

# Comparative Effect of Presenting Vocabularies in Semantically Related and Unrelated Sets on Iranian EFL Learners' short Term Retention

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## ABSTRACT

Teaching vocabulary in semantically related sets is common practice among EFL teachers. This research was conducted to investigate the effectiveness of teaching vocabulary items through related and unrelated set to elementary Iranian EFL students. It investigated two types of clustering, semantically-related sets, semantically-unrelated sets, and their effectiveness in Persian -speaking learner's retrieval at the end of each session. To this end, an experimental approach using two groups of participants (i.e. experimental and control) was employed. The experimental group was taught using related vocabulary instructional method while the control group was taught using unrelated clustering method. Then they were asked to complete a recall matched post-test immediately after the study phase to measure the impact of both techniques on learning. In analyzing the data, the statistical techniques of ANCOVA and T-test were utilized. Results of this matching test showed that participants recalled more words from the unrelated list than from the semantically related list. And words from the semantically related list were the least to be recalled by all participants. So, the results manifested that, while both techniques successfully help the learners to acquire new words, presenting words in unrelated sets seems to be more effective, and this represented the preference of semantically unrelated clustering over instructing words in related sets during short period of time.

**Keywords:** vocabulary; EFL; semantically related sets; semantically unrelated sets

## 1. INTRODUCTION

Vocabulary is the "building blocks of language" (Schmitt, Schmitt, & Clapham, 2001, p. 33) Considered by some to be "the single most important aspects of foreign language learning" (Knight, 1994, p. 285). Vocabulary constitutes the heart of language learning and language use, so it is the basis of language (Laufer, 1997). Without vocabulary it is impossible to convey and infer meaning and communicates with each other in particular language, so there has shown to be increased interest in vocabulary as a crucial element in every language. Increasing vocabulary knowledge in inexperienced second language learners not only help them to comprehend a wider range of input from target language but also lead them to the more effective communication. So, vocabulary has gained widespread popularity in language learning and teaching and has become the guest of honor in this field (Bogaards & Laufer, 2004; Coady & Huckin, 1997; Read, 2000; Richards & Renandya, 2002). This is evident that vocabulary learning is crucial to learning of other four language skills. Without knowing enough vocabulary, they will be inefficient. As Nation (2001, p. 23) states, "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed".

Vocabulary provides learners with how to listen, speak, read and write. Unfortunately vocabulary learning and teaching were ignored in the past (Renandya & Richards, 2002; p. 255). During the mid-twentieth century, vocabulary building was not the primary concern for curriculum designers in the field of language teaching and learning. Recently, a careful consideration of vocabulary has been highlighted in language teaching in terms of syllabus designing and also assessing learner's performance, thus it has become a matter of interest among psychologist, linguistics and language teachers in vocabulary learning strategies (Griffin, 1996). Many learners consider language learning as an item equivalent to knowing great number of words by heart. Although it seems not to be valid hypothesis, there is no doubt that these words constitute a major part of any language (Bogaards, 2001). Morimoto and Loewen (2007) emphasized on mastering approximately 3,000 words. Besides, vocabulary is the most sizeable and unmanageable element in any language (Nation, 1990). Keep it in mind, there will be a reason for helping learners to store and retrieve words in target language (Sokmen, 1997) and this is unavoidable fact that teachers employ the most effective pedagogical method in teaching vocabulary. As Montrul (2001) maintains, "learning vocabulary in a second language is a complex task that involves much more than learning sound-meaning pairings; it also involves learning how lexical information is morphologically expressed and syntactically constrained" (p. 145). All these make vocabulary instruction a demanding task.

Because of significance of vocabulary learning tasks it is evident that many second language teachers feel uncertain about how to guide students and this result to controversy among teachers. Various techniques have been introduced to vocabulary learning from which researchers have been evaluating the applicability of these techniques, semantic and thematic clustering were among these strategies proposed by researchers and

psychologist. Most recently, new vocabulary items are presented to ESL/ EFL students in semantically and thematically related set in ESL (English as a second language). So, one of the issues that all student and teachers and material developers and researchers agreed upon is that the most important element of each second language learning is learning vocabulary (Groot, 2006) and furthermore, finding highly effective method for vocabulary teaching preoccupied curriculum designers in general and language teachers in particular (Bogaards & Laufer, 2004; Read, 2000; Richards & Renandya, 2002). Weatherford (1990) mentioned that there are various kinds of techniques for vocabulary instruction.

The question which arises in the field of vocabulary teaching is how to package words in beneficial way to facilitate learning and improve communication. A long standing question in the field of teaching second language vocabulary is this better to teach L2 vocabulary in semantic grouping or not?

## 2. STATEMENT OF THE PROBLEM

The examination of techniques and strategies which might prove helpful to the learners in their endeavor to acquire L2 words better is another research area needing further attention. This has been shown that few studies in Iranian context focused on interference and distinctiveness hypothesis (Jabbari, & Rezaei, 2012; Khayef & Khoshnevis, 2012; Marashi & Azarmi; Mirjalili), contrary to experimental evidence, there is still controversy among researchers on usefulness of teaching vocabulary in semantic cluster or in unrelated sets. The study of short term vocabulary retention via semantically related or unrelated grouping might be a helpful topic for investigation. In line with what has been discussed so far and for filling the existing gap in previous research studies in the field of short term retention this study set out to investigate Iranian EFL student's short term retention of related and unrelated sets to see which group will results in better retention.

## 3. SIGNIFICANCE OF THE STUDY

In the view of the above discussion, attempts is made to trace the development of previous works and beside that the present scrutiny aims at identifying EFL Iranian learner's performance in two sets of related and unrelated words in short term period and analyzing the best technique for teaching vocabulary; through semantically related or unrelated clustering in short term, also a further purpose of study is to see whether their results differ from those obtained previously by another researchers during short term period.

### RESEARCH QUESTION

This research study endeavors to analyze the effect of semantically related and unrelated clustering on vocabulary learning of students. To accomplish the primary object of the study the main research questions raised here are as follows:

Q1. Does semantically related clustering of English vocabulary enhance Iranian EFL learners' short term retention?

Q2. Does semantically unrelated clustering of English vocabulary enhance Iranian EFL learners' short term retention?

Q3. Is there any significant difference between the effects of presenting semantically related versus semantically unrelated vocabulary on elementary students' short term retention?

### LITERATURE REVIEW

Several large-scale surveys of foreign language vocabulary have been carried out up to the present time (Read, 2000), the impetus for that came from two categories. First, there was a general agreement on considering vocabulary as one of the most significant aspects of foreign language learning (Palmer, Richard & Rodgers, 2001). Second, certain researchers made an attempt to find- out the amount of required vocabulary by second language learners to be able to move forward without dealing with too much difficulty (Hirsh & Nation, as cited in Keshavarz & Mohammadi, 2009). Naturally, a major concern has been looking for the most effective method for developing foreign language learner's domain of vocabulary knowledge (Erten & Tekin, 2008).

Most learners of a second language are concerned about dealing with a great number of vocabulary in learning a language and they are worry about how to handle the task of learning thousands of words. This has been documented by a great number of questionnaires, interviews and case studies carried out in this field (Gu & Johnson, 1996; Jones, 1995; Lawson & Hogden, 1996; Porte, 1988; Sanaoui, 1995).

The following sections provide theoretical and experimental evidence against and in favor of teaching related clustering.

#### *Arguments that support presenting vocabulary in semantically linked groups:*

The most important principle in support of related cluster derived from linguistic theory of Semantic Field which posits that rather than being presented in a random list, vocabulary is organized by interrelationship between words, i.e., the mind group vocabulary by making association in meaning. Semantic Field theory which was the focus of many researchers reached its puberty by the idea of German scholar J. Trier in the 1930s, whose work has brought honor to having "opened a new phase in the history of semantics" (Ullmann, 1957). They claimed that this technique which propose that there is an organization of semantic field in human brain (Aitchison, 1994;

Carter & McCarthy, 1988; Grandy, 1992; Lewis, 1997; McCarthy, 1990; Rogers, 1996) and individual tend to recall words on the basis of conceptual mapping in the brain (Aitchison, 1994, 1996). Also, such an approach has several advantages. One is by learning item in set facilitate and reinforce by learning another items (Seal, 1991; Wharton & Race, 1999).

Modern psychologist supported this claim that no pieces of information are accumulated in our mind separately. There is special agreement among linguistics that not only word meaning does not stand in isolation, but this gets its significance with reference to other related terms (see, Levin & Pinker, 1991; Taylor, 1995: p. 83). Psychologist believed that words are not stored in our mental terminology as a single item, but forming clusters with related concepts. Grandy (1992) assume semantic field as “a set of including one or more contrast sets and possibly including permutation relations such that:

1. At most one covering term does not occur as an element of a contrast set in the semantic field.

2. Except for the main term mentioned in (1), any expression that occurs in a contrast set with an element of the semantic field is also in the field. Thus a semantic field can be a contrast set. (p. 109).

Those lexical units which belong to the same semantic category arranged in complex network, in which every single concept has its link to other related notions (See Aitchison, 1994).

Related words strengthen one another's meaning and so we acquire words in association with other related words. Psychologists believed that words which are close to each other can be recalled easily. Abdollahzadeh (2009), in his study examines the effectiveness of applying semantic mapping approach versus traditional method in vocabulary instruction to EFL learners with various perceptual modalities. A modified version of Reid's (1987) learning style questionnaire was employed to determine the learners' modality types. The results indicated that in contrast to traditional approach, semantic mapping significantly enhances vocabulary learning of EFL learners. Semantic organization defined as “the organization of related words and expressions [...] into a system which shows their relationship to one another.”

There are authors like Seal (1991), Grandy (1992), Haycraft (1993), Stoller and Grabe (1995), Wharton and Race (1999), and Hashemi and Gowdasiaei (2005), who spoke in support of presenting new words in semantic sets with the idea that it is the most effective way to teach new words, and this reflect the natural arrangement in mental lexicon (Aitchison, 1994, 1996).

Introducing words in semantic groups is a common practice of many L2 course books. Several textbooks suppose the effectiveness of presenting words in semantically related groups, for example, learners are asked to learn “parts of the body” in *Fast Forward I Unit 6* (Black *et al.*, 1986); “clothes” in *The New Cambridge English Course 1 Unit 9* (Swan and Walter, 1990); “foods” in *Headstart Beginner Unit 5* (Beaven, 1995); “jobs” in *Headway Elementary Unit 3* (Soars and Soars, 1993) and *Vistas* (Brown, 1991), the “target vocabulary” for chapter 1 consists of items necessary in a classroom (e.g., paper, pen, pencil, chalk, blackboard, eraser). In another equally popular textbook, *ExpressWays* (Molinsky & Bliss, 1996), family members (e.g., husband, wife, mother, father, brother, sister) and places in the community (e.g., airport, bank, post office, mall, park, library, museum) serve as the target vocabulary in the first two lessons.

Words in unrelated sets are akin to embodying a tree with no branches, but only leave (Haycraft, 1993). A study reveals significance which Hashemi and Gowdasiaei (2005) placed on grouping second language target vocabulary. In their quasi- experimental research, they compared the performance of 60 foreign language (FL) learners of English who were taught 100 words of 13 lexical sets. One group of students (n=30) set in lexical sets (LS) condition and received semantically grouped set of words, the other group (n=30) are served with words in scattered manner and set in semantically unrelated (SU) condition. Subjects in both experimental groups received 45 minutes treatment. In each session, students were provided with a topic. Vocabularies of lexical set were presented to them in sentence context, and then they were provided by explanation and definition of words along with L1 translation. Subjects in LS condition outperformed subjects in SU condition. In this way Hashemi and Gowdasiaei concluded that the domain of vocabulary knowledge of learners can be increased by using conceptual framework from which words are embedded in meaningful context.

Seal (1991) explain this point that “the learning of one item can reinforce the learning of another,” as well as facilitate understanding because “items that are similar in meaning can be differentiated” (p. 300). The author assume two benefits in learning words in semantic sets (a) to facilitate the process of vocabulary learning and (b) help learners to notice differences between words which lead to better understanding of the words being taught.

Stoller and Grabe claimed that vocabulary should be taught and learned in semantic cluster to activate schemata and relate new material with what already exist in memory.

Since many strategies in learning vocabulary in L1 or L2 are the same (e.g., vocabulary learning by definition, example, context and morphological representation). The benefits of semantic set presentation in SLA have been ascertained (Stoller & Grabe, 1995).

The utility of connecting new words with previous schemata has led psychologist to carry out some theoretical research studies. Ausubel developed advanced organizer theory, a “practical implication of his theory of meaningful verbal learning” (Kirkman & Shaw, 1997, p. 3). According to Ausubel (1968) advanced organizer or

superordinate words should be introduced to learners before receiving new information in order to activate schemata, allowing learners to connect newly presented words with already known material.

Gairns and Redman (1986: p. 31) briefly explained ideas in support of grouping words according to their semantic attribute which can 'provide a useful framework for the learner to understand semantic boundaries: to see where meaning overlaps and learn the limits of use of an item'.

Another research in support of semantic set presentation has been carried out by Hoshino (2010), in his experiment Hoshino realized that, without considering learning style, categorically related clusters were the easiest to learn and there were no significant differences among the remaining groups.

In other study by Khosravani (2014), he investigated the impact of second language (L2) vocabularies semantic clustering on critical thinking and vocabulary learning of Iranian EFL young learners. The students in the experimental group were exposed to the semantic clustering technique for teaching new vocabulary. But in the control group, the traditional techniques were used. After analyzing the statistical results, there was significant evidence that the semantic clustering of L2 vocabularies were effective in improving the level of critical thinking and vocabulary learning of Iranian EFL young learners.

*Having considered the justification of presenting words in semantic set, in this section, researchers introduce contrary opinion by other researchers.*

Scholars such as Allen (1983) and Bowen (1985) have stated that lexical problem interfere with communication; in other words, communication break down when people make wrong use of words. Also vocabulary is considered as a major constituent of language tests.

On the other side of the coin, there are some other researchers who have negative attitude toward presenting words in semantic clusters like (Finkbeiner & Nicol, 2003; Higa, 1963; Laufer, 1989; Nation, 2000; Tinkham, 1993, 1997; Waring, 1997;), who states that of similar words that share a common characteristic and superordinate concepts are introduced simultaneously, these words will interfere with each other and will negatively influence their retention due to overloading in short-term memory.

Nowadays, the belief that presenting words in semantic ease the process of vocabulary learning become an unsupported myth by some researchers (Waring, 1997; Folse, 2004). There is theoretical studies (Baddeley, 1990; Higa, 1963) and empirical evidence that come to this conclusion that presenting words in semantic cluster hinder L2 acquisition (e.g., Erten & Tekin, 2008; Finkbeiner & Nicol, 2003; Tinkham, 1993, 1997; Waring, 1997). Two theoretical ideas against semantic clustering are interference theory and the distinctiveness hypothesis. Delving into psychology of the first half of this century, different varieties of researchers dedicated to the study of "interference" and "the distinctiveness hypothesis". Interference theory (Baddeley, 1990; Higa, 1963) states that "when words are being learned at the same time, but are too 'similar' or share too many common elements, these words will interfere with each other thus impairing retention of them" (Waring, 1997; p. 261e262) because traces in the brain compete with each other. According to Interference theory which formulated by McGeoch (1942) presenting L2 vocabulary in semantic set hinder rather than facilitate vocabulary learning. Behavioristic define interference as "[t]he use of the first language (or other languages known) in a second language context when the resulting second language form is incorrect" (p. 455). Interference theory hypothesis act in two ways: 1) Retroactive interference / inhibition and 2) Proactive interference/ inhibition. Retroactive inhibition is difficulty recalling old information because of interference of newly learned material while Proactive inhibition is difficulty in learning new items because of already existing information. (Gass & Selinker, 2008). So, according to interference theory the more similarities between new information which is going to be learnt, the more difficulty happens in retaining them. Regarding learning some words (like fork, knife and spoon) their learning has been impeded rather than facilitated (for examples, see Crowder, 1976). Nation(2000)'s idea coincide with argument contrary to semantic grouping, also elaborate by mentioning the point that "interference occurs when items presented together are both unfamiliar, or when one is unfamiliar and the other poorly established" (p. 9). This would explain the result from Tinkham (1993, 1997) and Waring (1997).

Tinkham, in his study analyzed the result of two ways of presenting vocabulary, in semantic set [apricot, peach, plum, nectarine, pear, and apple] and thematic grouping [frog, pond, swim, hop, green, slippery]. The result showed that semantic clustering is determinant for learning vocabulary while thematic clustering facilitates the process of vocabulary learning. A replication of Tinkham (1993)'s research was carried out by Waring (1997). Result suggested that vocabulary in related set acquired later than in unrelated category. He stated that "presenting new words that share a common super-ordinate in a set of words to learn does interfere with learning" (p. 267). This has been revealed that in comparison with related words the amount of time spent on learning unrelated words is fewer. (Higa, 1963; Kintsch & Kintsch, 1969; Nation, 2000; Tinkham, 1993, 1997; Underwood, Ekstrand, & Keppel, 1965; Waring, 1997).

Erten and Tekin (2008), in their study investigated student's recalling ability in vocabulary test which comprised of related and unrelated words. They reached to this conclusion that semantically related words take longer time to retain than unrelated set of words.

Another theoretical view "distinctiveness hypothesis" (see Hunt & Elliott, 1980; Hunt & Mitchell, 1982) assumes that non similarity of information or words which are supposed to be learnt, facilitate learning.

Beside these contrary beliefs about semantic grouping, some researchers go somewhere between, and they suggest mixed results, for example Papathanasiou (2009) and Davis (2012). The finding of a study by Schneider, Healy, and Bourne (1998) suggests that initially learners retain semantic set better than unrelated set; however, the opposite results have been shown with long term tests.

#### 4. METHODOLOGY

##### 4.1 PARTICIPANTS

This study was carried out in Meraj-e- Andisheh Institute in Mashhad, Iran. The researcher felt at ease in choosing this institute, because she has worked there for so many years. However the researcher made arrangements to meet the authorities of the faculty to prepare the setting for the start of the study. This study was conducted with 60 Iranian elementary EFL learners. The subject of study divided into two groups of 30 students. Their level of English language in this Institute was elementary based on their scores on Institute's Standard Placement Test. Their age range was 12-14 years old, female with Persian as their first language disaggregated by two classes. The research sample selection was based on Non-probability sampling; the researcher had easy access to the subjects. So, choosing subject is based on convenience strategy. They took part in regular English classes and each semester takes two and half months, even days for girls. Since students were eager to develop their English proficiency to be able to use concrete words as the outset means of making communication, they were motivated enough to learn vocabulary through the procedure in this study. Due to lack of time on the part of researcher she could not manage all classes simultaneously, so two teachers had been chosen to carry out the research procedures. They were trained and skillful teachers who pass TTC course and are known as well-chosen and motivated elementary level teachers in this institute.

##### 4.2 INSTRUMENT

It seems important to ensure about the subject's homogeneity in proficiency level, so they were supposed to have taken a standard placement test of Institute before putting into starter Hip Hip Horray classes. Then a trail to criterion test was going to be administered to ascertain that they were not familiar with this list of words and have not learnt them before. On the whole, 2 types of instrument will be implemented in this study to collect the research data. They were as follows:

###### Placement test

A standardized placement test made by expert team on the bases of norms of this institute with a focus on communication as a primary goal to make sure about homogeneity of students, in this case researcher no longer worries about extreme variation in student's performance.

###### Pretest quiz

At the beginning of each session, students of two groups should answer a quiz which consists of 8 matching test items.

###### Immediate recall posttest quiz

Two groups of participants were tested on two types of clustering. The first group was SR group; the second group is SU group. At the end of each session, semantically related and semantically unrelated instruction to each class, students were taken an immediate recall matched test with eight items in each test. The subjects had 1 minute's time for each item in the list to study carefully

The unknown 64 vocabulary items were used in this study; they were selected from textbook material above their level of proficiency with the same level of difficulty. The vocabulary selection consisted of grouping words into two categories; 32 related and 32 unrelated words.

Also selecting vocabulary which was based on some criteria; they should be physically concrete , easy to learn, or in other words, they should be from the same level of difficulty, each word should not be longer than the other word in the list (Ellis & Beaton, 1993; Erten, 1998), each word should be of the same syllable as the other words.

##### 4.3 PROCEDURE

First of all, researcher was going to take placement test based on Hip HipHorray book to make sure about homogeneity of learners. Then a pilot study was conducted, in an attempt to identify any problems with the research design. The pilot participants, 15 English students from diverse linguistic backgrounds, were different from the main study participants; it was felt that they shed the same light into different aspects of the study's design. In these study 60 students from elementary level in 2 classes participated. The researcher acquired the necessary permissions to conduct the study from Meraj- e- Andisheh Institute.

The instructors distributed the consent forms to the subjects and read aloud to them the recruitment statement to participate in the study. Two instructors volunteered to administer the tests on the students. The students were

analyzed in two groups: 1) One group: semantically-related clustering (SR), 2) The other group: semantically unrelated clustering (SU).

There were 64 words which were divided into two groups. The 32 related words and 32 unrelated words. Vocabulary lesson consisted of presenting 8 related words in one class and 8 unrelated words the other class by providing picture for each word and the process continue in this way. These words were selected from words which were unknown to the students. In each session, students were exposed to a list of 8 vocabulary items by distributing them flashcards and pictures. The subjects had 1 minute's time for each item in the list to study carefully.

So the subjects were required to study them for a total of 8 minutes for each set. After eight minutes, the participants were instructed to stop referring to the lists. At the end of each session an immediate recall quiz would be handed out to students in order to scrutinize their vocabulary retrieval in matching test format. A matching test was used to check the learners' recognition of the words. It took about 8 minutes, one point which deserved to be mention here is that the reliability of words and test had been verified by an expert teaching in this field. Each subject was required to turn to the paper, which contained the eight English words on one column eight scrambled pictures on the other column. They are required to choose the best picture for each item.

Class 1:

10 minutes (noticing). At first teacher who had chosen 8 related words show students the flashcards which consists of written form of words and their equivalent pictures and he encouraged them to learn words by repeating the words one by one after teacher, in order to facilitate their learning.

Class 2:

Each student was given a set of flashcards and teacher show the words and picture to them. In this group, students were required to learn 8 unrelated words.

At the end of each of these sessions a matching test would be taken from students to assess their short term recall.

## 5. RESULT AND CONCLUSION

Following the data collection, the participants' performances in two groups were measured with respect to vocabulary learning. By considering all the above-mentioned issues and fulfilling the purpose of this study, three research questions were raised.

To answer the research questions, the data were then submitted to statistical analysis to compare the effect of using semantically related and unrelated instruction in subject's learning in the pre-test and post-test.

Q1. Does semantically related clustering of English vocabulary enhance Iranian EFL learners' short term retention?

In order to answer this research question, data were analyzed and the following tables were elicited.

First, in order to see whether we are able to use t-test as a parametric test, we should check whether the data have been normally distributed or not. If the level of significance is more than 0.05, it indicates the normality of data distribution. Therefore, we can use parametric test for further data analysis.

Test of Normality

So the researcher applied Kolmogorov- Smirnov Test to insure about normality of variables under study (according to the following hypothesis).

H0. The data are normally distributed.

H1. The data are not normally distributed.

As it is evident from Table 1, the result of normality test shows that p values of two groups (.693 and .441) are more than significance level (0.05). Therefore, we can accept the assumption of normality. So, we can use T-Test for comparing the results of pretest and posttest in this study.

Table 1: One-Sample Kolmogorov-Smirnov Test

Group		PRE IMMEDIATE	POST IMMEDIATE
Experimental	N	30	30
	Kolmogorov-Smirnov Z	.711	.727
	Asymp. Sig. (2-tailed)	.693	.531
Control	N	30	30
	Kolmogorov-Smirnov Z	.829	.901
	Asymp. Sig. (2-tailed)	.441	.205

Inferential statistics and hypothesis testing

In this part, researcher analyzed how each group performed in its pre-test and post-test, paired t-test technique was utilized to compare the means of each group in its pretest and post-test performances. The results are presented in table 2 and table 3.

As Table 2 demonstrates, the difference was not significant ( $Sig = 0.000 < 0.05$ ), since the  $p$  value was larger than 0.05.

Table 2: Paired Sample T Test - experimental group

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRE IMMEDIATE - POST IMMEDIATE	-1.62	1.22957	.22449	-2.084	-1.16587	-7.239	29	.000

According to the mean score ( $M = -1.62$ ), it can be implied that there is significant difference between retention of related vocabulary in pre-test and post-test phase of the study. Therefore, we can conclude that teaching vocabulary based on semantic clustering can increase the level of Iranian EFL learners vocabulary knowledge in experimental group.

Q2. Does semantically unrelated clustering of English vocabulary enhance Iranian EFL learners' short term retention?

In order to answer this research question, data were analyzed and the following tables were elicited.

As Table 3 demonstrates, the difference was not significant ( $Sig = 0.000 < 0.05$ ), since the  $p$  value was larger than 0.05; therefore, there was no significant difference between the mean scores of the vocabulary proficiency of control group.

Table 3: Paired Sample T Test - Control group

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
PRE IMMEDIATE - POST IMMEDIATE	-3.65	1.22404	.22348	-4.107	-3.19294	-16.33	29	.000

According to table 3, the difference was not significant ( $F(29) = -16.33, p = .000$ ), since the  $p$  value was larger than 0.05. Therefore, we can conclude that teaching based on semantically unrelated clustering can increase the level of Iranian EFL learners' vocabulary in control group.

Next, the Levene's test of equality of error variances was run with the results showing that the variances among the two groups were not significantly different ( $F(1) = 1.085, p = .302 > 0.05$ ). Accordingly, running an ANCOVA was legitimized.

TABLE 3: Levene's Test of Equality of Error Variances - Dependent Variable: POST IMMEDIATE

F	df1	df2	Sig
1.085	1	58	.302

Q3. Is there any significant difference between the effects of presenting semantically related versus semantically unrelated vocabulary on elementary students' short term retention?

Now, in order to answer the third research question, table 4 represented in analyzing post-tests for both related and unrelated groups.

Table 4 displays the results of Analysis of Covariance for easier reference.

TABLE 4: Tests of Between-Subjects Effects - Dependent Variable: POST IMMEDIATE

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	62.997	2	31.499	36.938	.000
Intercept	239.165	1	239.165	280.468	.000
PRE IMMEDIATE	1.488	1	1.488	1.745	.192
group	61.509	1	61.509	72.132	.000
Error	48.606	57	.853		
Total	1240.438	60			
Corrected Total	111.603	59			

By considering the results of this table 4, if there is any significant difference between these two groups in posttest, we can relate it to the effect of two methods of instruction; through semantically related and semantically unrelated clustering.

Further, mean scores of the samples in control and experimental group were found to be “5.350 ”and “ 3.3250”respectively, which are statistically different. In other words, the students in control group had better mean in comparison to their counterparts in experimental group. (Figure.1)

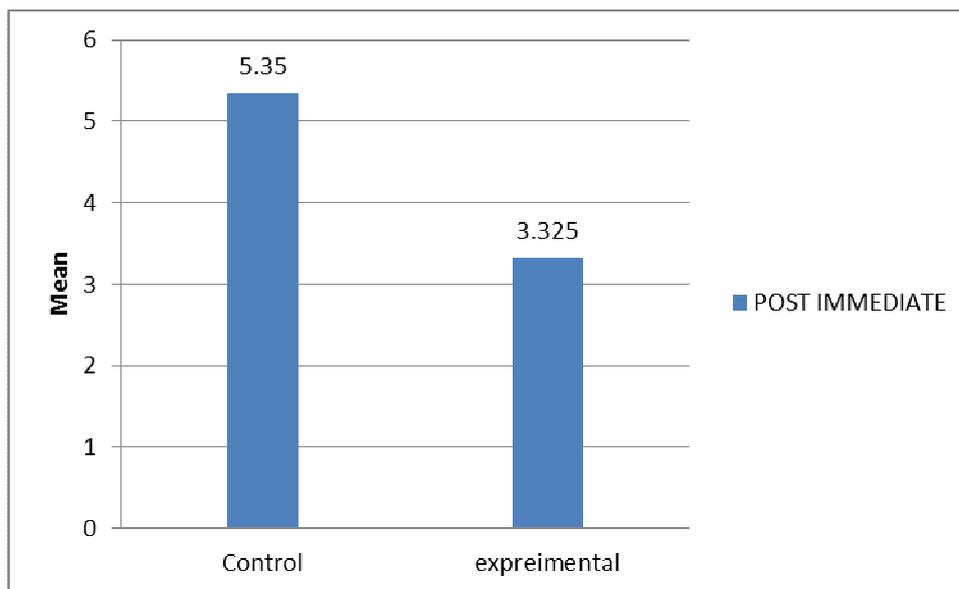


FIGURE 1. Barplot for control and experimental groups for POST IMMEDIATE

Regarding the above tables and figure, we can come to this conclusion that teaching vocabulary based on semantically unrelated clustering can increase the level of Iranian EFL learners’ vocabulary better than presenting vocabulary in related sets during short period of time.

The results presented in this section clearly favor the presentation of vocabulary in semantically unrelated sets over the presentation in semantically related sets.

This finding answers our research question: these two ways of presenting vocabulary are not equally effective; students retain more vocabulary when working with words in semantically unrelated sets, in the short term. Also, our results go along with the empirical studies presented above (Erten and Tekin, 2008; Finkbeiner and Nicol, 2003; Schneider, Healy, and Bourne, 1998; Tinkham, 1993, 1997; Waring, 1997) and make the objections to semantically related sets stronger.

The findings in this study suggest a number of implications that need to be taken into consideration by EFL Course designers, teachers, and writers.

In the current study, it was reported that participants recalled the smallest number of words in related tests,

while participants recalled the most number of unrelated words. Although the differences were not so significant, this shows that there is a little effect for presenting words in learning vocabulary.

Still given the first recommendation above, teachers should emphasize the importance of building vocabulary for teaching. They may need to concentrate on how to build vocabulary sets.

It was reported that the negative effect of semantic interference was present in the semantically related sets. Words from the semantic list were the least to be recalled. This finding is consistent with results of previous studies. Therefore, teachers might consider avoiding the effect of interference by increasing the differences between the taught items at any time. This can be achieved by introducing related words at different times. If teachers have to introduce related words at the same time, they should inform their learners of the negative effect of learning related items at once and should help learners find explicit strategies to keep the words separate in their minds. Moreover, teachers are encouraged to use different contexts and situations for presenting related items.

#### SUGGESTIONS FOR FUTURE STUDY

Although this study addresses a number of issues regarding various methods of grouping vocabulary items, there are still other issues that need more investigation to provide more insights into this topic which will help those interested in the field of second/foreign language vocabulary learning.

Firstly, the study used eight words in each of the wordlists. Future researchers may increase the number of words in lists. Secondly, since this study was conducted on female learners only, further research might be conducted on male EFL learners.

This study had elementary level participants. Further research should be conducted on learners of higher levels with more abstract words. Also further research can be done to measure the effect of semantic groupings on beginners, intermediate and advanced and ultimately comparing of semantically related and unrelated grouping with thematic clustering and to evaluate the relevant aspects of the syllabi used.

#### 6. CONCLUSION

This study was originally motivated by an interest in pedagogical approaches towards the presentation of new vocabulary to EFL learners in secondary school. On many occasions, teachers base their practices on popular beliefs about language learning or they simply take the validity of previous practices for granted and teach as they were taught. This seems to be the case with the presentation of vocabulary in semantically related word sets. Therefore, we wanted to test the effectiveness of presenting vocabulary in semantically related sets by comparing it to presenting vocabulary in unrelated sets. This seems to be the case with the presentation of vocabulary in semantically related word sets. Therefore, we wanted to test the effectiveness of presenting vocabulary in semantically related sets by comparing it to presenting vocabulary in unrelated sets and agree with the findings of many empirical studies carried out in different settings (Erten and

Tekin, 2008; Finkbeiner and Nicol, 2003; Schneider, Healy, and Bourne, 1998; Tinkham,

1993, 1997; Waring, 1997). Thus, our results also suggest the re-evaluation of the common pedagogical practice of always presenting words in semantically related sets. Like some authors (Tinkham 1993, 1997; Waring 1997), we believe that the presentation of semantically related vocabulary together impedes rather than facilitate learning and therefore should be discouraged.

This is believed that presenting words in semantic set satisfy communicative needs of EFL learners, and it has been shown in the structure of textbooks and, consequently, it is simply much easier for teachers to teach in semantically related set at the same time. Therefore, in our view, we should not discourage the presentation of semantically related words and what we recommend is teaching both techniques, that is, that when presenting semantically related fields they could also introduce unrelated terms in their language classes.

Obviously, the present study has some limitations that need to be taken into account. First of all, we would need to analyze the retention of the words in the long term. Also our results are very preliminary, we believe that they could be taken as indicators of a possible trend that should be further explored in the future with larger populations, along a longer period of time and with different and larger sets of words and different types of post-tests and also on different groups of participants including female students

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