research need to be noted. The findings of the present study are restricted to elementary students' vocabulary learning achievement. Moreover, the data used in this study comprised only learners' performance on a short-term memory retention test. Future studies can investigate the performance of students at various proficiency levels, and on both short-term and long-term vocabulary retention tests. The findings reported and the conclusion made in this study, therefore, should be regarded as suggestive.

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Appendix A

Semantically related vocabulary items

Clothes	Parts of body	Fruits	Furniture
Shirt	Arm	Apple	Chair
Scarf	Leg	Orange	Table
Belt	Knee	Mango	Clock
Shoes	Neck	Melon	Mirror
Coat	Eye	Grape	Stove
Socks	Ear	Cherries	Sofa
Skirt	Chin	Peach	Desk
Jacket	Hand	Fig	Bed

Semantically unrelated vocabulary items

1st group	2nd group	3rd group	4th group
Book	Pillow	Glass	Spoon
Car	Bread	Bird	Plane
Bag	Paper	Watch	River
Nurse	Door	Rice	Comb
School	Bike	Flower	Basket
Ball	Horse	Carpet	Soap
Sheep	Ladder	Teacher	Shop
Gun	Ring	Camera	Flag

those words.

There might be several reasons why learning semantically grouped words are more difficult than un-related groups of words for novice learners. First of all, although according to the semantic field theory words are organized and stored in the mind through making networks among words (Lehrer, 1974), it seems that this argument does not apply to the process of learning, but might be, in all probability, limited to the way words are represented in the mental lexicon. In other words, learning new vocabulary items may involve a route of mental processing which is different from the route that is used for representing lexical items (Wilcox & Medina, 2013). Furthermore, semantic field theory may not be applicable to elementary language learners. Waring (1997) contends that elementary learners first need to develop a basic vocabulary knowledge network and then into which add new vocabulary by making further semantic links. Similarly, Wilcox and Medina explain that, at the elementary level, "even though the mind may tend to store accumulated vocabulary in semantic fields, initially it is prepared to receive words that need to be organized in that way, not to receive words that have already been organized semantically" (Wilcox & Medina, 2013, pp. 1065-66).

A second plausible explanation for the results is that perhaps recalling similar words during the semantically clustered training sessions caused cognitive interference. According to interference theory grouping words into semantic clusters increases the similarity among new words. When similarity increases among target words, the difficulty of vocabulary retention also increases, so that it is harder for language learners to remember related words. Robinson (2001) discusses that discriminating between semantic features of similar vocabulary items may raise task complexity, and in turn, affects the process of retrieving words. Similarly, Finkbeiner and Nicol (2003) argue that cognitive interference is more likely due to repetitive activation of lexical entries within a semantically similar set of words.

Ausubel (1968) discusses that sometimes the differences between new and existing information can cause learning troubles, particularly when learners are supposed to learn "confusingly similar" ideas. Extensive research into the distinctiveness hypothesis, which holds non-similar (distinctive) information is easier to be learned, seems to have confirmed Ausubel's assertion (Baddeley, 1990; Papathanasiou, 2009). The proponents of this hypothesis contend that new words should ideally be presented in an unrelated way so as to decrease the task difficulty of learning, and remembering words. The findings of this admittedly limited study seem to lend support to distinctiveness hypothesis.

The pedagogical implication of this study for language instructors and course book designers is not trivial. As pointed out in the introductory section, a frequent and popular practice among material developers is presenting words in semantically clustered sets. The findings of this study may appear surprising to authors and course book designers as they call for a reflection on the current practice of grouping related words into semantic clusters. The study also complements the existing literature and suggests exploring alternative methods of presenting vocabulary.

Finally, the following limitations to this

Throughout the study attempts were made to present new words in different ways to provide two different manners of presentation as required by the research design. In addition, efforts were made to allocate the same number of repetitions and also the amount of time to teaching each word in all classes. Vocabulary items were presented in a controlled procedure in terms of instruction and time to create two distinct study conditions for teaching semantically related and unrelated words.

Robinson (2001) discusses that discriminating between semantic features of similar vocabulary items may raise task complexity, and in turn, affects the process of retrieving words. Similarly, Finkbeiner and Nicol (2003) argue that cognitive interference is more likely due to repetitive activation of lexical entries within a semantically similar set of words

In order to examine the effect of manner of presentation on students' vocabulary retention, the researcher compared the students' performance on tests of related words with that of unrelated words. As is shown in Table 2 descriptive statistics revealed that the mean value for each test of unrelated words was higher than the mean value of test results in related words condition. Whereas in the related condition only 57.44% of the new words were recalled by learners, in the unrelated condition 68.56% were remembered. Manner of presentation appeared to have exerted an effect on vocabulary recall. However, in order to gain a clearer understanding of the effect, test scores were submitted to paired sample T-tests. The results of the analyses revealed a statistically significant effect of method of presentation, ($p < .001$). Table 2 shows the results of the T-tests.

Table 2: ***The results of T-tests***

Tests	Mean	SD	T	df	Significance
Session 1, related set 1	4.43	1.55	5.65	67	0.00
Session 2, unrelated set 1	5.78	1.64			
Session 3, related set 2	4.44	1.70	2.57	67	0.012
Session 4, unrelated set 2	5.07	1.72			
Session 5, related set 3	4.57	1.66	3.35	67	0.001
Session 6, unrelated set 3	5.41	1.37			
Session 7, related set 4	4.94	1.73	2.97	67	0.004
Session 8, unrelated set 4	5.68	1.85			
Total, related condition	18.38	4.29	6.91	67	0.000
Total, unrelated condition	21.94	4.17			

The finding of the study suggests that presenting new words to elementary learners in a semantically unrelated fashion, compared to a semantically related fashion, results in better vocabulary retention. This finding is in line with the results reported in the literature (Erten & Tekin, 2008; Finkbeiner & Nicol, 2003; Papathanasiou, 2009; Tinkham, 1993; 1997; Waring, 1997; Wilcox & Medina, 2013), illustrating that grouping words in semantically similar sets impedes rather than facilitates the process of learning

idiomatic meaning). Another limitation was the selection of nouns frequently used in every day situations. This was advertently done to prevent any probable confusion on the part of students. Following the guidelines suggested in the literature the selected vocabulary items were then inspected for their length, and semantic relations.

This careful process of homogenizing and balancing vocabulary items was followed by a pilot study. That is, in order to ensure that the students would not know the meaning of the words, and the target vocabulary items would be unfamiliar to the students, a small scale study was conducted with 7 students. As was expected, children were not familiar with the items. The final draft of the word list included 64 vocabulary items to be used in the main phase of the study. These final items were then categorized into eight lists: four semantically related word lists, and four semantically unrelated word lists. Each of the eight word lists had eight vocabulary items (see Appendix A for a comprehensive list of words).

Based on the final word list a total of 64 flashcards, each corresponding to a vocabulary item, were prepared. Flash cards contained photos of the target words together with their written form. In addition, for each student 64 practice sheets were prepared which were used during the practice stage. Practice sheets included matching exercises where the participants were asked to match the written form of the new words with their pictures. The photos used in practice sheets were similar to those used in the flashcards.

Procedure

The procedure used in this study was modeled after Erten's and Tekin's study (2008). A "presentation – practice – test" procedure was followed in the present study. The study was conducted as a part of the regular instruction, and lasted for eight sessions. Vocabulary instruction, in each session, lasted, on average, 40 minutes. In the first session, the first semantically related set of words was introduced to the participants. In the second session, the first semantically unrelated group of words was introduced. The same procedure was followed for the remaining sessions and the remaining word lists, (see Table 1). In each session, new words were presented by means of flashcards and then were practiced through working on practice sheets. Each session ended with an immediate test of the target words, to measure students' short term recall of vocabulary.

Table 1: ***The procedure of the study***

Session 1	1st Lesson: related set 1 (clothes) (presentation, practice, and immediate test)
Session 2	2nd Lesson: unrelated set 1 (presentation, practice, and immediate test)
Session 3	3rd Lesson: related set 2 (parts of body) (presentation, practice, and immediate test)
Session 4	4th Lesson: unrelated set 2 (presentation, practice, and immediate test)
Session 5	5th Lesson: related set 3 (fruits) (presentation, practice, and immediate test)
Session 6	6th Lesson: unrelated set 3 (presentation, practice, and immediate test)
Session 7	7th Lesson: related set 4 (furniture) (presentation, practice, and immediate test)
Session 8	8th Lesson: unrelated set 4 (presentation, practice, and immediate test)

learners made fewer errors than those in the related vocabulary condition.

The theoretical arguments and the empirical evidence for and against presenting vocabulary in semantically clustered sets summarized above calls for further research. We are faced with two main opposing views on presenting new vocabulary, with each view offering enough convincing arguments and supports. Thus, it is safe to propose that there is room for further research. The best way for us to make a sound decision is to apply both methods in real classrooms and compare the results. The present study, therefore, was designed to compare the effectiveness of semantically related and nonrelated vocabulary presentation in the context of a language institute. The following research question guided the present study:

Does teaching new vocabulary items in semantically related sets versus semantically unrelated sets make a difference in vocabulary retention?

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Method

The study was conducted on four intact groups of students in a language teaching institute. The alternative methods that were employed for teaching new words were 1) presenting words in semantically related sets (e.g. parts of body: arm, leg, neck, etc.), and 2) presenting words in semantically unrelated sets (e.g. book, car, nurse, ball, etc.). The main purpose of the study was to evaluate the relative claims of the two different methods.

The research design that was employed for answering the research question reflects what Hatch and Lazaraton (1991) call 'one-group, quasi-experimental research design'. It is characterized by alternating time series models and is seen particularly suitable for this study because, within a time series framework, it allows measuring the effect of two alternative methods on the same group of students by altering the manner of vocabulary presentation within specified time spans.

Participants

As was mentioned above, the context of the study was a language institute. The study was carried out on four intact groups of elementary EFL learners. The number of the students who participated in the study was 68, with 32 participants being male and 36 being female students. Their ages ranged from 8 to 11 years old. Regarding their English proficiency, it should be mentioned that all of the students were studying at the first grade of elementary level and they had not had any formal instruction in English prior to enrolling at the institute. Therefore, their vocabulary size was extremely limited and they were very similar to each other in terms of level of English proficiency. All children in this study were from families of middle social status. The language of all children was Persian and they were living in monolingual families.

Materials and instruments

Prior to the study, the researcher prepared a list of target words. The vocabulary items were selected from a number of educational textbooks designed for elementary learners. Initially a total of 150 words were shortlisted. Then, through several exchanges of ideas with colleagues, the researcher removed all abstract words and cognates from the initial word list. Attempts were also made to avoid words that were lengthy (i.e. having three or more syllables), or potentially difficult (e.g. words with

investigated interference effects on vocabulary learning and retention. The results of these studies showed that the presentation of new vocabulary items to L2 learners in clusters of semantically and syntactically similar words impedes rather than facilitates learning. Similar findings were reported by Erten and Tekin (2008), Papathanasiou (2009) and Wilcox and Medina (2013). These researchers questioned the popular practice of course book designers, (i.e. presenting new vocabulary that belongs to the same semantic set together) and concluded that such a practice may cause interference due to cross-association and may even hinder vocabulary learning.

Although the studies mentioned above provide considerably important pedagogical implications, there are some limitations on the generalizability of the results found in these studies. The first limitation is that in these studies only a few words were tested. Moreover, except for Papathanasiou's study (2009), the above studies were conducted in strictly controlled and artificial contexts. Thirdly, it was not made clear whether the same effects would hold for learners of different proficiency levels.

Mention should be made, however, of the study conducted by Schneider, Healy, and Bourne (1998). Their study, which was conducted in a less controlled and more natural context, yielded different results. Their findings initially seemed to support the assumption that learning semantically related words is easier than learning unrelated words. However, the results of long-term retention tests revealed that learning new words in the unrelated vocabulary condition was faster and that

differences among related words.

Another concept that is believed to lend support to semantic clustering is "semantic field theory" (Channell, 1981; Lehrer, 1974). This theory rests on two premises: 1) vocabulary is cognitively organized by interrelationships and networks among words, 2) words that are closer in meaning are located closer to each other in the mental lexicon (Wilcox & Medina, 2013). In other words, based on the semantic field theory, the mind classifies words through semantic connections, and these connections are considered semantic fields (Channell, 1981). This theory, thus, suggests that since vocabulary is organized in the mind into different word sets that are linked in meaning (Miller & Johnson-Laird, 1976), language instructors should present new vocabulary in semantically-related groups, to facilitate the process of learning.

Although the above arguments provide a theoretical framework in support of semantically clustered vocabulary presentation, there are only a few empirical studies that defend this position. The body of literature often cited in support of presenting semantically grouped words includes memory studies that involve monolingual students learning artificial words. Such studies have found that grouping words in semantic clusters facilitates later recall or recognition. (Carter & McCarthy, 1988; Lewis, 1997; McCarthy, 1990). They claim that this method is in line with theories of lexicon representation and suggest that there is a good organization of semantic fields in the human brain. Hashemi and Gowdasiaei (2005) discuss that vocabulary should be presented in semantic sets within an appropriate context as learners will get involved in deeper levels of mental processing. Thus, they assert, if students make more efforts to differentiate words that are semantically related their learning will last longer.

Arguments against presenting vocabulary in semantically related sets

There are a number of counterarguments for presenting words in semantically clustered sets. One such theoretical stand is that of distinctiveness hypothesis which "relates ease of learning to the distinctiveness (nonsimilarity) of the information to be learnt" (Papathanasiou, 2009). This hypothesis focuses on differences rather than similarities and argues that "since similarity seems to confound the mind, distinctiveness should help organize it" (Wilcox & Medina, 2013, p. 1058). The conclusion drawn from this hypothesis suggests that new vocabulary should be presented in a nonrelated fashion, so that the learner is presented with information organized in a way that is conducive to the process of learning (Wilcox & Medina, 2013).

Another theoretical concept providing support against semantic clustering is "interference theory". This theory states that as similarity increases between targeted information and other information learnt, the difficulty of learning and remembering the targeted information also increases (Papathanasiou, 2009). Relying on this theory, Waring (1997) contends that new words should not be presented in semantically grouped sets, because the similarities of these words may interfere with each other, and thus impair their retention.

Experimental evidence that corroborate the above theoretical positions has been offered by a number of second language (L2) researchers. For example, Tinkham (1993; 1997) and Waring (1997)

learning.

Recently, contradictory recommendations have been emerging from numerous studies into the use of semantic links in educational materials and activities for vocabulary teaching (Papathanasiou, 2009). At the one end of this conflict, there is a theoretical framework supporting the procedure of presenting new words in semantically clustered sets with the assumption that it facilitates the learning of L2 vocabulary (e.g. Aitchison, 1994; Channell, 1981; Lehrer, 1974). On the other hand, some empirical investigations indicate that presenting semantically related words seems to hinder the process of vocabulary learning (e.g. Laufer, 1989; Tinkham, 1993, 1997; Waring, 1997, Erten & Tekin, 2008; Finkbeiner & Nicol, 2003; Papathanasiou, 2009; Wilcox & Medina, 20013). Further inconsistencies come from studies that present evidence in favor of packaging new words in semantic clusters, on the basis that it is an effective manner of teaching new vocabulary and that it perhaps reflects the natural organization of the mental lexicon (e.g. Carter & McCarthy, 1988; Lewis, 1997). In order to contextualize the present study, the following section reviews the theoretical arguments as well as experimental investigations that both support and oppose presenting related lexical items together.

Arguments that support presenting vocabulary in semantically linked groups

A quick examination of the literature reveals that there are basically four main arguments in favor of presenting new vocabulary in semantically related clusters. The first theoretical argument is that new learning occurs when new material can be attached to current knowledge (schema). On this basis, Stoller and Grabe (1995) argue that vocabulary can best be taught in semantically related sets because such an instruction can easily activate schema and connect target materials with materials already learned. In addition, this type of presentation makes the meaning of these words quite clear by helping students understand the full semantic content of the related words and also distinguish similar words from one another (Hashemi & Gowdasiaei, 2005).

The second major related argument in support of presenting clustered words comes from the common and popular practice of course book designers and materials developers. They are often driven to present vocabulary in semantically related fashion mostly because of the analysis of students' communicative needs (Erten & Tekin, 2008). Such a practice is believed to be "an effective method of teaching" (Finkbeiner & Nicol, 2003 p. 369). Consequently, educational materials are often divided into different chapters, reflecting various situations where learners might face in real life.

The next most common justification cited in the literature has to do with ease and practicality of presenting vocabulary in classroom activities (Haycraft, 1993). Many practitioners believe that presenting words in semantically related clusters not only echoes students' expectations in a classroom but also facilitates the process of teaching by organizing and orchestrating the procedure of instruction. Jullian (2000) refers to a classroom activity which incorporates an explicit approach towards the presentation of semantically related vocabulary. The writer points out that such an activity raises consciousness by drawing students' attention to subtle

چکیده

بسیاری از کتب آموزشی واژگان جدید را در قالب مجموعه کلماتی ارائه می‌دهند که از نظر معنایی به هم وابسته‌اند. با وجود این، پژوهش‌های تجربی نشان می‌دهند که این نوع تدریس نه تنها باعث سهولت در روند یادگیری واژگان نمی‌شود بلکه ممکن است جریان آن را کندتر کند. پژوهش فرارو با هدف مقایسهٔ تأثیر دو روش تدریس واژگان انجام شده است: تدریس واژگان مرتبط و تدریس واژگان بی‌ارتباط. آزمودنی‌های این پژوهش ۶۸ زبان‌آموز مبتدی یک مؤسسه آموزشی بودند. فرایند پژوهش در چارچوب یک طرح تحقیقاتی شبه تجربی و طی ۸ جلسهٔ آموزشی انجام شد. در چهار جلسهٔ آموزشی فراگیرندگان به روش اول و در چهار جلسهٔ دیگر به روش دوم آموزش دیدند. مقایسهٔ میزان اثربخشی روش‌ها نشان داد که یادگیری واژگان در زمانی که کلمات غیر مرتبط آموزش داده شده‌اند، به مراتب بهتر از زمانی بوده است که واژگان مرتبط تدریس شده‌اند. یافته‌های پژوهش مؤید این است که ارائهٔ واژگان مرتبط در یک جلسهٔ آموزشی باعث اختلال در فرایند یادگیری می‌شود و از میزان تأثیرگذاری آموزش می‌کاهد.

کلیدواژه‌ها: آموزش واژگان، گروه‌بندی معنایی کلمات، نظریهٔ تداخل، واژگان ذهنی

Introduction

Vocabulary knowledge is central to language proficiency and crucially important for second language learners. It has recently received considerable attention and popularity in applied linguistics with various strands of research and pedagogical interest (Gardner & Davies, 2014; Read, 2000; Richards and Renandya, 2002; Wilcox & Medina, 2013; Zhang & Lu, 2014). A long-standing dimension of research in the field however, has been a lack of consensus about how to present vocabulary in the most beneficial way to facilitate learning and improve retention: in semantically related groups or not? (Finkbeiner & Nicol, 2003; Papathanasiou, 2009) Bearing this query in mind, the purpose of the present study was to investigate which of these two ways of vocabulary presentation would prove to be more effective in L2 vocabulary

Researchers

A Comparative Study of Two Methods of Vocabulary Instruction

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Abstract

Although educational materials often present new vocabulary in semantically clustered fashions, empirical investigations indicate that presenting words in semantically related groups seems not to facilitate but even to hinder the process of vocabulary learning. The present study was conducted to compare the relative effects of two methods of vocabulary presentation: semantically related words versus semantically unrelated words. The study was conducted as part of regular instruction, in a language institute on 68 elementary language learners, and lasted for eight sessions. A "presentation – practice – test" procedure was followed within a quasi-experimental research framework. Throughout the study the participants were taught four semantically-related and four semantically un-related sets of words. The results of eight series of vocabulary tests revealed that students' performance in the semantically unrelated condition was significantly better. The findings suggest that presenting semantically related vocabulary items may cause interference in the process of word learning, at least at the proficiency level tested in this experiment.

Key Words: interference theory, mental lexicon, semantic clustering, vocabulary instruction.