

## **A controversy in presenting new vocabulary in an EFL class: semantically related sets (SR), semantically unrelated sets (SU), thematically related sets (TR)**

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Submitted: 09.04.2014.

Accepted: 01.11.2014.

### **Abstract**

The present study was designed to investigate if there is a significant difference among SR clustering, SU clustering and TR clustering of vocabulary presented to Turkish EFL learners, and if there is, which way of presentation would be a more useful tool in a Turkish EFL classroom. A total of 46 preparatory school students, studying at Anadolu University School of Foreign Languages, participated in this study. The participants were required to provide Turkish equivalents of the 15 new words presented in semantic, thematic or totally unrelated sets that they were encouraged to learn through word cards. The data gathered from 37 of these participants were analyzed. The results of the delayed tests revealed that semantically related sets (SR) significantly differed from unrelated and thematic sets, and helped the participants learn and recall more words, while the results of the immediate tests did not yield to a statistically significant difference.

**Keywords:** Vocabulary presentation, semantic clustering, lexical sets, thematic clustering.

### **Introduction**

*“Without grammar very little can be conveyed, without vocabulary nothing can be conveyed.”*

*David Arthur Wilkins, 1972*

As the quotation above lays bare, vocabulary is vitally important for the generation and maintenance of communication, which is the preliminary purpose of learning a language. If we regard communication, either oral or written, as a wall that we put up with the advent of every kind of new knowledge related to language, without a shadow of a doubt, words constitute the bricks of this wall. Despite this importance,

however, vocabulary has only recently gained recognition. As Decarrico points out (2001):

Vocabulary learning is central to language acquisition, whether the language is first, second or foreign. Although vocabulary has not always been recognized as a priority in language teaching, interest in its role in second language learning has grown rapidly in recent years, and specialists now emphasize the need for a systematic and principled approach to vocabulary by both the teacher and the learner. (p.285)

Perceiving vocabulary differently from time to time may be attributed to the historical development process of language learning and teaching in general. Although vocabulary teaching was notably important when Grammar Translation Method and Reading Approach were the leading languageteaching methodologies (the early decades of the 20<sup>th</sup> century), the emergence of Audio-lingual Method had a devastating effect on vocabulary teaching and research, with the argument that too much vocabulary learning would distract learners from the main purpose of language learning, which was, at that time, basic habit formation of phonological and grammar patterns. 1980s and after, however, have seen a resurgence of interest in vocabulary instruction (Seal, 1990). Now, after having been of secondary importance for a period of time, vocabulary instruction is coming into prominence with “the teachers and researchers waking up to the realization that vocabulary is an important area worthy of effort and investigation” (Seal, 1990:309).

Besides the significance of vocabulary instruction, yet another reality of the issue that we need to embrace is that learning vocabulary poses a great challenge for EFL learners due to the amount of the words that a learner needs to know and the complexity of learning process. As Schmidt(2000)alsospecifies, languages include enormous numbers of words, “something that was probably already obvious from the thickness of your dictionary.” (p.6) It is certainly not possible to learn all of these words and “the learning process is not an all-or-nothing process in which a word is suddenly and completely available for use.” (Schmidt, 2000:6)However, regarding that the significance of vocabulary has been recognized, only recently though, language teachers as well as authors and researchers in the field are faced with how learners can best learn as many vocabulary items as possible. In an effort to seek answers to this question, studies on such current issues as implicit learning versus explicit learning, presenting vocabulary in context versus in isolation, monolingual dictionaries versus bilingual dictionaries, etc. have emerged. Of these current issues, an equally controversial one is presenting new vocabulary in semantic sets versus thematic sets, which is the argument that this paper endeavors to tackle.

As will be mentioned later, not many studies have been recorded on this controversial issue in Turkish context, which was the starting point of the present study. In addition to the scarcity of related studies in Turkey, especially in preparatory classes, the importance of how vocabulary is presented as well as what is presented and how it is taught, on which a good number of studies have already been carried out, played a crucial role on the emergence of this study. As for the significance of this study, it is expected to reveal beneficial results for learners, teachers and textbook writers with regard to the way of vocabulary presentation that can pave the way for the most effective vocabulary learning. Below each side of this argument, namely semantic clustering and thematic clustering of vocabulary, is discussed referring to related empirical studies.

## **Review of Literature**

### **Semantic Clustering**

Semantic clustering of vocabulary simply means presenting words that share the same semantic and syntactic features, generally grouped under a headword (e.g. flower names or clothing items). (Mirjalili, Jabbari, Rezai, 2012) To be more precise, they share the same semantic features, which means that they have similar meanings. As for what is meant by “they share the same syntactic features,” it indicates that they conform to the rules of syntax, a branch of linguistics that is interested in the way in which words are put together in sentences. To give an example, *dish-bowl-plate* and *shirt-jacket-sweater* are semantic clusters, with the headwords being kitchen utensils and clothing items respectively. (Tinkham, 1997) They have similar meanings (share semantic features) and they all belong to the same part of speech (share syntactic features). Below semantic clustering is discussed referring to both supporters and opponents considering that there is dichotomy in the research area regarding its use in vocabulary teaching.

As AlShaikhi (2011) indicates, despite many a textbook writer who presents new vocabulary in semantic sets without empirical basis, Seal (1990) explains the reasons why he prefers such presentation in his book *American Vocabulary Builder 1: Semantic clustering makes more sense in terms of vocabulary structure and progress and enables learners to guess the meanings of the unknown words as they are presented with other words that share similar characteristics. Other writers who provide justification for semantic clustering include Neuner (1992) and Dunbar (1992). Neuner maintains that learners need less effort to learn words in semantic sets and it is easier to retrieve the words learned in such a way from memory. Similarly, Dunbar puts forward that semantic sets provide learners with an opportunity to see how information is organized and stored in the brain and also enables learners to notice how the words are similar or different.*

All in all, employing semantic sets in vocabulary teaching and thus textbooks dates back to the advent of notional/functional syllabuses, developed by Wilkins (1976). As Nunan (2001) states:

“Notions are general conceptual meanings such as time, cause and duration, while functions are the communicative purposes that are achieved through language such as apologizing, advising and expressing preferences (p.61).”

Considering that notions and/or functions are placed at the center of syllabus design, it seems inevitably easier to present new vocabulary in semantic sets.

Other authors and researchers, on the other hand, hold the very opinion that semantic clustering hinders vocabulary learning as words sharing similar syntactic and semantic features interfere with each other (Higa, 1963; Laufer, 1986; Nation, 2001). Nation (2002) provides language teachers with some guidelines regarding deliberate vocabulary learning through the use of word cards, which also includes a warning to avoid interference as follows:

“Make sure that words of similar meaning or of related meaning are not together in the same pack of cards. This means days of the week should not be all learned at the same time. The same applies to months of the year, numbers, opposites, words with similar meanings, and words belonging to the same category, such as items of clothing, names of fruit, parts of the body and things in the kitchen. These items interfere with each other and make learning much more difficult.” (p.42)

So as to base the opposing ideas to semantic clustering on scientific grounds, it is worth mentioning Interference Theory, developed by McGeoch (1992), which claims that two learning materials interfere with one another and consequently learning is impaired. As Baddeley (1990) indicates, “as similarity increases between targeted information and other information learnt either before or after the targeted information, the difficulty of learning and remembering the targeted information also increases” (Papathanasiou, 2009: 318). Concordantly, it seems unequivocally illogical to present word items sharing similar syntactic and semantic characteristics together.

In a similar vein, Distinctiveness Hypothesis by Hunt and Mitchell (1982) also links ease of learning to distinctiveness, in other words non-similarity, of the information to be learned. In the light of these two sound supports against semantic clustering, we can move on to a discussion of the third method of vocabulary presentation mentioned in this study.

### **Thematic Clustering**

Thematic clustering is grouping words that share the same thematic concept although they may not share the same syntactic features (Mirjalil, Jabbari, Rezai, 2012). To illustrate, as explained above, what is meant by “sharing the same syntactic features” is that words may not be used in a sentence in the same way; in other words, they may not belong to the same part of speech. Another characteristic of thematic clustering is that the words presented in thematic sets are cognitively associated. To give an example, *beach*, *sunny* and *swim* are thematic clusters (Tinkham, 1997), and although they share the same thematic concept, they all come from different parts of speech, noun, adjective and verb respectively.

Of the key principles of teaching vocabulary, such as presenting new vocabulary in rich contexts to provide learners with clues and multiple exposures to target vocabulary, one principle suggests “exercises and activities include learning words in word association lists” (Decarrico, 2001:288). Such cognitive associations of words are useful on the grounds that they reflect the relationships in the mind (Decarrico, 2001). Similarly, Haycraft (1987) holds the view that words related to a general theme should be offered together. For example, teaching such words as *brake*, *crash*, *door*, *engine*, *seat*, *speed*, *passenger*, *park* (the words that means of transportation have in common) is likely to come in more useful than teaching only all the means of transportation such as cars, trains, aeroplanes, etc. at a time. The logic behind this is that once the learners acquire the underlying vocabulary items, “the teacher can make the application wider and more useful, and can revise the vocabulary later in different situations” (p.46).

The scientific basis of thematic clustering can be attributed to Barlett’s Schema Theory, whose foundations he laid in 1932 (cited in AlShaikhi, 2011). Schema Theory simply maintains that knowledge is organized into units and stored accordingly. That is to say, just like in the mother tongue acquisition, a learner of a second or foreign language forms a schema with the advent of a new word and company of thematically related words expands this schema and thus the vocabulary knowledge of the learner. In this sense, Schema Theory can be said to closely relate to Haycraft and Deccario’s viewpoint mentioned above.

Having reviewed the concepts of semantic clustering, along with arguments for and against, and thematic clustering, along with their scientific bases, it is well worth peering over the empirical investigations into the issue.

## **Related Research Studies**

As a result of having placed much importance on teaching and learning vocabulary in recent years, a good number of studies have been conducted to gain insights into, in semantic and lexical terms, which way of presenting new vocabulary proves to be a more useful tool. (Tinkham, 1997, Waring, 1997; Finkbeiner and Nicol, 2003; Hashemi and Gowdasiaei, 2005; Erten and Tekin, 2008; Papathanasiou, 2009; Hoshino, 2010; Bolger and Zapata, 2011; Mirjalili, Fabbari and Rezai, 2012) It is worth mentioning that these studies have come up with different findings, although many of them are in favor of making use of either semantically unrelated sets or thematically related sets in vocabulary teaching.

To begin with, Tinkham (1997) explored the effects of semantic and thematic clustering on L2 vocabulary learning, and concluded that the latter facilitates vocabulary learning, whereas the former hinders it. He carried out two separate experiments in which he compared the effect of semantically related artificial words with that of unrelated artificial words and thematically related artificial words respectively. To reinforce the findings that semantically related sets are superior to semantically unrelated sets, but inferior to thematically related sets in terms of learning and recall of vocabulary, subject perceptions of relative difficulty of the aforementioned vocabulary sets were also recorded on a short questionnaire.

Waring (1997) carried out a close replication of Tinkham's, in which he paired Japanese words with artificial ones. This replication study also brought the facilitative effect of thematic related and unrelated sets over semantically related sets to the light, supporting the findings from the original study. Additionally, Waring, in his study, administered a trials-to-criterion test to find out which of the two sets in each experiment (1. Semantically related sets versus semantically unrelated sets, 2. Semantically related sets versus thematically related sets) was learned completely before the other one.

Similarly, Finkbeiner and Nicol (2003) conducted a study, in which the participants learned 32 new words in either a related or unrelated way, and were asked to translate these words at test. The researchers found that the participants translated the words learned in semantic sets more slowly and their translation performance was reported to be lower in proportion to the unrelated sets.

A similar study from Turkish context, by Erten and Tekin (2008), indicated that presenting words in semantically unrelated sets proved to be a more useful tool than presenting vocabulary in semantically related sets. The researchers also confirmed

that, with help of delayed post-test, the positive effect of the unrelated sets persisted in the long term. It was also established that the participants completed the test for semantically related vocabulary at a longer time than they did at the test for unrelated vocabulary, which demonstrates that it takes more time and is relatively more difficult to recall the words learned in semantically related sets.

Papathanasiou's(2009) action research, in which the Greek EFL learners learned and were tested on six related word lists (either sense relation such as synonyms, antonyms and homonyms, or topic relation) and six word lists that did not have any relationship at all, investigated which of the aforementioned methods was more useful. The findings suggested that presentation of unrelated vocabulary facilitated vocabulary learning among adult learners at beginner level.

A recent study whose findings are compatible with the previous ones listed here is Bolger and Zapata's (2011) extension of Finkbeiner and Nicol's research, in which they presented 32 artificial words in either semantically related or unrelated sets, embedding them in story context. Apart from making use of context, what makes this study differ from previous ones is that it included three phases, in the third of which a stimulus template was introduced to make stimulus match verification with eye-tracking possible. The researchers concluded that semantic relatedness inhibited vocabulary learning or delayed it. However, it was also noted that use of context moderated the negative effects of semantic clustering.

The latest of the related studies mentioned above was conducted by Mirjalili, Fabbari and Rezai (2012), who examined the effects of semantic, thematic and unrelated clustering of vocabulary for different proficiency levels, namely elementary, pre-intermediate and intermediate, under two instructional approaches of isolation and context. The results demonstrated that semantically related words were recalled least frequently, and the participants recalled more words when they were exposed to thematically related sets. Another finding of the study was that the participants performed better when the words were presented in isolation rather than in context. As a result, the findings of this study are also in line with Interference Theory, Distinctiveness Hypothesis and Schema Theory.

Despite the abundance of research in favor of presenting new vocabulary in semantically unrelated sets, there are few studies with findings in the opposite direction. Hashemi and Gowdasiaei(2005) managed a study to assess the effectiveness of lexical sets and semantically unrelated vocabulary instruction on 60 EFL learners from Iran. In contrast to the findings mentioned above, lexical sets proved to be more useful for upper- and lower-level students, with the upper-level students making more progress.

Accordingly, AlShaikhi (2011) obtained results against thematic clustering in his thesis study for his Master of Arts degree. Although he hypothesized that the most effective way would be thematic clustering among semantically related, semantically unrelated and thematically related vocabulary lists, the results revealed that semantically related and unrelated sets are better to gain new vocabulary with no statistically significant difference, whereas thematically related sets are the least effective.

The final research study to mention is by Hoshino (2010), who investigated which of the five types of word lists –namely, synonyms, antonyms, categorical, thematic and arbitrary (unrelated)–contributed to maximum learning of new vocabulary in a classroom setting. According to the results, neither semantically related (synonyms and antonyms) nor thematic lists, but categorical lists proved to be the most effective. As an example of a 10-item vocabulary list and test offered by the researcher indicates, “categorical list” means a list that contains two words from five different semantic categories; to exemplify, moth-wasp, asthma-diabetes, calf-chick.

In a nutshell, clashing points of view and research findings confront us with a controversy. Despite this controversy, most textbooks keep presenting new vocabulary in semantic sets with no empirical justification. Along with this being a controversial situation and the prevailing presentation of new vocabulary in a semantically related way, scarcity of related research studies in the Turkish context addressing preparatory school learners also paved the way for the present study to be conducted with the intention of seeing whether presenting vocabulary in semantically related, semantically unrelated and thematically related sets yields to statistically significant difference as the previous studies suggest. Therefore, the present study sought answers to the following research questions:

1. Is there a significant difference between SR clustering, SU clustering and TR clustering of vocabulary presented to Turkish EFL learners?
2. If there is, which way of presentation would be a more useful tool in a Turkish EFL classroom?

## **Methodology**

### **Participants**

Forty-six Turkish EFL students studying at the preparatory school of Anadolu University participated in the present study. According to Common European Framework of References for Languages (CEFR), the participants were at B2 level. However, Anadolu University School of Foreign Languages prefers to split

B1 and B2 levels into two as B1.1 - B1.2 and B2.1 - B2.2, aiming to elaborate the learning outcomes for each level and better equip the learners with these outcomes. In light of this fact, the participants of the current study fall into B2.1 level, which is assumed to correspond to intermediate level. It is worth mentioning that they were two repeat-classes (not mainstream); that is to say, it was the second time the participants were studying at the mentioned level. It is equally necessary to note that most of the participants had been studying at this school for four semesters, indicating that they also repeated some of the previous modules (A, B1.1, B1.2, B2.1).

The participants' language-proficiency level was determined by the proficiency exam of the school that they sat after a placement test at the beginning of the fall term (2013). Each module takes eight weeks on average, at the end of which learners sit an end-of-module test. Those who get 60 and above are entitled to pass to the next level, whereas those who obtain less than 60 are required to repeat the same module. This study was carried out at the beginning of the spring term (2013), namely at the third module of the year. Since the experiment was conducted only one week after the end-of-module exam of the previous module, and the participants sat the very same exam, they were assumed to be at the same level.

### **Materials and Instruments**

Three word lists, (semantically related (SR), semantically unrelated (SU) and thematically related (TR)), each containing fifteen words, were utilized during the implementation of the present study. Benefiting from a number of similar studies (AlShaikhi, 2011; Papathanasiou, 2009; Erten&Tekin, 2008) the following criteria were determined to decide on the words to be used in each list:

- The words must be unfamiliar to the participants
- The words must not contain cognates.
- Borrowed words should be abstained from.
- Words with idiomatic meaning should be avoided.
- Concrete words should be chosen as much as possible. (The logic behind this is the ease of teaching and testing rather than the cognitive development of the participants.)
- The words on semantically related list should belong to the same part of speech. As mentioned before, it is not possible to control the parts of speech of thematic clusters. Unrelated sets could have contained the words that belong to the same part of speech; however, in this study, different parts of speech were chosen.

With the aforementioned criteria having been considered, three word lists were formed. The words on SR list were taken from a

website(<http://www.enchantedlearning.com/wordlist/landforms.shtml>), with the headword *landforms*. The 15 words were all nouns and the mean of letters was 5.86. The words on the TR list, including five verbs, four nouns and five adjectives, were taken from another website (<http://www.majortests.com/word-lists/word-list-11.html>), with the mean of letters being 5.73. Nine words out of 15 on the TR list were taken from AlShaikhi's (2011) master's thesis, in which the thematic set of words concerned *ahospital theme*, whereas the other six words were added by the researcher herself. This list included six verbs, five nouns and four adjectives, with the mean of letters being 7.4. In order to ensure that the participants were unfamiliar with every one of the words, a pilot study was conducted with 10 students sharing similar characteristics with the participants. The attendants of the pilot study were provided with the word lists, and asked to tick the words they know or have seen before.

Another material used was the small word cards with which the participants were provided to write the English words on one side and the Turkish equivalents on the other in order to learn and practice the target words. The reason why word cards were preferred over word lists was to prevent list-effect (Nakata, 2008). The word lists were also used as the testing material, with the words having been reshuffled to avoid the risk that the participant may have recalled the meanings of the words to be learned thanks to visual memory if they had been tested in the same order. Finally, a short questionnaire of four open-ended questions were employed in which the participants were asked about their perception of the difficulty of learning the words on each list and the immediate tests subsequent to each teaching session. The open-ended questions were taken from Tinkham's (1997) experimental study and included which set the participants found the most difficult, why they thought it was difficult, which set they found to be the easiest and why they thought it was easy. It is worth mentioning that the Turkish translations of the questions were addressed to the participants, and they were asked to respond in Turkish as well. The reason why the native language was preferred although the participants would have been able to comprehend and answer the questions in English was to enable them to express themselves better. (See Appendix for the instruments)

### **Data Collection**

Once it was confirmed that the participants were unlikely to know or recognize the words to be used, the data-collection procedure was started. The study was conducted with two classes, each containing 23 students, during normal 45-minute class hours, and was completed within two weeks. The first week was allocated for learning the new words and immediate tests, and a delayed test was administered in the following week. Subsequent to the delayed tests, the participants were requested to answer four

open-ended questions, adapted from Thinkham (1997). The purpose was to gain insights into students' perception of the difficulty of the different types of clustering.

Each intact class was offered each word list with the same order (SR-SU-TR) on the same day in two different class hours. Word sets were presented every other day, namely Monday (SR), Wednesday (SU) and Friday (TR). Since, based on the pilot study, the participants were assumed not to know or have seen the target words before, no pre-test was administered prior to the presentation. Therefore, each lesson had three main steps, presentation, practice and immediate test respectively. The same procedure was followed for each word set.

Ten minutes were allocated for the presentation phase, in which the participants saw a list of the 15 words with their parts of speech projected on the thin client. The teacher first read aloud the words so as to familiarize the students with the form of the target words and then provided the Turkish translations. The participants were asked to write the new English words on one side of the small cards provided by the teacher and the Turkish translations on the other. The purpose was to enable the participants to learn the new vocabulary at a receptive level only; that is, they were merely expected to learn and recall the meaning of the words.

The second step of each lesson was the practice, for which twenty minutes were allocated. The participants were encouraged to learn the words with help of repetition. While they were practicing the words by turning the cards over and over, the teacher walked around the class to provide help if necessary. After the students went through the cards as many times as they needed (they were encouraged to do it at least five to six times), the teacher asked them to orally provide Turkish equivalents of the words she uttered.

Once the time allocated for the practice was over, the word cards were collected and immediate test sheets were distributed. It is worth mentioning that the test paper was the same as the list provided at the very beginning of the lesson, with a different order of the words and, needless to say, without the Turkish equivalents. The participants were required to write the Turkish translations of the target words at their own pace. The words were presented in isolation because the purpose of the assessment here was to see if the participants could recall the words they had just learned and find out which way of vocabulary presentation (SR, SR, TR) better facilitated learning and recollection. Depth of processing, a theory by Craik and Lockhart (1972) (cited in Brown & Perry, 1991) that suggests "retention is dependent on the level at which information is processed" (p.657), had to be disregarded; translation was preferred because it was quick and practical.

## Data Analysis and Results

In both the immediate and the delayed tests, the participants were required to provide the Turkish translations of the 15 words given, and each correct translation was considered as one point, making the total score in every list 15. It is worth mentioning that the data provided by the participants who did not sit any of the six tests (three immediate and three delayed) were excluded. The remaining data gathered from the tests (of the 37 participants who sat all the tests) were computed through IBM Statistical Package for the Social Sciences (SPSS). Descriptive statistics along with a one-way Repeated Measures ANOVA test were run. One-way Repeated Measures ANOVA was used because the data were collected from the same participants at different time periods (Larson-Hall, 2010). Additionally, content analysis was used to analyze the participants' answers to the questions regarding the difficulty of the word sets. The findings of these tests as well as the participants' answers to the questionnaire are expressed below.

### *Quantitative Results*

The participants' scores on the immediate tests for each clustering were quite close to each other. The mean scores for SR, SU and TR were  $M=14.35$ ,  $M=14.46$  and  $M=14.62$  respectively. Table 1 shows the descriptive statistics of the immediate test results for each clustering.

**Table 1.** Descriptive Statistics of the Immediate Test Results

Group	Number of Participants	Mean of Scores	Standard Deviation	Minimum Score	Maximum Score
SR	37	14.35	1.418	9	15
SU	37	14.46	1.426	7	15
TR	37	14.62	.861	12	15

Although the mean scores for each clustering were slightly different from one another, a one-way Repeated Measures ANOVA (RM ANOVA) was run to see if this is statistically the case. Regarding the immediate test scores, the one-way Repeated Measures ANOVA revealed a non-significant difference among the three types of vocabulary clustering,  $F(2.72)=.480$ ,  $p>.001$ .

The delayed test results, on the other hand, differed from one another to a larger extent compared to the immediate test results. It was revealed that the participants performed better on the SR test ( $M= 11.05$ ), while their performance was reported to be considerably similar concerning SU and TR sets, with the mean scores being

M=8.16 and M=8.08 respectively. Table 3 displays the descriptive statistics of the delayed test results for each clustering.

**Table 2.** Descriptive Statistics of the Delayed Test Results

Group	Number of Participants	Mean of Scores	Standard Deviation	Minimum Score	Maximum Score
SR	37	11.05	3.636	2	15
SU	37	8.16	4.622	1	15
TR	37	8.08	3.244	2	14

As the descriptive statistics indicate, there seemed to be an important difference between SR clustering and the other two types of clustering. To be able to ensure this difference and if it is statistically significant, a one-way Repeated Measures ANOVA was run on the data gathered from the delayed tests. The one-way Repeated Measures ANOVA revealed a significant difference among the three types of vocabulary clustering,  $F(2,72)=13.118$ ,  $p<.001$ . To see which types of sets caused this difference, a follow-up independent samples t-test was conducted.

**Table 3.** Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1: SR	11.05	37	3.636	.598
SU	8.16	37	4.622	.760
Pair 2: SR	11.05	37	3.636	.598
TR	8.08	37	3.244	.733
Pair 3: SU	8.16	37	4.622	.760
TR	8.08	37	3.244	.533

The independent samples t-test revealed a statistically significant difference between SR (M=11.05, SD=3.636) and SU (M=8.16, SD=4.622),  $t(36)=4.535$ ,  $p<.001$ . Another statistically significant difference was reported between SR (M=11.05, SD=3.636) and TR (M=8.08, SD=3.244),  $t(36)=4.857$ ,  $p<.001$ . However, no significant difference was found between SU (M=8.16, SD=4.622) and TR (M=8.08, SD=3.244),  $t(36)=.111$ ,  $p>.05$ . Table 4 below displays the results of the paired sample t-test in more detail.

**Table 4.** Paired Samples Test

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 SR SU	2.892	3.879	.638	1.559	4.185	4.535	36	.000
Pair 2 SR TR	2.973	3.723	.612	1.732	4.214	4.857	36	.000
Pair 3 SU TR	.081	4.431	.728	-1.396	1.558	.111	36	.912

### *Qualitative Results*

Once the six sessions (three teaching sessions followed by immediate tests – three delayed tests) were completed within two weeks, each participant was asked the following questions:

1. Which set did you find to be the most difficult?
2. Why do you think it was difficult?
3. Which set did you find to be the easiest?
4. Why do you think it was easy?

Thirty-seven participants answered the questions. Table 5 displays the data gathered regarding questions 1 and 3. As the results indicate, the participants reported to find the semantically unrelated set the most difficult (n: 24 - %64.86), whereas semantic clustering seemed to be the easiest to the participants (n:20 - %54.05). The qualitative results related to the easiest set are congruent with the quantitative results, namely the test scores of the participants. However, a great number of the participants said they found the semantically unrelated set the most difficult, even though it was the thematic set in which they performed the worst.

**Table 5.** The Participants' Perception of the Difficulty of the Word Sets

Word Sets	The most difficult		The easiest	
	Number *	Percentage	Number *	Percentage
SR	6	% 16.21	20	% 54.05
SU	24	% 64.86	2	% 5.4
TR	7	% 18.91	15	% 40.54
<b>Total</b>	37	% 100	37	% 100

\**Number* refers to the number of the participants.

Regarding questions 2 and 4, inquiring as to the reasons why the participants found a particular type of clustering easiest or most difficult, inductive content analysis was used since “the data moves from the specific to the general, and particular instances are observed and then combined into a general whole” (Elo, &Kyngas, 2007).

As stated above, the participants reported to have found the SU set the most difficult. Regarding the reasons, most of the participants agreed on that no relationship among the words in terms of meaning as well as different parts of speech made learning and recalling process difficult. Some of the participants noted that SU set was easy to learn but difficult to retrieve from the memory. Still some other participants stated that they had great difficulty associating the words with one another, thus could not remember a good number of them.

In reply to question 4, most of the participants conveyed to have found the SR set the easiest. Most of the participants stated that they found the SR set to be the easiest because they came from the same part of speech and were similar in terms of meaning. According to the participants, it was easy to learn and recall these words because they were semantically related to each other. Some participants also reported that this set was easier since it enabled them to visualize the words better. Other participants claimed that the words in this set were shorter and easier to pronounce, thus making these words easier to learn and retrieve from the memory. A few participants noted that this set was easier because it was the first to be presented. Lastly, one participant expressed that theSR set was the easiest because s/he was interested in geography (all the words on SR set were related to landforms). Below the findings of the present study are discussed with reference to related studies.

## Discussion

This study was conducted to find out if three different approaches to presenting new vocabulary (Semantically Related, Semantically Unrelated, Thematically Related) differ significantly when it comes to learning and recalling vocabulary; and if so,

which set causes this significance. To achieve more reliable and valid results, quantitative data were reinforced with qualitative data, gathered from the participants' responses to a four-item questionnaire about their perception of the relative difficulty of the word sets.

The descriptive statistics of the immediate tests showed that no big difference came into discussion concerning the different types of clustering. With relatively slight differences, the participants performed the best in thematic set test ( $M=14.62$ ), followed by semantically unrelated set test ( $M=14.46$ ) and semantically related set test ( $14.35$ ). That this difference was not statistically significant was also confirmed with a one-way Repeated Measures ANOVA test,  $F(2,72)=.480$ ,  $p>.001$ .

The descriptive statistics of the delayed tests, however, revealed that the difference was not slight. To ensure this, another one-way Repeated Measures ANOVA was run and a significant difference was found among the three types of vocabulary clustering,  $F(2,72)=13.118$ ,  $p<.001$ . This barely means that the way in which new vocabulary is presented has a significant effect on learning and recalling this vocabulary.

To explore which word set/s gave way to this significance, a paired samples t-test was conducted for further analysis. For the instruction of paired samples t-test, the word sets were paired and the results showed that there was a statistically significant difference between SR ( $M=11.05$ ) and SU ( $M=8.16$ ). This means that the participants performed significantly better in the SR delayed test in proportion to the SU test, indicating that presenting new words with shared semantic and syntactic features is much more advantageous than organizing and presenting new vocabulary in an unrelated way in terms of semantics and syntax.

Another significant difference was found between SR ( $M=11.05$ ) and TR ( $M=8.08$ ), accordingly signifying the advantage of semantic sets over thematic sets. The participants confirmed this finding by clearly reporting to have found the semantically related sets as the easiest and the semantically unrelated set the most difficult. At this point, it is worth mentioning that although the participants performed the worst in thematic set test, they said they found TR slightly less difficult than SR and much more easier than SU, indicating that the quantitative data are not congruent with the qualitative data concerning TR set. Why this is the case can be explained by the effect of the order in which the words sets were presented in this study. The TR test was the last to be presented, and accordingly, the delayed TR test was conducted in the sixth (the penultimate) session. The participants must have been bored towards the end. Another interfering effect, as observed by the researcher, may be the different parts of speech that the words belonged to. Even

though the words in SU test also belonged to different parts of speech, and the part of speech that each word belonged to was written next to that word in the tests, the participants had difficulty in retrieving that right word in the thematic word set. They may not have interfered with the parts of speech in SU test because the words were totally different from one another, whereas in TR test similar words along with different parts of speech may have raised difficulties on the participants' side.

These findings do not support many of the previous related studies that found that semantically related word sets hinder learning and recalling, whereas words organized and presented regardless of any semantic and syntactic relationship at all and thematic sets facilitate both learning and recalling (Tinkham, 1997, Waring, 1997; Finkbeiner and Nicol, 2003; Erten and Tekin, 2008; Papathanasiou, 2009; Bolger and Zapata, 2011; Mirjalili, Fabbari and Rezai, 2012). On the other hand, the aforementioned findings of the present study were congruent with Hashemi and Gowdasiaei (2005) and AlShaikhi (2011), whose findings also indicated that lexical or semantic sets proved to be more useful in terms of learning and recalling new vocabulary.

Finally, no significant difference was found between SU ( $M=8.16$ ) and TR ( $M=8.08$ ), claiming that presenting new vocabulary in either unrelated sets or thematic sets do not yield much difference.

In qualitative terms, it was revealed that SR clustering proved to be a more useful tool in learning new vocabulary, whereas SU clustering was regarded as the most difficult approach with respect to learning and recalling new vocabulary. This finding is in line with the quantitative data. However, regarding TR clustering, the two types of data contradict each other. Almost 40% of the participants ( $n: 15$ ) reported to have found TR clustering the easiest; however, this type of clustering also produced the lowest scores in the delayed test. At this point, it is necessary to look into the reasons why the participants reported thusly. The participants claimed that the TR set was easy because the words centered on a specific theme (hospital scene). In addition, the participants also stated that it was easy to visualize these words; these words are associated with a single event, and are likely to be encountered in real-life situations. On the other hand, participants' perception of this set's difficulty ( $n: 7$ ) was reportedly because the words in this set were relatively longer and the participants lacked motivation towards the end. Other reasons included some participants' lack of interest in hospital-related words and the fact that this set was presented last. As a consequence, the reason why the participants were not able to perform on the TR test as well as they did on the SR test may be attributed to the limitations of the study to be explained below.

## Limitations and Further Research

The present study has some limitations and missing points that can be considered for further research. Some of these limitations and missing points are related to the participants, while some others stem from factors such as time concern and practicality. Regarding the participants, first of all, the sample size could have been bigger, which would have made it possible to reach more generalizable results. Another factor that could have affected the results of the study is the participants' lack of motivation. Considering the fact that the study was conducted during the last module of the semester, it has to be accepted that the participants were tired and not eager to do a single thing that would not be covered in either the mid-module or end-of-module exams. In addition, the study was completed within a total of seven sessions, which may have bored the participants. In this regard, one suggestion for further research to better motivate the participants is to form the word lists from their textbooks or other teaching materials, if possible.

As for the other factors mentioned above, first, the order of the word lists could have influenced the results. In the current study, the participants were first provided with the semantically related set, followed by the semantically unrelated and thematic sets respectively. It would have yielded to more reliable results if each group had taken each word list as the first, the second and the third. In that case, each group would take nine word lists as well as nine immediate and delayed tests, although this would be a rather long and impractical process. Second, the participants were encouraged to learn the target vocabulary via repetition only. Both teaching and testing were based on recognition rather than production, which led to ignoring depth of processing, as mentioned above. The logic behind this was to enable the participants learn the target vocabulary within the shortest time possible. As for testing, a definition recall test was determined as the assessment and evaluation instrument so as to offer more objective and standard results. One drawback, which is rooted in the way the participants learned the target vocabulary and were tested, was that the learners with good memory skills had an advantage over the learners with relatively poorer memory skills. However, the present study came up with some basic insights as to which way of presenting new vocabulary is more efficient in proportion to the others concerning Turkish EFL preparatory school learners. Finally, in order to obtain a particular pattern of results, the present study was conducted only on intermediate level students, which is regarded as a threshold according to Common European Framework References. Testing various level students and including language proficiency level as a variable can lead to insights into the results and their interpretation on a wider scale.

Given the aforementioned limitations and missing points, further research with a bigger sample size, including participants from different levels of language proficiency is required either to substantiate the present results or give way to contradictory ones. So as to come up with more accurate findings, the prospective effect of the order in which the different types of clustering are presented should be reconsidered. Additionally, the advantage of good memory skills can be eliminated by incorporating different learning styles rather than resorting to repetition only.

## **Conclusion**

The primary purpose of this particular study was to find out which way of organizing and presenting new vocabulary, namely semantically related sets, semantically unrelated sets and thematic sets, help EFL learners learn and recall the most words. For this purpose, the participants' scores from three definition-recall tests, each organized and presented in semantically related (SR), semantically unrelated (SU) and thematic sets (TR) respectively, were compared with a one-way Repeated Measures ANOVA, in terms of immediate and delayed tests. The results of this present study revealed that the participants learned and recalled the most words when they were presented in semantic sets. Semantically unrelated and thematic sets, on the other hand, resulted in students learning and recalling fewer words. The findings obtained through statistical analysis were also supported by the participants, who reported to have found the semantically unrelated set the easiest. Similarly, in response to the question about the most difficult word set, the semantically related set was rated the lowest. The participants also cited the semantically unrelated set as the most difficult in terms of learning and recalling, whereas the qualitative results showed that the participants performed the worst in thematic set test, although the mean scores of the thematic set test and semantically unrelated set test were quite close to each other.

As the aforementioned findings of the current study suggest, it can be concluded that the Turkish EFL preparatory school learners best learn and recall new vocabulary when it is organized and presented in semantic sets, which means a group of words that share the same semantic and syntactic features. Semantically unrelated sets – groups of words that share neither semantic nor syntactic features – seem to pose the greatest difficulty for Turkish EFL preparatory school learners, as both the test scores and the comments of the participants of this particular study indicate. Although the participants reported that the thematic set was close to the semantically related set in terms of both ease and difficulty, the delayed test scores showed that the thematic set was on the negative side, just like the semantically unrelated set. Following the results of the present study, some implications concerning the way new vocabulary is organized and presented in a Turkish EFL context can be made. First, the findings of this particular study do not support presenting new vocabulary in either unrelated sets

or thematic sets. Although further research is required to verify the findings of the present study, organizing and presenting new vocabulary in semantic sets can be recommended.

In summary, how vocabulary is organized and presented is of crucial importance as it may facilitate or obstruct the learning and recalling process. In this sense, the current study may provide some contributions to EFL teachers, learners and even textbook writers; and it supports presenting and testing new vocabulary in semantic sets. However, the present study is not free from drawbacks, necessitating further research to validate the findings.

## **APPENDICES**

### **A- WORD LISTS**

#### **Semantically Related Set (SR)**

##### ***Landforms***

1. Atoll (n) : Mercanada
2. Bight (n) : Koy
3. Brook (n) : Dere
4. Dune (n) : Kumtepesi
5. Estuary (n) : Haliç
6. Gully (n) : Küçükvadi
7. Meander (n) : Menderes
8. Pond (n) : Gölet
9. Scarp (n) : Yamaç
10. Tributary (n) : Akarsu
11. Escarpment (n) : Kayalık
12. Mound (n) : Höyük, tepecik
13. Ravine (n) : Hendek
14. Inlet (n) : Körfez
15. Prairie (n) : Çayır

**\*All nouns**

**\*Mean of letters: 5.86**

#### **Semantically Unrelated Set (SU)**

1. Boor (n) : Çokkabainsan
2. Abate (v) : Azaltmak
3. Nugatory (adj.) : Değersiz
4. Blunder (n) : Gaf, pot
5. Abjure (v) : (Hakkından) Vazgeçmek; Feragatetmek

6. Glib (adj.) : Üstünkörü
7. Whittle (v) : Yontmak
8. Repine (v) : Şikayet etmek
9. Feint (n) : Sahtesaldırı
10. Caret (n) : Düzeltmeişareti
11. Runic (adj.): Gizemli
12. Probity (n) : Dürüstlük
13. Supine (adj.) : Uyuşuk
14. Augury (n) : Falcılık
15. Coerce (v) : Zorlamak

**\*Five verbs**

**\*Five adjectives**

**\*Four nouns**

**\*Mean of letters: 5.73**

### **Thematic Set (TR)**

#### ***Hospital Scene***

1. Alleviate (v) : (Ağrıyı) Hafifletmek
2. Drip (v) : Damlatmak
3. Sanitize (v) : Temizlemek
4. Suture (n) : Dikiş
5. Convalescence (n) : İyileşme
6. Incise (v) : Kesmek
7. Debilitated (adj.) : Zayıflamış
8. Wail (v) : Bağırarak inlemek
9. Deteriorate (v) : (Durmu) Kötüleşmek
10. Lazaret (n) : Karantinayeri
11. Matron (n) : Başhemşire
12. Infirm (adj.) : Halsiz
13. Robust (adj.) : Güçlüvesağlıklı
14. Vaccinated (adj.) : Aşılammış
15. Balm (n) : Merhem

**\*Six verbs**

**\*Five nouns**

**\*Four adjectives**

**\*Mean of letters:**

## B- TESTS

**Start Time:**

**Finish Time:**

- **Please give the Turkish translations for the following words.**

1. Brook (n) :
2. Scarp (n) :
3. Inlet (n) :
4. Bight (n) :
5. Meander (n) :
6. Prairie (n) :
7. Atoll (n) :
8. Gully (n) :
9. Ravine (n) :
10. Mound (n) :
11. Dune (n) :
12. Pond (n) :
13. Estuary (n) :
14. Escarpment (n) :
15. Tributary (n) :

**Start Time:**

**Finish Time:**

- **Please give the Turkish translations for the following words.**

1. Probity (n) :
2. Augury (n) :
3. Runic (adj.) :
4. Supine (adj.) :
5. Feint (n) :
6. Boor (n) :
7. Blunder (n) :
8. Nugatory (adj.) :
9. Coerce (v) :
10. Abate (v) :
11. Repine (v) :
12. Glib (adj.) :
13. Caret (n) :
14. Whittle (v) :
15. Abjure (v) :



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