An investigation of two ways of presenting vocabulary

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The use of semantic links or networks in L2 vocabulary acquisition has been a popular subject for numerous studies. On one hand, there is a strong theoretical background stating that presenting words in related fashion facilitates the learning of L2 vocabulary. On the other hand, research evidence indicates that semantically related vocabulary seems to hinder rather than ease the learning of L2 vocabulary. The aim of the present study is to examine which manner of L2 vocabulary presentation is more helpful for L2 learners. It was conducted in EFL classrooms with Greek EFL students. The subjects were 31 intermediate EFL children and 32 beginner EFL adults. The two different ways of organizing new vocabulary for presentation were tested. The article will focus on the main conclusion that semantically related clustering impedes L2 vocabulary learning at beginners’ level.

Introduction

In recent years, contradictory advice to teachers has been emerging from studies into the use of semantic links or networks in classroom materials and activities for L2 vocabulary learning. There is some experimental evidence which suggests that learning semantically related words (for example, body parts) at the same time makes learning more difficult (Tinkham 1993, 1997; Waring 1997; Finkbeiner and Nicol 2003). There is also a theoretical framework that strongly supports the idea that it is very useful to present words of related meaning together so that learners can see the distinctions between them and gain a complete coverage of the defined area of meaning. The experimental evidence mainly derives from research using artificial language and not a natural L2. The purpose of our research was to investigate which of the two ways of vocabulary presentation would prove to be a useful tool in L2 vocabulary learning. The present study was influenced by principles and theories of action research.

Theoretical versus experimental evidence

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 is linguistically based clustering (for example, words grouped in lexical sets such as body parts or words grouped by sense relations such as synonyms) and cognitively based clustering (for example, thematic clustering).
There are three main arguments for the presentation of vocabulary in semantically related sets:

1. The first argument is that the presentation of semantically related vocabulary makes the meaning of these words clearer by seeing how they relate to and are different from other words in the set. This is important because, according to Channell (1981), the mind uses semantic similarity in classifying words.

2. The second argument is that there is evidence for the usability and effectiveness of presenting related vocabulary in classroom activities. Jullian (2000) refers to a classroom activity which incorporates an explicit approach towards the presentation of semantically related vocabulary. The writer points out that this type of classroom activity helps students to understand the full semantic content of the related words and detect what makes them similar and different from each other.

3. The emphasis on the ability to distinguish differences between words with related meaning is also present in EFL coursebooks. Coursebook writers are driven to present semantically related vocabulary items mostly because of their own perceptions of the communicative needs of their students. As a consequence, these coursebooks are divided into various units responding to any situation in which students might find it necessary to communicate in the L2 (for example, visiting a doctor).

However, there is some experimental evidence against the presentation of semantically related vocabulary in sets. Tinkham (1993, 1997) and Waring (1997) investigated interference effects for word learning using ‘artificial’ words. The subjects listened to lists of English words paired with imaginary words. Their task was to try to learn the word pairs in as few trials as possible. The data collected by these researchers suggest that the presentation of new vocabulary items to L2 learners in clusters of semantically and syntactically similar words impedes rather than facilitates learning. This means that it takes students more time to learn new lexical items when these lexical items are presented in related sets rather than in unrelated sets.

Nevertheless, there are some limitations (Waring: ibid.) on the generalizability of the results found in the above studies. There are four main points we have to consider:

a) very few words were tested;

b) the artificial words that were used were strictly controlled;

c) there was no clear definition of what semantic relatedness might mean; and

d) it was not made clear whether the same effects would hold for learners who already had part of the semantic set being tested.

It is also important to mention here research by Schneider, Healy, and Bourne (1998) that used natural L2 words rather than artificial ones and which gave very different results. Their findings initially appeared to suggest that learning related words together (for example, parts of the body) was easier than learning unrelated words. However, when a test of long-term (LT) retention was administered, the researchers found that the participants in the mixed-order acquisition condition (presented with
unrelated vocabulary) were faster and made fewer errors than those in the
grouped-order acquisition condition (presented with related vocabulary).

In a more recent study, Finkbeiner and Nicol (2003) used 32 new words and
each was paired with a picture of a familiar concept. The results revealed that
participants translated L2 labels learnt in semantic sets significantly more
slowly than they did L2 labels learnt in random order.

The arguments for and against presenting new vocabulary in lexical sets
reported above suggest a need for further research. We have two contrasting
views on the presentation of vocabulary in an L2 (experimental evidence
versus theoretical framework). However, we do not have enough
convincing evidence to decide which of the two contrasting approaches
to learning vocabulary is the more useful and appropriate for L2
vocabulary teaching. The best way for us to make a decision is to apply both
approaches in EFL classrooms and compare the results.

Methodology
Overview of research
We conducted a study of alternative ways of teaching vocabulary to Greek
EFL students. This was a classroom study which employed two different
ways of organizing new vocabulary for presentation:

1 present semantically related words (words that share certain semantic
   and syntactic similarities, for example, topic-related vocabulary, such as
   ‘knife’, ‘fork’, ‘spoon’, synonyms, antonyms, or homonyms) together at
   the same time, and

2 present vocabulary in an unrelated (mixed) fashion (words that are not
   semantically related, for example ‘book’, ‘hospital’, ‘freedom’).

The aim of the study was to evaluate the relative claims of the two different
procedures by using two different groups of students (Class A and Class B).
At the end of the research period, all students were tested to determine
which of the two competing methods was the more effective.

Research question
The research question was as follows: Which of the two ways of
presenting and organizing the teaching of new L2 vocabulary (specifically
related word sets or unrelated word sets) produces better retention of
those words when scored in short-term (SHT) and LT vocabulary translation
tests?

Motivation for using
Greek EFL students
in the research
Our motivation for using Greek EFL students as subjects in our study
derives from a paper by Scholfield and Gitsaki (1996). The main point is
that most Greek students seem to have relatively poor vocabulary knowledge
and tend to use a small number of words in their writing. We wanted to
examine if learning semantically related (topic-related vocabulary,
synonyms, antonyms, and homonyms) or unrelated words would help
students learn and recall more vocabulary items.

Timing and stages of
the study
The study was influenced by principles and theories of action research.
The subjects were 31 intermediate EFL children and 32 adult beginners.
Two different ways of organizing new vocabulary for presentation were
employed:
presenting semantically related words (topic-related vocabulary, for example, ‘mugging’, ‘terrorism’, ‘forgery’, synonyms, antonyms, or homonyms) together at the same time, and

2 presenting vocabulary in an unrelated fashion (for example, ‘carpenter’, ‘tornado’, ‘sage’).

SHT and LT tests were administered to the students. Since we were using vocabulary translation tests, the knowledge of the meanings of the words in their L1 was taken into consideration. For this reason, we provided all subjects (both children and adults) with a list of the words (used in the study) translated into Greek in order for them to tick the words they did not know. This procedure ensured that the study was not affected by unknown L1 vocabulary.

Procedure

Two intermediate classes of juniors and two groups of adult beginners participated in this study. One class at each level was labelled A and the other B. The subjects in Class A were taught the association between 60 English words (see Appendix 1) and their Greek equivalents with words that were semantically related (topic-related vocabulary, homonyms, synonyms, and antonyms) for a period of three weeks. There were two lessons per week. Each vocabulary lesson lasted for 45 minutes and took place at the end of the normal class that students attended every Monday and Friday. At the same time, the subjects in Class B were taught the association between 60 English words and their Greek equivalents with words that were not related semantically (see Appendix 2). The words were presented in a mixed (unrelated) order. At the end of the third week, an immediate (SHT) vocabulary test was administered to both classes. Two weeks later, the subjects in both classes were tested on a LT vocabulary test.

For the next three weeks, Class A was taught the association between English words and their Greek equivalents with the words grouped in a mixed (unrelated) order. The vocabulary items were the same used for Class B. In the meantime, Class B was taught the association between English words and their Greek equivalents with the words grouped in a related fashion (semantically related words). The words were the same words used for Class A. At the end of the third week, an immediate (SHT) vocabulary test was administered to both classes. Two weeks later, the subjects in both classes were tested in an LT vocabulary test.

It is worth mentioning that during the presentation of new vocabulary, attention was paid to one particular aspect of knowing a word: the form–meaning connection. According to Nation (2001), strengthening the form–meaning connection involves having to recall a meaning when seeing or hearing a particular word or having to recall a spoken or written form when wanting to express a meaning. The subjects must be able to recognize a word and link it to its meaning by using L1 translations.

Teaching

The teaching procedure was the same for both children and adult groups. Both groups were exposed to the same teaching material. Each lesson lasted for 45 minutes. The teacher (myself as a practitioner) first introduced the students to the new vocabulary and then elaborated, expanded, and consolidated these words into classroom exercises (see Steps 1, 2, and 3 of
the teaching procedure below). We followed the same teaching procedure for both related and unrelated words.

**Step 1**
Duration: 10 minutes (noticing). At first, the students saw a list of ten English words written on the board. The teacher then read aloud the words one by one and provided their Greek translations. The students wrote the English word on one side of a card and the meaning (using L1 translation) on the other to encourage recall. Small cards (around 5 × 4 cm) were used so that they could be easily carried around. The students were encouraged to learn words, receptively, for example, to see the L2 word and recall the meaning using L1 translation.

**Step 2**
Duration: 15 minutes (retrieval). Each of the students went through the set of cards looking at each foreign word and trying to retrieve its meaning. If the student did not remember the Greek equivalent, he or she would turn the card over. The students repeated this process for each of the new words. The teacher ensured that the word cards were used repeatedly by practising the word card strategy with the whole group. The purpose of the repetitions was simply to facilitate learning. Tinkham (1993) found that most learners required five to seven repetitions for the learning of a group of six paired associates. Thus, the teacher went through the set of cards with the students at least five to six times. The students, then, were asked to give (orally) the Greek translation for each new English word, for example, answering questions like ‘What is the Greek for “priest”?’. The students had to say the Greek equivalent. The questions helped them instantiate and apply the words.

**Step 3**
Duration: 20 minutes (generation). During the third phase of the teaching process, the students were asked to do two different exercises to encourage repetition of the new vocabulary in each lesson. The same format of exercises was used for both Class A and Class B.

### Characteristics of the test

The way we presented the target words in a test was related to the purpose of the assessment. The selected target words were presented in isolation because we wanted to assess the students’ ability to supply the meaning when given the target word. Meaning and word (written) form were the main types of word knowledge to be tested. We used a ‘definition recall test’, which meant that the students were given a list of English words and asked to write the Greek equivalent (L1 translation). There were three main characteristics of the test:

1. It was a pen and paper test taking 15–20 minutes to complete.
2. It tested receptive knowledge (passive recognition test).
3. It tested vocabulary only.

### Results and discussion

In this section, we describe and present the results from the $t$-test analysis of the performance of everyone (all students together) and children and adults (separately) on related and unrelated vocabulary, both on SHT and LT tests. Figure 1 presents the results of the most important pairs for discussion.
It is clear from the table above that

- adult beginners performed significantly better on the unrelated vocabulary test than on the related vocabulary test
- children (intermediate level) showed no significant difference in test scores between related and unrelated vocabulary.

This suggests tentatively that the presentation of unrelated vocabulary may assist learning of new L2 words more than related vocabulary only at beginners' level (adults). The result above is compatible with the results of previous research (Tinkham 1997; Waring 1997; Schneider, Healy, and Bourne 1998; Finkbeiner and Nicol 2003) illustrating that presenting L2 students (beginners) with their new vocabulary grouped together in sets of syntactically and semantically similar words impedes rather than facilitates the learning of those words. It is crucial to mention that these results reinforce the positions stated by the researchers mentioned above since they were extracted from natural language in an EFL classroom through a teaching procedure.

Extensive research into ‘interference theory’ (Baddeley 1990) suggests that 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 (Tinkham 1997). Similarly the ‘distinctiveness hypothesis’ (see Hunt and Mitchell 1982), which relates ease of learning to the distinctiveness (non-similarity) of the information to be learnt, also validates the above argument.

It is important to point out that these results apply to beginner-level EFL adults and not to intermediate EFL children where there is no significant difference between related versus unrelated vocabulary test scores. Based on the high mean scores for the adults, especially in unrelated vocabulary, we made the following assumptions:

One probable reason for the adults achieving higher scores was motivation. It seemed that adults were highly motivated and more conscientious...
learners for personal and professional reasons. Motivation has to do with the emotional dimension of L2 learning. The main reason they joined the English seminars was to acquire a certificate in English in order to use it professionally and for personal interest. Children on the other hand provided quite low scores both in related and unrelated vocabulary, possibly due to lack of motivation.

Another possible reason for the adults’ higher scores was that adults, in general, can master certain aspects of a foreign language even well into adulthood. Adult L2 learners routinely achieve high levels of proficiency in these aspects of a foreign language. Lexical and syntactical competence becomes easier for them in contrast to phonology, which becomes very difficult to acquire.

Conclusion

This study differs from similar ones in having been carried out in a natural setting. The use of a natural L2 combined with the teaching procedure in a real classroom environment makes this research generate results that might apply to natural L2 learners. On the contrary, previous research (Tinkham 1997; Waring 1997) was tightly controlled to benefit the researcher, not the learner, as Waring (ibid: 271) points out.

This research complements previous studies and suggests the need for some re-evaluation of current pedagogical practice. The results of this study may come as a surprise to many current writers of ESL coursebooks who rely heavily upon the employment of semantic clusters in their presentation of new vocabulary. They may want to explore the possibility of simplifying L2 vocabulary learning by incorporating a semantically unrelated form of presentation (at least at beginner level).

An intermediate (or more advanced) learner would probably already know many words from the semantic groups, and when presented with new words may only need to add new words to an existing store, rather than create a new one from scratch. It may therefore be that activities grouping words with related meaning are best used at a secondary stage when the words can be recognized, some meanings have been acquired, and learners have reached a point where they will benefit from further opportunity to make connections and distinctions (Hedge 2000: 122–3). For initial presentation, we can present unrelated vocabulary and later at a more advanced level present semantically related vocabulary. We should present related vocabulary in a way that does not create an environment for interference effects.

Even though the present study was conducted in Greece, it offers useful findings for L2 learners and practitioners worldwide. EFL teachers in different countries could use the results of this research in order to assist their students with L2 vocabulary learning. The present study sets a positive framework for international EFL practitioners.

Future research

The present study can also be considered as a useful starting point for similar research or replication in order to see if the findings apply in other contexts as well. Further research with intermediate and more advanced students seems to be necessary in order to clarify whether related vocabulary
plays a prominent role in L2 learning at this level. It probably made no
difference with our intermediate subjects because they were not motivated
enough.

Another aspect that might require further research is the teaching and
testing procedure. We need to consider whether we would obtain the
same results if both teaching and testing methods were different.
Keeping in mind that the present study used only nouns to examine the
influence of vocabulary presentation, it would be interesting to observe
the results if we taught and tested verbs, adjectives, and other parts of
speech.

In addition, the productive dimension of L2 vocabulary learning in relation
to the manner of vocabulary presentation could also be examined. The
present testing focused on the receptive use (seeing the L2 word and having
to provide the L1 translation) of the words. Another study could test if the
effect also occurred productively (subjects to be given the L1 word and to
produce the L2 word).

It is hoped that the present article has offered some evidence of how the
manner of organizing words for presentation may be important for learning
new L2 vocabulary.

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### Appendix 1
Semantically related nouns

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### Appendix 2
Semantically unrelated nouns

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