



Vocabulary Acquisition and Lexical Training by Semantic and Thematic Sets: A Case of Persian Learners of English

Mahnaz Allahverdizadeh

MA in TEFL, Department of English, Islamic Azad University, Tabriz Branch, Iran

Nematullah Shomoossi

Assistant Professor, Sabzevar University of Medical Sciences, Sabzevar, Iran

Farzad Salahshoor

Assistant Professor, Department of English, Azarbaijan University of Teachers Education, Tabriz, Iran

Zohreh Seifoori

Assistant Professor, Department of English, Islamic Azad University, Tabriz Branch, Iran

Abstract

In the present study, the effects of presenting new L2 vocabulary in semantic and thematic sets on vocabulary learning of Persian learners of English were investigated. There were 80 participants: 40 elementary and 40 intermediate levels. Four types of vocabulary sets (i.e., semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets) were presented through reading passages. For each set, two passages were selected including six words in each reading passage. Consequently, there were eight reading passages with 48 new words at each level, which were presented to the participants to learn. The participants at each level took a placement test, a proficiency test, a pretest and a posttest. The statistical analyses showed that participants recalled more words from the thematic sets, while the semantic sets were the least to recall at each level. These differences were more apparent at the elementary level than in the intermediate. Also, participants recalled more words from semantically unrelated sets than from the thematically unassociated ones. Therefore, a scaled pattern of recalling may appear as: thematically associated sets, semantically unrelated sets, thematically unassociated sets and semantically related sets.

Keywords: L2 reading comprehension, lexical sets, thematic association, semantic relation, lexical acquisition

INTRODUCTION

The mastery of vocabulary is essential in the process of second (L2) or foreign language learning. It facilitates comprehension as one of the primary factors leading to good

progress in language learning (Al-Jabri, 2005). One of the challenges facing the second language learner is how to master a vast vocabulary in order to communicate successfully and appropriately with others (Nation, 2000). The last decade witnessed a growing interest in the *lexical approach* to English as a foreign language (EFL) teaching. Development in lexical semantics and the mental lexicon also inspired the development of the semantic field theory, semantic networks or grids, which help organize words in terms of interrelated lexical meanings (Amer, 2002).

ESL learners are often presented with new vocabulary in 'semantic clusters', which refer to sets of semantically and syntactically similar words, such as the words *knife, fork, spoon, bowl, plate* and so on. Although this is a common practice in ESL textbooks, many researchers argue that learning vocabulary in semantic clusters at the same time will interfere with learning. In a first language study, it was found that if the presented words are too similar, it would interfere with learning. Such findings led to the formation of "interference theory", stating that when words are being learned at the same time, but are too similar or share too many common elements, they will interfere with each other and thus impairing their retention (Waring, 1997).

Some researchers (e.g., Chepyshko & Truscott, 2009; Mirjalali, Jabbari, & Rezai, 2012) argue that the semantic cluster can help L2 learners to acquire L2 words in a more advantageous manner. In order to support their views, they return to a number of psychological studies which indirectly confirm their opinion. At the same time, a number of empirical investigations demonstrated negative effects of learning L2 vocabulary in semantic clusters (e.g. Tinkham, 1993 and 1997; Waring, 1997; Nation, 2000; Finkbeiner & Nicol, 2003; Al-Jabri, 2005; Etern & Ekin, 2008; Mirjalali, Jabbari, & Rezai, 2012). These findings are based on psychological theory of interference (Waring, 1997).

An alternative to semantic cluster organization of L2 vocabulary is the thematic clustering of L2 words (Tinkham, 1997), where the term "thematically associated clusters" or "thematically related clusters" are often applied. In this organization, words of different syntactic categories which co-describe certain common situations might be linked as a single vocabulary unit. The theory of *semantic frames* was the primary base for the justification of such arrangements (Chepyshko & Truscott, 2009). In thematic clusters, lexical items belonging to different syntactic and semantic categories can be organized with their participation within certain frames, schemata, or concepts reflecting partitioning of a speaker's background knowledge. This proposal was also linked to Fillmore's theory of the semantic frames (Fillmore, 2006).

Tinkham (1997) proposed the thematic arrangement of the L2 target vocabulary as a plausible alternative for the semantic clusters. According to his view, lexical items in the thematic clusters which belong to different syntactic and semantic categories can be organized in accordance with their participation within certain frames or schemata reflecting partitioning of a speaker's background knowledge. The words *to book, ticket,*

airport, fancy, taking off, and tired show this kind of word chaining, and are related to the concept of *traveling by air*. He further stated that presenting words in such an organization might avoid negative effects found in learning L2 vocabulary and can be beneficial for memorizing the L2 target vocabulary.

Therefore, the purpose of the present study is to compare the effects of learning vocabulary in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets at Elementary and Intermediated levels of Persian learners of English in Iran. These labels are intended to differentiate between different methods of organizing lexical items. *Semantically related sets* are defined on the basis of grouping words that share semantic and syntactic characteristics (e.g., *mother, father, daughter, son*); *semantically unrelated sets* are based on grouping words that do not share semantic and syntactic characteristics; *thematically associated sets* are based on psychological association between clustered words and a shared thematic concept (e.g., *frog, pond, swim, and green* which cluster around the concept of a *pond*, and might come to mind when a speaker is thinking about a story involving a pond and its inhabitants); finally, *thematically unassociated sets* are based on no such association.

REVIEW OF THE RELATED LITERATURE

Second language acquisition is a field of investigation that has seen an explosion of experimental research in the past decades. There are many dimensions to this topic, and vocabulary instruction has consistently emerged as a key area in second language learning, bilingual education and literacy instruction (Nagy & Scott, 1990). Moreover, research shows a strong relationship between vocabulary knowledge in English and academic achievement as well as a direct correlation between vocabulary knowledge and reading proficiency and comprehension (Carrell & Grabe, 1999). In addition, there are strong relationships between opportunities to read and the development of vocabulary and reading comprehension ability (p. 235).

Nunan (2001) states that in terms of language, in most language teaching approaches, vocabulary has played second fiddle to grammar. This was particularly true during the days when structural linguistics and audiolingualism were most popular. "Proponents of audiolingualism argued that foreign language teaching would be most effective if learners concentrated their efforts on mastering the basic sentence patterns of the language. Once these patterns had been memorized, new vocabulary could be slotted in. In recent years, the teaching of vocabulary has assumed its rightful place as a fundamentally important aspect of language development, which is partly due to the influence of comprehension-based approaches to language development, partly due to the research efforts of influential applied linguistics, and partly due to the exciting possibilities opened up by the development of computer-based language corpora (p. 103).

Richards and Renandya (2002), on the contrary, assert that vocabulary learning was often left to look after itself and received only incidental attention in textbooks and language programs (p. 255). However, the status of vocabulary seems to be changing now. For one thing the notion of a word has been broadened to include lexical phrases and routines, and it has been suggested that in the initial stages of learning, these play a primary role in communication and acquisition. In addition, access to lexical corpora has made it possible for applied linguists to access huge samples of language in order to find out how words are used, both by native speakers and by second language learners. Such research has enabled applied linguists to identify common patterns of collocation, word formation, metaphor, and lexical phrases that are part of a speaker's lexical competence (p. 255).

DeCarrico (2001) explains that while grammatical and phonological structures have been given more emphasis, and are considered as the starting point in the learning process, vocabulary building has been downgraded. This underestimated status for vocabulary building results from the adoption of language teaching approaches based on the American linguistic theories dominant from the 1940s to 1960s. Al-Jabri (2005) also states that "teaching vocabulary has not been a central goal of English language instruction during the very active decades of the mid-twentieth century, nor was it considered a priority in the larger context of language teaching and learning at that time". Consequently, learners have often faced communication barriers in various situations which require control over a large variety of vocabulary rather than a narrow range of syntactic structures. However, this dominant view has been challenged since the late 1970s and early 1980s. More emphasis and considerable attention have been directed to vocabulary building since that time. Educational researchers and psychologists began, even early in that period, to produce a number of word frequency studies in different languages in response to the increasing need for vocabulary control in language courses (Stern, 1983).

Richards (1976) states that "the teaching and learning of vocabulary have never aroused the same degree of interest within language teaching as have such issues as grammatical competence, contrastive analysis, reading, or writing" (p. 77). It was not until two decades later with the publishing of the book titled *The Lexical Approach* (Lewis, 1993) when the crucial role of lexis was recognized. Thus, Lewis (1993, p. iv) claims that "language consists of grammaticalized lexis, not lexicalized grammar". Nowadays, the presence of lexis in L2 teaching is no longer debated. Instead, concerns centered on what vocabulary to teach and how to teach it (Lopez-Jimenez, 2009). Accordingly, Willis (1990) summed up the importance of vocabulary learning as "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed". In other words, if you spend most of your time studying grammar, your English will not improve very much; and you will see most improvement if you learn more words and expressions; one can say very little with grammar, but almost anything can be said with words. Finally, two key developments challenged the hegemony of

grammar; one was the *lexical syllabus*, a syllabus based on those words that appear with a high degree of frequency in spoken or written English; the other was recognition of the role of *lexical chunks* in the acquisition of language and in achieving fluency. Both these developments were fuelled by discoveries arising from the new science of *corpus linguistics* (Thornbury, 2002, p. 14)

Explicit Instruction of Vocabulary

According to Nation (1990; cited in Paribakht & Wesche, 1996), intentional learning through instruction significantly contributes to vocabulary development. Hunt and Beglar (2002) contend that explicit instruction of vocabulary depends on identifying specific vocabulary acquisition targets for the learner. Information is now available on what such targets should be for learners at different proficiency levels. For example, a target of 4500 words is identified in the *Cambridge English Lexicon* (Hindmarsh, 1980), a core vocabulary for secondary school learners in EFL contexts.

Explicit instruction is essential for beginning students whose lack of vocabulary limits their reading ability. Coady (1997) calls this the beginner's paradox; he wonders how beginners can "learn enough words to learn through extensive reading when they do not know enough words to read well (p. 229). His solution is to have students supplement their extensive reading with study of the 3000 most frequent words until the words' form and meaning become automatically recognized (i.e., sight vocabulary). The first stage in teaching these 3000 words begins with word pairs in which an L2 word is matched with an L1 translation.

Ellis (1995) identifies two main points on explicit vocabulary learning; (1) A *strong* explicit-learning hypothesis holds that a range of metacognitive strategies such as planning and monitoring are necessary for vocabulary learning; in particular, the greater the depth of processing involved in the learning, the more secure and long term the learning is likely to be. This hypothesis draws strongly on Craik and Lockhart's (1972) work on levels of processing and cognitive depth; the conclusion is that the more processes involved in the learning of a word, the superior the retention and recall will be particularly influential. (2) A *weak* explicit-learning hypothesis holds that learners are active processors of information and that a range of strategies are used to infer the meaning of a word, usually with reference to its context. Most vocabulary is learned from context by inference strategies and learners retain better words learned in context than in marginal glosses or explanation on the page (Carter, 2001).

Semantically Related words: Linguistic Perspective

Since vocabulary consists of a series of interrelating systems and is not just a random collection of items, there seems to be a clear case for presenting items to a student in a systematized manner which will both illustrate the organized nature of vocabulary and at the same time enable him to internalize the items in a coherent way (Gairns & Redman, 1986). Many authors of ESL textbooks have not mentioned their rationale for

presenting new vocabulary items in semantic clusters; an exception is Seal (1991) who provides two reasons for his use of semantic clusters. First, he claims that they give students the sense of structure they need. Second, he feels that this organization may help students guess the meaning of new words within the lexical sets; of course, where one can easily see that a word's class membership might be clear from its inclusion in a semantic set, it is difficult to see how the specific meaning could be guessed from such membership. Gairns and Redman (1986) believe that presenting L2 words grouped in semantic clusters helps the learner to understand the semantic boundaries or even to see where meaning overlaps for learning the limits of using an item (p. 32). Thus, semantic clustering is thought to help the learner see the distinctions between semantically related words. They also claim that this grouping can provide a clear context for practice (p. 69); it can also help speeding up the learning process and facilitate learning (p. 89).

Semantically Related words: Methodology Perspective

Learning new words in semantic clusters serves the needs of two approaches in second language acquisition: the *structure-centered methodology* and the *learner-centered methodology*. According to Tinkham (1993, p.372), curriculum designer of a structure-centered persuasion, especially those driven by a syntax-based methodology, consider semantic clusters to fit nicely into the open slots within structures targeted by substitution drills or tables, and thus allows students to change the meaning of the sentences they produce.

For example, in Unit 2 of *Connect 1* by Richards and Barbisan (2005), five types of nationalities, including (*Canada, Brazil, Japan, Mexico and Peru*) are presented as fillers for the slots, "*Nicole is from*"; "*Tyler is from*", etc. (p. 24). Another example is Unit 12 of *Interchange (Intro)* (Richards, 2005); *headache, backache, earache, toothache* and *stomachache* are possible fillers in the sentences, "*I have a*" (p. 79). Through these substitution activities with semantic clusters, learners are able to become familiar with specific syntactic structures.

Many curriculum writers also followed a more learner-centered approach, producing the course syllabus based on what they perceive language learners need to communicate in English, in terms of situations (e.g., *going to see a doctor*), notions (e.g., *expressions of time, location*), or functions (e.g., *requests*). These course designers choose vocabulary according to various situations, notions and functions, and many semantically related words seem to inevitably appear in the same situations, notions or functions (Tinkham, 1997). For example, *sick, dizzy, nauseous, and tired* are all adjectives learners might use to describe their health (Tinkham, 1993).

Further justification for semantic clusters may be found in *notional syllabi*. The notional syllabus is an idea proposed by Wilkins (1976) who provides justification for semantic clusters through focusing on *what speakers communicate through language*. The basic

idea is that *content supersedes form*. Therefore, Wilkins suggests a number of notional categories and lists expressions which would fit within each category. Once again, as with thematically inspired syllabi, the expressions grouped in notional syllabi tend to form semantic clusters. For example, *confirm, corroborate, endorse, support, assent, acquiesce, agree, concur, consent, ratify, and approve* are listed under the category "agreement". According to Wilkins "it is probably necessary to establish a number of themes around which semantically related items can be grouped and from which in constructing a notional syllabus an appropriate selection can be made" (p. 76). Once the idea of a notional syllabus became popular in second language development, it became the norm to use semantic clusters in ESL textbooks based on this approach.

Thematic clustering

Investigating the way speakers organize words in their mental lexicons, lexical semanticists proposed that speakers subconsciously organize words in "frames" or "schemas" with reference to the speaker's background knowledge rather than in semantic fields (Fillmore, 2006). A cluster of words drawn from such a frame or schema might include *frog, pond, hop, swim, green, and slippery*; words of different parts of speech that are all closely associated with a common thematic concept (in this case, *frog*). Such words reflect the schemata that English speakers share for a word (Celce-Murcia & Olshtain, 2000). Based on associative strength, clusters of this sort are cognitively rather than linguistically derived, and consequently would appear to fit most easily into learning-centered second language acquisition programs, which are more concerned with learning processes than with linguistic analysis.

Thematic clustering depends upon psychological associations between clustered words and a shared thematic concept. For example, *Haunted, ghost, yell, moonlight, and groan*, are said to be thematically related, since they are all words drawn from a *haunted house* schema. Neither the *Interference theory* nor the *Distinctiveness Hypothesis* attempted to predict the effect of thematic clustering. Although researchers have been concerned with similar words in studies of interference, word clusters such as *frog, green, swim, and slippery* have not been their concern when seeking evidence for interference. Similarly, sets of words such as *car, raceway, team, champion, and drive*, which did not attract researchers of the *Distinctive Hypothesis* to study their learnability (Al-Jabri, 2005). Finally, Folse (2004) rephrases thematic organization: "another way to organize vocabulary is by looser themes. In thematic sets of words, words that naturally occurred when discussing a given theme are included. The words are not synonyms, antonyms, coordinated or superordinates of each other. The words have no obvious relationship to each other; their only connection is that they are all "true" with regard to the theme. For example, under the theme "replanning a vacation", a learner might encounter the words *ticket, internet, to book, a reservation, to select, a seat, an aisle seat, meal, arrival time, gate, jet and silver*".

In short, the arguments for presenting related lexical items together in sets are mainly based on theoretical rather than experimental evidence. Words can be related and grouped in various ways. This type of word grouping is called clustering. There are two basic forms: linguistically based clustering or words grouped in lexical sets such as body parts or words grouped by sense relations such as synonyms, as well as cognitively based or thematic clustering.

METHODOLOGY

This quasi-experimental study involved a dependent variable (i.e., vocabulary test scores) and two independent variables (i.e., types of word grouping and levels of students). Because of having more than one independent we used a factorial design (Zohrabi & Farrokhi, 2006). The present study aimed at investigating the effect of presenting words in semantic and thematic sets on Persian learners of English at elementary and intermediate levels.

Participants

There were 40 participants from *elementary level* (learners at Hekmat Institute in Miandoab, Iran with the age range of 14 to 18 years); they were selected through a placement test from among 60 learners by taking the proficiency Key English Test (KET). Finally, 40 subjects were selected the elementary level participants. As for the 40 *intermediate level participants* (from College Institute in Miandoab, Iran with the age range of 20 to 24 years), the same procedure was adopted; 65 learners took the proficiency Preliminary English Test (PET); finally, there were 40 intermediate level participants. All participants had a bilingual background (i.e. Turkish and Persian). All participants of both levels had a pretest. In each level, we had four types of pretest (semantic sets, unrelated sets, associated sets and unassociated sets). Each test included 12 multiple questions. Therefore, we had eight pre-test in this study.

Procedure

The participants of both level had seven sessions treatment. The participants of each level studied eight reading passages. In other words, we had 16 reading passages in this study. Each level studied two reading passage for each word groups, i.e. reading passage of semantic sets, unrelated sets, associated sets and unassociated sets, respectively. In each reading, we presented six new words of each type that we underlined them; therefore, we had 12 new words for each word groups. All new underlined words of semantic sets and unrelated sets were nouns; while, all the new words of associated sets and unassociated sets were from different parts of speech including noun, adjective, and verbs. These passages included before-you-read, reading, and after-you-read parts. Also, participants of each level took posttests after studying reading passages. We had four types of posttests, i.e. semantic sets, unrelated sets, associated sets and unassociated sets for each level. Therefore, we had eight posttests. Each posttest had 12 multiple choice questions.

Data Analysis

In order to calculate the reliability of teacher-made tests (the pretest and posttest), Pearson Reliability test was used in SPSS 11.5. Also, in order to investigate the effect of four types of word grouping at each level and at both levels, Repeated ANOVA was used to calculate these effects. Finally, in order to compare each word groups of elementary and intermediate levels together (e.g., semantic sets of both groups together), One-way ANOVA was used.

RESULTS

In order to show the reliability of teacher-made tests (the pretest and the posttest), a pilot study was conducted before the treatment stage. Forty elementary and 40 intermediate EFL learners took pretests and posttests of each word sets twice; the second set of tests was given a week later. The test-retest reliability was calculated through Pearson product-moment correlation coefficient, where the coefficient of pretests 1 and 2 of semantic sets in the Elementary level was 0.760. Also, the reliability of pretests of unrelated sets ($r=0.897$), associated sets ($r=0.713$) and unassociated sets ($r = 0.788$) in the elementary level were calculated; all values came up to be within the acceptable range of reliability. Similarly, the reliability of four types of posttests in the elementary level were calculated and the results were ($r = 0.883$ for semantic sets), ($r = 0.756$ for unrelated sets), ($r = 0.858$ for associated sets) and ($r = 0.859$ for unassociated sets). For the intermediate level, the same procedure was followed and the results showed an acceptable level of reliability of pretests of semantic sets ($r = 0.915$), unrelated sets ($r = 0.835$), associated sets ($r = 0.822$) and unassociated sets ($r = 0.868$); as for pretests, reliability coefficients were reported for semantic sets ($r = 0.873$), unrelated sets ($r = 0.657$), associated sets ($r = 0.949$) and unassociated sets ($r = 0.891$). All in all, the teacher-made tests showed satisfactory levels of reliability.

Lexical Sets and Learners' Levels

In order to examine the difference between presenting new L2 vocabulary in semantically related sets on both levels, one-way ANOVA was conducted; the results showed significant differences between means of semantic sets at elementary and intermediate levels ($F(1)=4.64$, $p=0.34$). Therefore, presenting new L2 vocabulary in semantically related sets have an effect on students of both elementary and intermediate levels. However, when one-way ANOVA was used to compare mean differences of unrelated sets in both levels, significant differences were observed between unrelated sets in both levels ($F(1)=1.12$, $p = 0.29$); in other words, presenting new L2 vocabulary in semantically unrelated sets did not have any effects on elementary and intermediate levels of students.

Also, one-way ANOVA was conducted to compare mean differences of associated sets in both levels, significant differences were observed between means of associated sets in elementary and intermediate levels ($F(1)=3.87$, $p= 0.043$). Therefore, presenting new

L2 vocabulary in thematically associated sets affects elementary and intermediate levels of students. However, repeating one-way ANOVA to compare mean differences of unassociated sets in both levels showed that presenting new L2 vocabulary in thematically unassociated sets did not affect vocabulary learning at elementary and intermediate levels ($F(1)=3.07, p=0.08$).

Lexical Sets in the Elementary Level

A repeated measures ANOVA was conducted to show the effect of the four types of lexical sets in elementary-level participants. The mean of semantic sets (7.53 ± 1.80) was the least, and the mean of associated sets (10.18 ± 1.26) was the highest. Also, the mean of unrelated sets (8.26) was higher than that of the unassociated set (8.06). Also, there were significant differences between four types of word groups at this level ($F(3,117) = 27.87, p = 0.00$) (Table 1); in other words, presenting new English words in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets affected learning vocabulary of students in the elementary level.

Table 1. Repeated ANOVA of four types of word clustering in the Elementary Level

Source	Type I Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
factor						
Sphericity Assumed	160.850	3	53.617	27.862	.000	.417
Greenhouse-Geisser	160.850	2.646	60.792	27.862	.000	.417
Huynh-Feldt	160.850	2.856	56.315	27.862	.000	.417
Lower-bound	160.850	1.000	160.850	27.862	.000	.417
Lower-bound	225.150	39.000	5.773			

The mean of four types of word clustering were also compared at elementary level. The differences between factor 1 (semantic) and factor 2 (unrelated) with mean differences (-0.72) was significant ($p=0.03$). Also, the differences between factor 1 (semantic) and factor 3 (associated) with mean differences (-2.66) was significant ($p=0.00$). Finally, the differences between factor 1 (semantic) and factor 4 (unassociated) with mean differences (-0.42) was significant too ($P=0.16$). Also, the mean of factor 2 with other factors were compared, where the differences between factor 2 (unrelated) and factor 3 (associated) with mean differences (-1.93) was significant ($P=0.00$). But the difference between factor 2 (unrelated) and factor 4 (unassociated) was not significant ($P=0.06$). Also, the difference between factor 3 (associated) and factor 4 (unassociated) was significant ($P=0.00$). In sum, differences between semantic sets with unrelated sets,

semantic with associated sets, semantic with unassociated sets, unrelated with associated sets, and associated with unassociated sets were significant; however, the difference between unrelated with unassociated sets was not significant.

Lexical Sets in the Intermediate Level

To explore the effect of presenting new English words in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets had an effect on the vocabulary learning of intermediate-level students, a repeated measures ANOVA was conducted; the mean of semantic sets (7.92 ± 1.60) was the least and the mean of associated sets was the highest.

Table 2. Repeated ANOVA of four types of word groups in the Intermediate Level

	Source	Type I Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
factor	Sphericity Assumed	57.519	3	19.173	22.836	.000	.369
	Greenhouse-Geisser	57.519	2.107	27.298	22.836	.000	.369
	Huynh-Feldt	57.519	2.230	25.790	22.836	.000	.369
	Lower-bound	57.519	1.000	57.519	22.836	.000	.369
Error (factor)	Sphericity Assumed	98.231	117	.840			
	Greenhouse-Geisser	98.231	82.175	1.195			
	Huynh-Feldt	98.231	86.981	1.129			
	Lower-bound	98.231	39.000	2.519			

Also, the differences between four word groups in the intermediate level were compared. Significant differences were observed between Factor1 (semantic) and factor 2 (unrelated) with the mean difference (-0.90); between Factor 1 (semantic) and factor 3 (associated) with the mean difference (-1.68), there were significant differences; also, factor 1 (semantic) and factor 4 (unassociated) showed a significant difference (-0.66) ($P < 0.05$). Additionally, the differences between factor 2 and factor 3, and factor 3 and factor 4 were significant too. The only non-significant difference was found between factor 2 and factor 4 ($P = 0.06$). On the whole, like the elementary level, differences between semantic with unrelated sets, semantic with associated sets, semantic with unassociated sets, unrelated with associated sets, and associated with unassociated sets was significant; however, the differences between unrelated with unassociated sets was not significant (Table 2).

Effects on Participants of the Elementary and Intermediate Levels

In order to explore the effect of presenting new English words in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets on the participants of both levels, repeated measures ANOVA was conducted. The means of semantic sets at both levels was the least, and means of associated sets at both levels was the highest. Also at both levels, the means of unrelated sets was higher than those of the unassociated sets.

In examining the effects of elementary and intermediate levels on the learning of four types of word groups, significant differences were found ($F(1) = 6485.12, P = 0.00$). In other words, there were significant differences between the two levels as regards the four types of word groups. Therefore, presenting new English words in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets affected students of both elementary and intermediated levels. However, there were significant differences among four types of word sets at elementary and intermediate levels ($F(3, 234) = 48.412, P = 0.00$). In other words, there were significant differences among four types of word group at elementary level ($F(3, 234) = 4.26, p=0.006$); in fact, there were significant differences among four types of word group at intermediate level too. Therefore, presenting new English words in semantically related sets, semantically unrelated sets, thematically associated sets and thematically unassociated sets affected students of both elementary and intermediated levels.

DISCUSSION

In the present study, the effects of presenting new L2 vocabulary in semantic and thematic sets on vocabulary learning of Persian learners of English were investigated. The statistical analyses showed that participants recalled more words from the thematic sets, while the semantic sets were the least to recall at each level. These differences were more apparent at the elementary level than in the intermediate. Also, participants recalled more words from semantically unrelated sets than from the thematically unassociated ones. Therefore, a scaled pattern of recalling may appear as: thematically associated sets, semantically unrelated sets, thematically unassociated sets and semantically related sets. On the whole, there were significant differences among four types of word groups at elementary and intermediate levels.

The findings of the present study are compatible with the study of Tinkham (1993), who investigated the effect of presenting L2 students with new lexis grouped together in sets of semantically and syntactically similar words; he compared the learning rates of subjects memorizing semantically related and semantically unrelated new L2 words in two experiments. He discovered that students had more difficulty learning new words in semantic clusters than learning unrelated words together. Waring (1997) also did a replicated research which confirmed the findings of Waring (1997) concluding that

presenting new words that share a common semantic superordinate in a set of words to learn does interfere with learning. The present findings are compatible with Tinkham's (1997) study, where the impact of the interference effects on learning words were investigated both in semantic and thematic clusters. The subjects learned the paired words of English and artificial words, either in semantic clusters, semantically unrelated sets, thematic clusters, or in thematically unrelated sets; the results revealed that the new L2 words, arranged semantic clusters, were learned with more difficulty than those in unrelated sets; while new L2 vocabulary items in thematic clusters were more easily learned than new L2 vocabulary items arranged in thematically unassociated sets.

Also, the finding of this study is in line with the finding of Peterson (1997). His experiment involved the students in learning one of two lists of words on a computer. One list was semantically related six paired- words in L1 and L2, while the other was six semantically unrelated words. He discovered that learning words in semantic clusters was clearly of more difficulty than learning words in unrelated sets. Finally, the findings of the present research support the findings of Mirjalali and colleagues (2012), Finkbeiner and Nicol (2003), Al-Jabri (2005), Erten and Tekin (2008) and Papathanasiou (2009). Schneider, Healy and Bourne (1998) conducted two experiments which brought contradictory finding from the previous studies; they found that learning related words together was easier than learning a set of unrelated words initially, but seemed to hinder subsequent relearning and long-term retention. Finkbeiner and Nicol's (2003) study strengthened conclusions about undesirable effect of introducing L2 vocabulary in sets of semantically related items. In their studies, participants learned 32 new artificial L2 labels for concepts from four different categories in either related or unrelated condition. The conclusion was that presenting semantically grouped L2 words to learners had a deleterious effect on learning. Al-Jabri (2005) compared the effects of semantic and thematic clustering on learning English vocabulary, and investigated whether thematic grouping or the use of context facilitates vocabulary learning; he showed that participants recalled more words from the thematic list than from the semantic list. Words from the semantic list were the least to be recalled by all participants. Our study was compatible with all results of these scholar studies.

The finding of this study supported the study of Erten and Tekin (2008), who examined the effects of the semantic cluster on learning vocabulary. The subjects learned two word sets. The semantically unrelated vocabularies were 20 animal names and 20 names of foods. The semantically unrelated vocabulary was all concrete nouns taken from various semantic categories. The results revealed a statistically significant advantage for learning semantically unrelated vocabulary. And finally this study is in line with the study of Papathanasiou (2009), who investigated learning sets of semantically related and unrelated vocabulary by intermediate and novice English learners. The results showed that the semantic set caused additional difficulties for the beginners but had no effect on the intermediate learners of FL.

CONCLUSION

It can be concluded from the present study that presenting new words in semantic sets can interfere with learning. Synonyms, antonyms, hyponyms, and other lexical relations can cause confusion, and thus require extra time and effort. Although semantically related items may call for deeper levels of semantic analysis, the presumably lower workload and reduced interference from co-activated lexical items involved in analyzing semantically unrelated vocabulary items appears to outdo the heavy workload placed upon language learners by semantically related words (Hashemi & Gowdasiaei, 2005). In sum, learning new L2 vocabulary items in semantically related sets appeared to serve as a detriment to the learning of vocabulary while learning words in thematically associated sets appeared to serve as a facilitator for learning. The negative effect of semantically related sets upon L2 vocabulary would be anticipated by researchers concerned with interference theory, and the positive effect of thematically associated sets would be anticipated by researchers concerned with the effects of schemata upon learning. Also, the higher the proficiency levels of students, the lower the effect of learning words in semantic sets and thematic sets will be. In simpler terms, the negative effect of learning vocabulary in semantically related sets and positive effect of learning new L2 words in thematically associated sets was more apparent at elementary level as compared to the intermediate level.

As for implications, the findings may prove helpful for material developers, especially those interested in lexical sets and vocabulary development. From this perspective, developing exercises to help learners avoid interference can benefit from this study; it is expected that more thought is given to the theoretical backbone of vocabulary books before publishing, and textbooks are viewed as a source of facilitating learning. In future research, it might be appropriate to examine real textbooks and real discourse data to reach a more natural and realistic results in foreign language or second language instruction environments.

REFERENCES

- Al-Jabri, S. (2005). *The effects of thematic and thematic clustering on learning English vocabulary by Saudi students*. Unpublished PhD dissertation. Indiana University of Pennsylvania.
- Amer, A. A. (2007). Advanced vocabulary instruction in EFL. *The Internet TESL Journal*, 8(11), Available online at <http://iteslj.org/Articles/Amer-Vocabulary/>
- Carrell, P., & Grabe, W. (2002). Reading. In N. Schmitt. (Ed.), *An introduction to applied linguistics* (pp. 233–250). New York: Oxford University Press.

- Carter, R. (2001). Vocabulary. In R. Carter & D. Nunan (Eds.), *The Cambridge guide to teaching English to speakers of other Languages* (42-47). Cambridge: Cambridge University Press.
- Celce-Murcia, M., & Olshain, E. (2000). *Discourse and Context in Language Teaching. A Guide for Language Teachers*. Cambridge: Cambridge University Press.
- Chepyshko, R., & Truscott, J. (2009). *Semantic category effects in L2 vocabulary learning: A MOGUL perspective*, retrieved April 2014, from www.fl.nthu.edu.tw/old_site/FL2/thesis/tesol/945209.pdf
- Coady, J. (1997). L2 vocabulary acquisition through extensive reading. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition* (225-237). Cambridge: Cambridge University Press.
- Craik, F., & Lockhart, R. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior*, 11, 671-684.
- DeCarrico, J. S. (2001). Vocabulary learning and teaching. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (3rd ed., pp. 285-299). Boston: Heinle and Heinle.
- Ellis, N. (1995). The psychology of foreign language vocabulary acquisition: Implications for CALL. *Computer Assisted Language Learning*, 8(2-3), 103-128.
- Erten, I. H., & Tekin, M. (2008). Effects of vocabulary acquisition of presenting new words in semantic sets versus semantically unrelated sets. *System*, 36(3), 407-422.
- Fillmore, C. J. (2006). Frame semantics. In K. Brown (Ed.), *Encyclopedia of language and linguistics* (2nd ed., pp. 613-620). Oxford: Elsevier.
- Finkbeiner, M., & Nicol, J.L. (2003). Semantic category effects in L2 word learning. *Applied Psycholinguistics* 24 (3), 369-383.
- Folse, K. (2004). *Vocabulary myths*. Ann Arbor: The University of Michigan Press.
- Gairns, R., & Redman, S. (1986). *Working with words*. Cambridge: Cambridge University Press.
- Hashemi, R. H., & Gowdasiari, F. (2005). An attribute-treatment interaction study: Lexical sets versus semantically unrelated vocabulary instruction. *Regional Language Center Journal*, 36(3), 341-361.
- Hindmarsh, R. (1980). *Cambridge English Lexicon*. Cambridge: Cambridge University Press.

- Hunt, A., & Beglar, D. (2002). Current research and practice in teaching vocabulary. In J. C. Richards & W. A. Renandya (Eds.), *Methodology in language teaching: An anthology of current practice* (pp. 295-300). Cambridge: Cambridge University Press.
- Lewis, M. (1993). *The Lexical Approach: The state of ELT and the way forward*. London: Language Teaching Publication.
- Lopez-Jimenez, M.D. (2009). The treatment of vocabulary in EFL textbooks. *Estudios de Linguística Inglesa Aplicada (ELIA)* 9, 59-81.
- Mirjalili, F., Jabbari, A. A., & Rezai, M. J. (2012). The Effect of Semantic and Thematic Clustering of Words on Iranians' Vocabulary Learning. *American International Journal of Contemporary Research*, 2(2), 214-222.
- Nagy, W. E., & Scott, J. A. (1990). Word schemas: expectations about the form and meaning of new words. *Cognition and Instructions*, 7(2), 105-127.
- Nation, P. (1990). *Teaching and learning vocabulary*. New York: Newbury House.
- Nation, P. (2000). Learning vocabulary in lexical sets: dangers and guidelines. *TESOL Journal*, 9(2), 6-10.
- Nunan, D. (2001). *Second language teaching and learning*. Beijing: Foreign Language Teaching and Research Press.
- Papathanasiou, E. (2009). An investigation of two ways of presenting vocabulary: The effects of semantic clustering on L2 word learning: Evidence from research study. *ELT Journal*, 63 (4), 313-322.
- Paribakht, T. S., & Wesche, M. B. (1999). Reading and incidental L2 vocabulary acquisition. *Studies in Second Language Acquisition*, 21, 195-224.
- Richards, J. C (2005). *Interchange (Intro) (3rd Ed.)*. Cambridge: Cambridge University Press.
- Richards, J. C., & Barbisan, C. (2005). *Connect 1*. Cambridge: Cambridge University Press.
- Richards, J. C., & Renandya, W. A. (2002.). *Methodology in language teaching: An Anthology of current practice*. Cambridge: Cambridge University Press.
- Schneider, V. I., Healy, A. F., & Bourne, L. E., Jr. (1998). Contextual interference effects in foreign language vocabulary acquisition and retention. In A. F. Healy and L. E. Bourne, Jr. (Eds) *Foreign language learning: psycholinguistic studies on training and retention* (pp. 77-90). Mahwah, NJ: Erlbaum.
- Seal, B. D. (1991). Vocabulary learning and teaching. In M. Celce-Murcia (Eds.), *Teaching English as a second or foreign language*. (pp. 296-311). Boston: Heinle and Heinle.

- Stern, H. H. (1983). *Fundamental concepts of language teaching*. Oxford: Oxford University Press.
- Thornbury, S. (2002). *How to Teach Vocabulary*. Beijing: World Affairs Press.
- Tinkham, T. (1993). The effects of semantic clustering on the learning of second language vocabulary. *System*, 21(3), 371-380.
- Tinkham, T. (1997). The effects of semantic and thematic clustering on the learning of second language vocabulary. *Second Language Research*, 13(2), 138-163.
- Waring, R. (1997). The negative effects of learning words in semantic sets: A replication. *System*, 25, 261-274.
- Wilkins, D. A. (1976). *Notional syllabuses*. London: Oxford University Press.
- Willis, D. (1990). *The lexical syllabus*. London: Collins.
- Zohrabi, M., & Farrokhi, F. (2006). *A dictionary of research terms in applied linguistics*. Tabriz: Mehre Eiman Publication.