Laufer, 1997; and Zimmerman, 1997). McCarthy, as cited in B. Laufer (1997:viii), asserts that "*No matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wider range of meanings, communication in an L2 just cannot happen in any meaningful way*". Vermeer, as cited also in B. Laufer (1997:147), echoed the same point of view that "*Knowing words is the key to understanding and being understood. The bulk of learning a new language consists of learning new words. Grammatical knowledge does not make for great proficiency in a language*". Finally, Gass and Selinker, as cited in B. Laufer (1997:270) simply put it this way that "*The lexicon may be the most important component for learners*".

There is comparatively little research to report on methods of presenting and practicing vocabulary in the classroom (Read, 2004). Therefore, vocabulary learning is an important topic that needs experimental studies to determine the best method of learning vocabulary for foreign language learners. Most current studies of vocabulary learning have focused on *aspects of incidental word learning, including reading and guessing* (Kost, Foss & Lenzini, 1999); *the role of cognates in vocabulary learning* (Lotto & de Groot, 1998); *the role of context in vocabulary learning* (Hulstijn, 1997); and *vocabulary testing* (Read, 1997). But a few research was focused on vocabulary learning strategies.

In educational system of my country Iran, teaching English language is started at 6<sup>th</sup> grade formal education and most of students have difficulty in learning

English language. In this case, no research or few research was conducted. The present study aimed to gain further insight into the effects different manners of rehearsal and phonological awareness training on foreign vocabulary learning of the beginning learners of English language. The purpose of this study was to examine three distinct approaches described above and compare their effects on vocabulary learning in Iranian primary school students. The findings from this research can expand our understanding of the optimal manner of rehearsing and phonological awareness training on foreign words to be learned.

As a result, this study was guided by the following general research questions: (1) Whether rehearsal strategies and phonological awareness training effects foreign vocabulary learning?; (2) to Compare the effects of different manners of rehearsal and phonological awareness training on foreign language vocabulary recall and recognition; and (3) Which form of rehearsal plus phonological awareness training is optimal for foreign vocabulary learning?

## Method

**Participants.** Five hundred fifty-eight primary students (6<sup>th</sup> grade) from sixteen intact general English (eight boys and eight girls) classes participated in the study. In order to determine the effect of manner of rehearsal and phonological awareness training on participants' ability to recall, recognize, and react to previously learned foreign words, each classes were randomly assigned to one of four rehearsal groups: (1) Vocal rehearsal + phonological awareness training; (2) Sub-vocal rehearsal + phonological awareness training; (3) Vocal and sub-vocal rehearsal + phonological awareness training; and (4) No rehearsal and phonological awareness training.

**Research Design.** This study utilized a semi-experimental research design with four treatment groups. The study employed a pretest-posttest design carried out over a period of four months; this included a four-months training and practicing, which varied depending on the groups.

**Measures.** Firstly on the Michigan test. To assess participants' language background and homogeneity of students, a 90-Item Michigan test was administrated in the first session. All of student took part in the test. Secondly on the Vocabulary tests. A checklist of 85 words was designed for this study and administered among the students to assure that the words are new to the students. After all, only those words with which none of the students were familiar were included in the study.

Based on those words, two tests of recall and recognition were designed for this study and administered among the groups (pretest and posttest). Vocabulary recall was measured by a vocabulary (Word Recall Test) and vocabulary recognition was measured by a vocabulary (Word Recognition Test). Those tests prepared by the researcher himself and had been standardized and validated before. The scores of the vocabulary post-tests were used to measure the participants' vocabulary learning.

**Procedure.** The treatment involve training and practicing three manners of rehearsal and phonological awareness was conducted during the participants'

regular class times, and required sixteen consecutive 50-minute sessions. The three manners of rehearsal plus phonological awareness training included in this study are: (1) Vocal rehearsal + phonological awareness training; (2) Sub-vocal rehearsal + phonological awareness training; (3) Vocal and sub-vocal rehearsal + phonological awareness training; and (4) No rehearsal and phonological awareness training. All participating students were individually tested pre and post treatment. To assess students' vocabulary knowledge, a researcher-generated assessment was administered prior to training (pre-test) and post of training (post-test).

## Results

This study was designed with two main objectives. The first objective was to investigate the various manners of rehearsal and phonological awareness training on foreign language vocabulary learning. Secondly, the study sought to determine which one manner of rehearsal was more effective than another in learning foreign language vocabulary. To answer this study's research questions, a statistical analysis were performed to determine: (1) Whether there were any significant differences between groups regarding their performance after the treatments; and (2) Whether there were any significant changes within groups regarding their manner of rehearsal and phonological awareness training.

To examine the effect of the independent variables, *first*, the mean scores for the vocabulary (recall and recognition) tests were compared. *Second*, the raw scores on the vocabulary (recall and recognition) tests were submitted to a one way ANOVA (Analysis of Variance) design. *Third*, when the ANOVA showed the significance for them, follow-up analyses were run on each of the groups.

This part presents the results of this study according to the two dependent variables: (1) Recall of learned L2 or Second Language vocabulary in the training period; and (2) Recognition of them, or the vocabulary items, in sentences.

**First, Participants' performance on the general test.** The participants' language background was assessed. A general English (90-item Michigan) test was administrated to assess the homogeneity of English background of students who participated in the study. All of them took part in the test.

**Table 1:**  
One Way ANOVA for Performance on the General English Test

| Source        | D.F | SS      | MS    | F    | P  |
|---------------|-----|---------|-------|------|----|
| Between group | 3   | 11.44   | 3.813 | 0.51 | NS |
| Within group  | 555 | 1166.39 | 7.525 |      |    |
| Total         | 558 | 1177.83 |       |      |    |

A one way ANOVA was utilized to find whether the selected groups were almost homogenous. To do this, their grades in the general English test were used. The ANOVA analysis did not show any significant effect for the general English

test. The results in table 1 shows, F ratio (0.51) doesn't exceed the F critical value (2.65) on the .05 level of the significance. This implies that there is no significant difference and four groups were almost homogenous.

**Second, Participants' performance on the vocabulary recall and recognition test (pre-test).** To assess the homogeneity of vocabulary knowledge of students who participated in the study, two vocabulary tests (Recall and Recognition) were administrated. All of them took part in the tests.

**Table 2:**  
 One Way ANOVA for Performance on the Vocabulary Recall Test (Pre-Test)

| Source        | D.F | SS       | MS     | F     | P  |
|---------------|-----|----------|--------|-------|----|
| Between group | 3   | 66.125   | 22.041 | 1.641 | NS |
| Within group  | 555 | 2122.25  | 13.431 |       |    |
| Total         | 558 | 2188.375 |        |       |    |

**Table 3:**  
 One Way ANOVA for Performance on the Vocabulary Recognition Test (Pre-Test)

| Source        | D.F | SS      | MS     | F     | P  |
|---------------|-----|---------|--------|-------|----|
| Between group | 3   | 51.25   | 17.083 | 1.145 | NS |
| Within group  | 555 | 2311.25 | 14.911 |       |    |
| Total         | 558 | 2362.5  |        |       |    |

A one way ANOVA was utilized to find whether the selected groups were almost homogenous. To do this, their scores in pre-test of vocabulary recall and recognition tests were used. The ANOVA analysis did not show any significant effect for two vocabulary tests (Recall and Recognition). The results in tables 2 and 3 shows, F ratio (1.64) and (1.145) don't exceed the F critical value (2.65) on the .05 level of the significance. This implies that there is no significant difference and four groups were almost homogenous.

**Third, Participants' performance on the vocabulary recall and recognition tests (post-test).** To examine the effect of the independent variables, *first*, the mean scores for the vocabulary (Recall and Recognition) tests were compared. *Second*, the raw scores on the vocabulary (Recall and Recognition) tests were submitted to a one way ANOVA design. *Third*, when the ANOVA showed the significance for them, follow-up analyses, the Scheffe post hoc comparisons for the post-tests, were run on each of the groups.

After the training phase, the vocabulary recall and recognition tests (post-test) were conducted. The mean and standard deviation Recall and Recognition scores is displayed in tables 4 and 5, broken down according to rehearsal plus phonological awareness training groups and control or no rehearsal plus phonological awareness training group.

**Table 4:**  
 Mean and Standard Deviation of Words Recalled by Four Groups

| Groups   | M    | SD   |
|--|------|------|
| Vocal rehearsal + phonological awareness training.               | 33.3 | 6.89 |
| Sub-vocal rehearsal + phonological awareness training.           | 35.7 | 6.18 |
| Vocal and sub-vocal rehearsal + phonological awareness training. | 40.3 | 8.76 |
| No rehearsal and phonological awareness training.                | 28.5 | 4.99 |

Regarding vocabulary recall, table 4 shows that all of three treatment groups led to better results than control group. The highest overall recall was found for vocal and sub-vocal rehearsal + phonological awareness training group, and lowest overall recall was found for control group.

**Table 5:**  
 Mean and Standard Deviation of Words Recognized by Four Groups

| Groups   | M    | SD   |
|--|------|------|
| Vocal rehearsal + phonological awareness training.               | 44.2 | 5.91 |
| Sub-vocal rehearsal + phonological awareness training.           | 45.3 | 3.41 |
| Vocal and sub-vocal rehearsal + phonological awareness training. | 51.7 | 6.05 |
| No rehearsal and phonological awareness training.                | 35.3 | 6.41 |

Regarding vocabulary recognition, table 5 shows that all of three treatment groups led to better results than control group. The highest overall recall was found for vocal and sub-vocal rehearsal + phonological awareness training group, and lowest overall recall was found for control group.

To test for main effects of treatment condition, Analyses of Variances (ANOVAs) were performed for each outcome variable. Differences in treatment group posttest scores were examined by computing ANOVAs for each variable. Recall scores were analyzed in an ANOVA. Based on the results, there were some differences among the four groups. The main effect of Words Recall test (post-test) was F ratio (10.13) that exceeded the F critical value (2.65) on the .05 level of the significance and (3.88) on the .01 level of the significance.

**Table 6:**  
 The Scheffe Post Hoc Comparisons for the Words Recalled by Four Groups

|                | Experimental 1 | Experimental 2 | Experimental 3 | Control  |
|----------------|----------------|----------------|----------------|----------|
| Experimental 1 |                | 0.67           | 2.81 *         | 4.05 **  |
| Experimental 2 |                |                | 2.88 *         | 4.34 **  |
| Experimental 3 |                |                |                | 7.29 *** |
| Control        |                |                |                |          |

Note. \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

Recognition scores were analyzed in an ANOVA. Based on the results, there were some differences among the four groups. The main effect of Words Recognition test (post-test) was F ratio (12.41) that exceeded the F critical value (2.65) on the .05 level of the significance and (3.88) on the .01 level of the significance.

The Scheffe post hoc analyses vocabulary recall mean showed that the main effect for group was due to differences between the control group and the experimental groups. In post-test 1, all three experimental groups performed significantly better than the control group ( $p < .01$ ,  $p < .01$ , and  $p < .001$ ). However, the experimental groups 1 and 2 were not significantly different from each other, and the experimental group 3 was performed significantly better than the experimental groups 1 and 2 ( $p < .05$  and  $p < .05$ ).

**Table 7:**  
The Scheffe Post Hoc Comparisons for Words Recognized by Four Groups

|                | <b>Experimental 1</b> | <b>Experimental 2</b> | <b>Experimental 3</b> | <b>Control</b> |
|----------------|-----------------------|-----------------------|-----------------------|----------------|
| Experimental 1 |                       | 0.81                  | 3.01 *                | 4.27 **        |
| Experimental 2 |                       |                       | 2.78 *                | 4.86 **        |
| Experimental 3 |                       |                       |                       | 8.11 ***       |
| Control        |                       |                       |                       |                |

Note. \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

The Scheffe post hoc analyses vocabulary recognition mean showed that the main effect for group was due to differences between the control group and the experimental groups. In post-test 2, all three experimental groups performed significantly better than the control group ( $p < .01$ ,  $p < .01$ , and  $p < .001$ ). However, the experimental groups 1 and 2 were not significantly different from each other, and the experimental group 3 was performed significantly better than the experimental groups 1 and 2 ( $p < .05$  and  $p < .05$ ).

## Discussion

The current research aimed to examine the various manners of rehearsal and phonological awareness training on foreign language vocabulary learning. In this part, the results reported in the previous part will be discussed and evaluated in light of previous research on foreign language vocabulary learning, and data are discussed in detail, in terms of the research questions. The major findings provided qualified support for the effectiveness and efficiency of all the various manner of rehearsal and phonological awareness training.

To determine the effect of the various manners of rehearsal and phonological awareness training on recall and recognition of foreign English language words, each participant took the two post-tests as a vocabulary learning measure. Mean scores were calculated for the Recall task, the Recognition task. Statistical analysis

revealed that there appeared to be differences between four groups on each of the two dependent measures. The effects of manner of rehearsal plus phonological awareness training on foreign vocabulary learning were examined. Findings suggest that manner of rehearsal plus phonological awareness training experience facilitates subsequent foreign vocabulary learning, and that different types of language-learning experience incur specific benefits.

The results of this research demonstrated that all manner of rehearsal plus phonological awareness training were successfully used by monolingual English speakers to learn novel foreign words. The findings from this study are consistent with research Guerrero, indicating that sub-vocal rehearsal is one of the first and most basic functions of inner speech, along with language play, and which is key to foreign language learning (cited by Gu & Johnson, 1996).

It seems that the positive effects of vocal and sub-vocal rehearsal on vocabulary learning were due to vocal articulation or to the participants' ability to hear (and modify) their vocal production based on their own auditory feedback. I had questioned whether one manner of rehearsal was more effective than another manner of rehearsal in learning foreign language vocabulary.

The results of this research were showed that the experimental groups 1 and 2 were not significantly different from each other, and the experimental l group 3 was performed significantly better than the experimental groups 1 and 2. The findings from this study are consistent with research by J.M. Leafstedt, C.M. Richards and M.M. Gerber (2004) and C. Richards (2004), indicating that phonological awareness and decoding interventions have been demonstrated to be highly effective at improving learning foreign language vocabulary. It has also demonstrated the importance of explicit instruction and learning in helping students to acquire vocabulary of a foreign language (Laufer, 1997; and Zimmerman, 1997).

The paradigm used in this study may be extended to examine the rehearsal component of the phonological loop more closely. The working memory model suggests that in addition to a phonological store that maintains novel memory traces, rehearsal mechanisms that facilitate translation of a novel phonological trace into a long-term representation are fundamental for foreign vocabulary learning.

### **Conclusion**

The first conclusion that can be elicited from the study is that the all the various manners of rehearsal and phonological awareness training had significant effects on recall and recognition of foreign language vocabulary and play an important role in second language acquisition. The next conclusion is that the vocal and sub-vocal rehearsal along with phonological awareness training has the most positive effect on learning foreign language vocabulary. The third conclusion that can be observed from the study is that the findings from this research expanded our understanding of phonological awareness training and the optimal manner of rehearsing foreign words to be learned.

Similarly, future work may examine whether modality of rehearsal – auditory (vocal) *versus* visual (written) – influences retention of foreign words differently at different levels of cross-linguistic overlap. For instance, it is possible that written rehearsal (writing the foreign word three times) would be a more efficient strategy than auditory rehearsal (saying the foreign word out-loud three times).

Further, a comparison between written and sub-vocal rehearsal is an interesting one to consider, since both involve more abstract phonological codes than vocal rehearsal, and thus may reveal whether activation of phonology during writing is qualitatively and quantitatively comparable to phonological activation during silent rehearsal.

### Pedagogical Implication

Foreign language vocabulary learning is not the same as memorizing words in the context of serial lists. To master a foreign language, words must be recalled and recognized in new and unexpected contexts. Phonological awareness training has been successful at improving phonological awareness (de Jong, Seveke & van Veen, 2000) for at-risk learners; and can be conducted as part of native language remediation or as part of the second or foreign language curriculum (Hodge, 1998).

There is a dearth of research on vocabulary instruction for EL (English Language), particularly EL at academic risk. The current study contributes to the literature by demonstrating that relatively sophisticated, content area vocabulary can be taught to EL very early in their reading development. The results in the current study revealed that rehearsal strategies along with phonological awareness training influenced the student's vocabulary learning. Therefore, adopting vocabulary learning for vocabulary learning is necessary.

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