



T.C.

ULUDAĞ UNIVERSITY

INSTITUTE OF EDUCATIONAL SCIENCES

DEPARTMENT OF ENGLISH LANGUAGE TEACHING

**THE USE OF MNEMONIC DEVICES FOR MINIMIZING
CROSS-ASSOCIATION IN TEACHING VOCABULARY
TO PRIMARY SCHOOL EFL LEARNERS**

MASTER'S THESIS

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BURSA

July, 2014



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BİLİMSEL ETİĞE UYGUNLUK

Bu çalışmadaki tüm bilgilerin akademik ve etik kurallara uygun bir şekilde elde edildiğini beyan ederim.

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02/07/2014

YÖNERGEYE UYGUNLUK ONAYI

“The Use of Mnemonic Devices for Minimising Cross-association in Teaching Vocabulary to Primary School EFL Learners” adlı Yüksek Lisans tezi, Uludağ Üniversitesi Lisansüstü Tez Önerisi ve Tez Yazma Yönergesi’ne uygun olarak hazırlanmıştır.

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ULUDAĞ ÜNİVERSİTESİ
EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

Yabancı Diller Eğitimi Anabilim Dalı'nda 801010003 numaralı Mustafa SARIOĞLU'nun hazırladığı "The Use of Mnemonic Devices for Minimising Cross-association in Teaching Vocabulary to Primary School EFL Learners" konulu Yüksek Lisans çalışması ile ilgili tez savunma sınavı, 02/07/2014 günü 10:00-11:30 saatleri arasında yapılmış, sorulan sorulara alınan cevaplar sonunda adayın tezinin **başarılı** olduğuna **oybirliği** ile karar verilmiştir.

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ACKNOWLEDGEMENTS

First, I would like to thank my supervisor, Assist. Prof. Dr. iğdem KARATEPE, for her continual support, valuable comments and constructive feedback throughout my study.

I would like to express my gratitude to Assist. Prof. Dr. Meral ÖZTÜRK for her kind encouragement and worthy suggestions about the content of this study.

I owe special thanks to Assoc. Prof. Dr. İlknur SAVAŞKAN for inspiring me to start this master's degree programme.

I would also like to thank my students at İbni Sina Primary School in Bursa for their contributions to the present study as participants.

Finally, I am grateful to my dear wife, Emine SARIOĞLU, and to my lovely daughter, Elvin Bera SARIOĞLU, for their constant motivation, endless love and patience from the beginning to the end of this study. Without their understanding and confidence in me, this thesis could not have been completed.

Mustafa SARIOĞLU

ABSTRACT

Author : Mustafa SARIOĞLU
University : Uludağ University
Field : Foreign Language Teaching
Branch : English Language Teaching
Degree Awarded : Master of Arts (MA)
Page Number : xvi + 148
Degree Date : 02.07.2014
Thesis : The Use of Mnemonic Devices for Minimizing Cross-association in Teaching Vocabulary to Primary School EFL Learners
Supervisor : Assist. Prof. Dr. Çiğdem KARATEPE

THE USE OF MNEMONIC DEVICES FOR MINIMIZING CROSS-ASSOCIATION IN TEACHING VOCABULARY TO PRIMARY SCHOOL EFL LEARNERS

Although vocabulary instruction plays a key role in foreign language teaching, there seems no consensus on the issue of whether teaching words in semantic sets or in unrelated sets. An increasing number of studies suggest presenting vocabulary in semantically unrelated sets given that teaching related words simultaneously have an interfering effect on the acquisition of those words, which makes them prone to be cross-associated by L2 learners. Cross-association involves making incorrect form-meaning association between similar word pairs especially when students are exposed to learn semantically related words at the same time. So as to avoid cross-association, L2 teachers are advised to introduce related words at different times. However, this is mostly not possible for many EFL teachers due to the constraints from the L2 curricula or textbooks which usually serve vocabulary in semantic sets such as “*clothes*” and “*colours*”. There is also no research evidence to give EFL teachers insights to help their learners avoid such kind of confusion. In this regard, this study includes three experiments conducted to investigate both the extent of cross-association and the

potential effect of mnemonic devices on solving this problem under natural classroom setting. The results show that mnemonically instructed EFL learners have surpassed their control counterparts on both immediate learning and delayed recall of the target words. In spite of receiving the same instruction except mnemonic tricks, the control subjects have experienced more cross-association than the mnemonic groups. Thus, this research encourages EFL teachers to apply mnemonic techniques so as to cope with cross-association especially when they are required to teach words in semantic sets.

Key words: cross-association, mnemonic devices, vocabulary learning strategies, vocabulary teaching

ÖZET

Yazar	: Mustafa SARIOĞLU
Üniversite	: Uludağ Üniversitesi
Ana Bilim Dalı	: Yabancı Diller Eğitimi Anabilim Dalı
Bilim Dalı	: İngiliz Dili Eğitimi Bilim Dalı
Tezin Niteliği	: Yüksek Lisans Tezi
Sayfa Sayısı	: xvi + 148
Mezuniyet Tarihi	: 02.07.2014
Tez	: İlkokul Öğrencilerine İngilizce Kelime Öğretiminde Karşılaşılan Ters İlişkilendirme Probleminin Çözümünde Anımsatıcı Hafıza Tekniklerinin Kullanılması
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İLKOKUL ÖĞRENCİLERİNE İNGİLİZCE KELİME ÖĞRETİMİNDE KARŞILAŞILAN TERS İLİŞKİLENDİRME PROBLEMİNİN ÇÖZÜMÜNDE ANIMSATICI HAFIZA TEKNİKLERİNİN KULLANILMASI

Kelime öğretimi, şüphesiz yabancı dil eğitiminde önemli bir role sahiptir. Fakat yabancı dilde kelime öğretimi alanında, “kıyafetler”, “renkler” vb. anlamca ilgili kelimelerin aynı anda mı yoksa farklı zamanlarda mı öğretilmesi gibi bazı konularda fikir birliğine varılamamaktadır. Bu konuda yapılan araştırmaların çoğu, anlamca ilgili kelimelerin birlikte öğretilmesinin sakıncalı olduğunu ifade etmektedir. Öğretilen bazı kelimelerin yazılışları veya anlamlarının benzemesi, öğrencilerin bu kelimeleri karıştırmalarına (ters ilişkilendirmelerine) yol açmaktadır. Bu karışıklığı önlemek için, yabancı dil öğretmenlerine anlamca ilişkili kelimeleri farklı zamanlarda öğretmeleri tavsiye edilmektedir. Bu çalışmaların aksine; yabancı dil müfredatı ve ders kitapları, öğretmenleri anlamları birbirine benzeyen kelimeleri birlikte öğretmeye sevk etmekte ve bu durum öğrencilerin bu kelimeleri karıştırma olasılığını arttırmaktadır. Ayrıca öğretmenlere bu problemin çözümünde yol gösterecek bilimsel çalışmalar da bulunmamaktadır. Bu çalışma “ters ilişkilendirme” problemini derinlemesine

incelerken, aynı zamanda anımsatıcı hafıza tekniklerinin bu problemin çözümüne olan etkisini de arařtırmaktadır. Bu amaçla sınıf ortamında gerekleřtirilen üç farklı deneyin bulguları, anımsatıcı hafıza teknikleriyle öğretilen öğrencilerin kontrol grubundakilere kıyasla kelimeleri çok daha iyi öğrendiğini göstermiştir. Birkaç belletici hafıza tekniđi dışında, tamamen aynı öğrenme-öğretme sürecine tabi tutulan kontrol grubunun ise benzer kelimeleri çok daha fazla karıştırdığı ortaya çıkmıştır. Sonuç olarak bu arařtırma, özellikle yazılıřları ve anlamları benzeyen kelimelerin birlikte öğretmek zorunda kaldıklarında, İngilizce öğretmenlerinin anımsatıcı hafıza tekniklerini kullanmalarını tavsiye etmektedir.

Anahtar Kelimeler: Anımsatıcı (belletici) hafıza teknikleri, kelime öğrenme stratejileri, kelime öğretimi, ters (yanlıř) ilişkilendirme

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LIST OF ABBREVIATIONS

- ALM : Audio-lingual Method
- AWL : Academic Word List
- CLT : Communicative Language Teaching
- COG : Cognitive Strategies
- DET : Determination Strategies
- EAP : English for Academic Purposes
- EFL : English as a Foreign Language
- ELT : English Language Teaching
- ESL : English as a Second Language
- GTM : Grammar Translation Method
- GSL : General Service List of English Words
- L1 : the first language, mother tongue, native language
- L2 : the second language (In this study, “the second language (L2)” is used to refer to both second and foreign language.)
- MEM : Memory Strategies
- MET : Meta-cognitive Strategies
- MNE : Ministry of National Education
- SLA : Second Language Acquisition
- SOC : Social Strategies
- UWL : University Word List
- VLS : Vocabulary Learning Strategies
- wfs : word families

CHAPTER 1

INTRODUCTION

Vocabulary has a pivotal role in second language (L2)¹ learning and teaching. First, words are indispensable for verbal communication. As stated by McCarthy (1990: viii), “No matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way.” That is, a language is meaningless without its vocabulary. Second, lexical knowledge is both a good predictor of overall language proficiency and a facilitator of four main language skills. If an analogy is made between a language and a human body, vocabulary is the heart which pumps blood to all the other vital organs such as reading, writing, listening and speaking. Namely, words provide learners with the bases for not only effective comprehension but also creative production in a L2. Thus, an extensive L2 lexicon is by far the most crucial tool with which teachers can equip their students.

Despite the consensus on the high status of vocabulary in L2 acquisition², there exist intense debates on the most effective way of teaching words. Relevant research proposes some approaches to develop learner’s L2 lexicon such as explicit teaching, incidental learning from context through maximum exposure to L2, strategy training, classroom activities, communicative tasks, and awareness raising proceedings. However, it should be noted that vocabulary development is a multi-faceted process, so it is unreasonable to label one method as the best option because each of them constitutes an indispensable strand of a systematic vocabulary instruction.

Explicit teaching of words through a deliberate program is essential at the early stages of L2 acquisition up to a point where beginners are able to read texts successfully and guess the meanings of unknown words from context efficiently (Coady, 1997b). In addition, certain lexical items such as high frequency words and academic vocabulary deserve explicit attention due to their critical role on effective comprehension and production of L2. In particular, if learners are able to master the most frequent 2,000

¹ In this study, “second language (L2)” is used to refer to both second and foreign language.

² The terms “acquisition” and “learning” will be used interchangeably throughout the study.

words of English, they will automatically know at least 85% of the running words in any type written or spoken texts (Nation and Waring, 1997). Hence, high priority should be given to direct teaching of such useful words without leaving it to chance.

Explicit instruction should be complemented with *incidental learning*, through which learners can naturally acquire the words they need or they encounter in different stages of life. The size of L2 vocabulary is so great that – e.g., English comprises 114,000 word families (Goulden, Nation and Read, 1990) – teachers cannot present all the words explicitly at once within limited time in L2 classrooms. Knowing a word is also more than being aware of its meaning; rather, it has many other aspects such as spelling, pronunciation, grammatical patterns, collocations, associations, frequency, appropriateness, and use (Nation, 1990; 2001). Direct teaching alone is not sufficient to promote all these lexical aspects, so full mastery of a word requires meeting it in a range of intentional and incidental contexts. Nevertheless, incidental learning is limited when L2 is a foreign language in learners' lives, which makes explicit learning more critical.

Vocabulary learning strategies (VLS) is also vital in L2 lexical acquisition. Direct teaching of high value words is like giving fish to a hungry child; as he grows up, skill of fishing independently gains more importance. Similarly, as learners' proficiency increases, teacher should help them continue to extend their L2 lexicon on their own by equipping them with effective VLS such as guessing from context, word roots and affixes, dictionary use, and mnemonic devices (Nation, 1990). VLS help learners not only discover the meaning of new words initially but also consolidate and recall them at later encounters (Schmitt, 1997). Specifically, it is very challenging for many L2 learners to keep words in mind and recall them later. In order to cope with this, they are suggested to apply mnemonic devices, which may offer powerful means for memorising, retaining and retrieving information.

Another approach states that vocabulary should be recycled and revised through *classroom activities* so as not to be forgotten (Allen, 1983). On the other hand, it is also crucial to practise words by means of *communicative tasks* (Nation and Newton, 1997). Complete mastery of words cannot be attained unless learners use them productively in meaningful context for communicative purposes. Lastly, *awareness raising activities* will lead students to feel a personal need for learning and increase their motivation to acquire new L2 vocabulary. Thus, all these practical approaches should be combined harmoniously in a well-structured vocabulary instruction for more satisfying results.

There is no best way of teaching vocabulary which suits all situations, and any single approach alone will not address all the aspects of lexical knowledge (see also Schmitt, 2007). Therefore, a harmony approach should entail a combination of explicit teaching with encouragement of students to learn incidentally from context in the light of strategy training. This approach should also involve revision of words on a regular basis, lexical practice through communicative tasks and awareness raising activities. Schmitt (2000) states that “current best practice includes both principled selection of vocabulary, often according to frequency lists, and instruction methodology that encourages meaningful engagement with words over a number of recyclings” (p. 14). Hence, in a well-designed vocabulary programme, words are required to be chosen carefully, taught explicitly, recycled periodically by teachers; and learned eagerly, guessed contextually, practised communicatively by students.

Another controversial issue in L2 lexical research is whether new vocabulary items should be taught in semantic sets or in semantically unrelated sets. A semantic (lexical) set refers to systematic arrangement of words in meaningful sets, e.g., “*colours*” or “*food*”, as a group of lexical items sharing common semantic features. In contrast, words in semantically unrelated sets do not have similar semantic features with one another, as in “*green, slimy, frog, pond, hop, croak, swim*”.

On the one hand, some studies support the common teaching practice of grouping semantically related words together (Gairns and Redman, 1986; Haycraft, 1993; Hashemi and Gowdasiaei, 2005; Stahl and Naggy, 2006; Graves, 2006). This view is based on the psychological principle that well-organised information is easier to learn. Such grouping is regarded to comply with organisation of semantic fields in our brain (Aitchison, 1994), so it assists learning and retention of words. Teaching related words at the same time is also believed to help learners explore the semantic boundaries of the words within the set by revealing similarities and differences among them.

An increasing number of studies, on the other hand, suggest teaching lexical items in semantically unrelated sets (Higa, 1963; Tinkham, 1993, 1997; Waring, 1997; Nation, 2000; Erten and Tekin, 2008). These studies reveal that words can be learned faster through unrelated grouping, and it produces higher degree of retention and recall. “Interference theory” is put forward as a rationale for opposition to present new words in semantic sets. In this theory, if a new item to be learned has got too many similarities with those learned just beforehand, it will be more difficult to learn the given item due

to interference effect of the similar words on each other (Tinkham, 1997). Accordingly, an overwhelming amount of research evidence strongly highlights that teaching of words simultaneously in semantic sets have an interfering effect on learning, which makes those words prone to be cross-associated by L2 learners.

Cross-association is one of potential problems in L2 vocabulary learning and teaching. It involves one's making incorrect form-meaning association while learning of a word's meaning for the first time, and it generally appears if two or more semantically similar words are taught or learned together. Cross-association occurs because students learn the word forms and their meanings at the same time, as a result of which "they confuse which goes with which" (Schmitt, 2007: 835). For example, the English words "right" and "left" are mostly cross-associated by learners since they are too similar and share the same semantic features with the exception of "direction" (Schmitt, 2000). Antonyms (*fat-thin*), synonyms (*look-stare*), synforms (*soup-soap*) and the words from the same semantic sets or groupings such as "*clothes*" and "*body parts*" are more likely to be confused (Higa, 1963). For this reason, it seems unreasonable to teach the words similar in form and meaning simultaneously in case it give rise to cross-association.

In spite of convincing research findings opposed to teaching related words together, there is still a general tendency to present vocabulary in semantic sets. Almost all L2 teaching methodologies, whether structure-based or communicative, adopt semantic grouping to serve new words. Many current language curricula and textbooks still group the lexical items according to their common semantic characteristics. Thus, most EFL (English as a foreign language) courses are full of semantically related words, especially those in Turkey. Nation (1990: 47) suggests that 25% of similar words taught at the same time are generally cross-associated, which is a serious trouble for L2 learners.

In order to avoid cross-association, L2 teachers are advised to introduce related words at different times. In other words, it is recommended to teach the most useful ones among the cross-associated pairs first, and then continue with the others at least several days later (Nation, 2000). However, such kind of practice may not always be possible for many Turkish EFL teachers since they are not the only authority to decide what to teach in L2 classrooms. In addition, teachers may try to teach only one clothing item such as "*skirt*", but students may want to learn another one like "*shirt*".

This common trend in presenting vocabulary in semantic sets leads many Turkish EFL teachers into a dilemma. Owing to the constraints of the Turkish national curricula and textbooks, teachers are obliged to teach semantically related words together, which may potentially give rise to cross-association. Hence, EFL teachers have a dilemma: whether to comply with the demands of the curriculum and textbooks or to attempt to overcome the potential cross-association by teaching semantically or syntactically similar words at different times. On the other hand, it is challenging for them to plan and teach the related words at different times by deviating from the national curriculum and without help from a coursebook. Such dilemma brings to mind whether there may be another way to avoid cross-association while teaching words in semantic sets or not, which is the main motivation of this study.

Although avoiding cross-association is a significant principle in teaching L2 vocabulary (Nation, 1990, 2000; Schmitt, 2000, 2007), there seems no empirical study to give EFL teachers insights about how to cope with this prospective problem. In his article, Nation (2000) advises learners to find some mnemonic tricks to differentiate between the words similar in form and meaning so that they can keep the interfering effect at minimum. The use of mnemonics may be a bit difficult for EFL students at first, especially for young learners. In this regard, this study anticipates that, instead of students, teachers can use mnemonic devices to minimise cross-association. At first, teachers may help learners explore some mnemonic tricks to distinguish confusing words for a certain time as a temporary assistance. Then, as students learn how to use such mnemonics independently, the support from teachers may be withdrawn, as in the concept of scaffolding (Wood, Bruner and Ross, 1976; Hammond and Gibbons, 2005).

Mnemonics, also known as memory strategies, are intended to help learners organise new information mentally, retain it effectively in their memory and recall it easily when needed. They link new words to be retained with learners' prior knowledge through some form of mental imagery or grouping (Schmitt, 1997). Mnemonic devices lead to faster learning and better recall of words since they facilitate the integration of new material into existing cognitive units in learners' mind and supply easier retrieval cues (Thomson, 1987). The best-known mnemonic technique is the keyword method. It involves creating a mental image which associates the pronunciation or spelling of a L2 word with the meaning of another word, mostly in L1 (native language). As an example, the German word "*roupe*" (caterpillar) resembles the English word "rope", so English

learners of German can easily remember it through a visual image of a caterpillar stretched out like a rope (Hulstijn, 1997). In fact, mental imagery and mnemonics have been investigated extensively in L2 lexical field. Relevant research has repeatedly proved efficacy of mnemonics -especially keyword method- on L2 vocabulary learning (Raugh and Atkinson, 1975; Levin, Levin, Glasman, and Nordwall, 1992; Avila and Sadoski, 1996; Lawson and Hogben, 1998; Carney and Levin, 1998; Sagarra and Alba, 2006, Sarıçoban and Başıbek, 2012). Thus, mnemonic devices are regarded as systematic procedures enhancing memory for better learning (Paivio and Desrochers, 1981; Presley, Levin and Delaney, 1982; Belezza, 1983; Paivio, 1983; Levin and Presley, 1985) and reviewed as one of the most efficient vocabulary learning strategies (Levin, 1981; 1986; 1993; Presley, Levin and Miller, 1982; Cohen, 1987; 1990; Hulstijn, 1997).

The rationale behind the use of mnemonic devices to avoid cross-association can be based on three theoretical frameworks: *the depth of processing hypothesis* (Craik and Lockhart, 1972), *dual coding theory* (Paivio, 1986) and *schema theory* (Bartlett, 1932; Anderson, 1977). First, relevant research reveals that mnemonics promote such a deeper level of cognitive processing of words in mind that it leads to better learning, higher retention and easier recall (Cohen and Apehek, 1981; Sagarra and Alba, 2006; Nemati, 2009). Second, mnemonic devices, particularly the keyword method, activate both verbal and visual mental processes in learning L2 vocabulary (Paivio, 1986; 1991). Third, mnemonics help learners integrate new words into related schemas in mind by forming more meaningful associations between L2 words. Another justification for this study stems from the author's individual experiences as an EFL teacher, who has been successfully applying mnemonic devices for 8 years so as to minimise cross-association while teaching semantically or orthographically similar words together. Nevertheless, without empirical evidence, such experiences are not enough to prove the effective use of mnemonics on avoidance of cross-association. With this in mind, this study intends to answer the following research questions:

1. To what extent do EFL learners cross-associate between the words similar in form and meaning when L2 vocabulary is taught in semantic sets?
2. Do mnemonic devices help EFL learners / teachers avoid cross-association in learning / teaching words similar in form and / or meaning?
3. Is the facilitative role of mnemonic devices for minimising cross-association stable in terms of immediate and delayed retention of L2 words?

CHAPTER 2

LITERATURE REVIEW

2.1. VOCABULARY IN L2 LEARNING AND TEACHING

Vocabulary is simply a set of words in a particular language. As building blocks of a language, words construct critical bridges into the mystical world of meaning in a language, thereby enabling us to understand and to be understood by others. In addition, every language contains words, and language acquisition process starts with our utterances of words. Vocabulary development never comes to an end; even in our native language, we keep on learning new vocabulary items until the final days of our life (Thornbury, 2002). With this in mind, vocabulary plays a pivotal role in every stage of language learning, no matter whether it is the first or the second language.

First, it is nearly impossible to communicate without words. “Without grammar very little can be conveyed, without vocabulary nothing can be conveyed (Wilkins, 1972: 111).” In other words, we can express our thoughts and ideas effectively with imperfect knowledge of grammar, but it is not possible to carry out communication without adequate vocabulary knowledge. Communication breaks down if people lack the necessary words or they do not use the right words (Allen, 1983). Similarly, the related literature suggests that lexical errors hinder comprehension more seriously than grammatical errors (Ellis, 1994), so communicative competence mainly depends on lexical development. Hence, vocabulary has much more communicative value than other language contents such as grammar and phonology, which is the reason why tourists carry dictionaries rather than grammar books while travelling.

Second, as a fundamental component of a language, vocabulary is strongly correlated with many aspects of language development and use. On the one hand, studies reveal close relations between vocabulary size and overall language proficiency. In this respect, Alderson (2005) indicates that learners’ vocabulary size is directly related to their performance on any language test. In other words, their language ability is largely controlled by their vocabulary size. On the other hand, vocabulary provides

the basis for outstanding performance in the mastery of four main language skills. By increasing their lexicon, students can easily improve their reading, writing, listening and speaking skills in the target language. Vocabulary size is a good predictor of reading achievement, and the amount of unknown vocabulary in a text is one of the major factors increasing the difficulty of a text. Having an extensive lexicon and using more precise or native-like words are also essential for developing the other language skills. Thus, vocabulary knowledge is a key factor, which leads learners to effective comprehension and production in L2.

In sum, in spite of the central role of words in L2, vocabulary acquisition is one of the most difficult tasks for most learners. It is a big challenge for students to learn, store, retrieve and use lexical items productively. Therefore, words are by far the most crucial tools language teachers can provide to their students.

2.1.1. History of Vocabulary in L2 Teaching

In the history of second language research and methodology, vocabulary has unfortunately not received the priority it deserves. While some language teaching methodologies totally disregarded it, some others gave little emphasis to vocabulary development. Seeing grammar as a primary focus of attention, teaching methodologies like the Grammar Translation Method (GTM) and the Audio-lingual Method (ALM) laid stress on explicit teaching of structural patterns through translation and mechanical drills, respectively. Since the goal is reading and writing of ancient classics, GTM expected students to learn obsolete vocabulary of the classics through bilingual word lists. ALM also gave a secondary role to vocabulary in that selection of lexical items depended on their contribution to explicit grammar rules.

Considering listening as a primary skill for a learner, the Direct Method laid the focus on the exposure to oral language. In this method, vocabulary was mainly related with real world. Therefore, pictures and physical demonstration were used to present concrete words like school equipment and clothes, and abstract words were taught by grouping and associating ideas (Zimmerman, 1997; Schmitt, 2000). Nevertheless, the role of vocabulary was again minimized since it was believed that vocabulary items should be acquired naturally through exposure and interaction in the classroom.

Vocabulary received more recognition with the advent of the Reading Method and the Situational Approach. Seeing that exposure time is too limited to improve overall language proficiency, the Reading Method had the primary goal of developing students' reading abilities in L2. Michael West drew attention to the need for extending learners' lexicon so as to facilitate their reading skills (Zimmerman, 1997). Likewise, the Situational Approach, based on grouping of lexical and grammatical items in line with various situations in social life (e.g. *at the post office, at the cinema*), adopted more principled strategy to vocabulary instruction (Schmitt, 2000).

With the emergence of Communicative Language Teaching (CLT), more value was attached to language use and communicative proficiency rather than grammar. Even so, vocabulary was once again undervalued since the primary focus was laid on language functions (e.g. *making request, apologizing*), so CLT made no explicit clarification about how to deal with words (Schmitt, 2000). As another communicative method, Natural Approach underlined the value of comprehensible and meaningful input. It emphasized that “[language] acquisition will not take place without comprehension of vocabulary.” (Krashen and Terrel, 1983: 155), and vocabulary was considered as carrier of meaning. It did not suggest any vocabulary teaching methodology except for supplying students with interesting and relevant input. It was believed that students can implicitly learn lexical items while trying to understand the message in the input. Krashen (1989) considered free reading as the best way of acquiring new vocabulary, so he argued that words should be presented incidentally through extensive reading.

From the 1980s onwards, some advances have rescued vocabulary from being a neglected aspect of a language. First, the spread of computerised databases (corpora) and corpus analysis studies has enabled scholars to gain access to crucial data about lexical issues. Second, an increasing number of books and studies have laid emphasis on the prominent role of vocabulary on L2 learning and use (Meara, 1980; Allen, 1983, Gains and Redman, 1986; Carter and McCarthy, 1988; McCarthy, 1990). Finally, there have appeared more “word-centred” methods such as Lexical Approach (Willis, 1990; Lewis, 1993; 1997), which regards “words” as building blocks of language. In this respect, Lewis (1993) states that “language consists of grammaticalised lexis, not lexicalised grammar” (p. 95). Thus, current line of thinking has almost no hesitation about the central role of vocabulary in L2 acquisition.

2.1.2. Vocabulary Control Movement and General Service List (GSL)

On account of the difficulty in learning thousands of words in a second language, some efforts have been made to limit the number of words which will be more useful to learn or teach, thereby making vocabulary learning easier for students. These attempts to standardise the selection of words in English are known as the Vocabulary Control Movement (Schmitt, 2000). General Service List (GSL) was one of projects in such movement to reduce English vocabulary to the minimum amount.

With the aim of reducing the vocabulary learning load of the learners, Michael West tried to select the most useful English words. A leading criterion for the selection of words in the list was word frequency, the number of occurrences a word is used in a text. Nevertheless, it was not the only criterion. “*pencil*” may not be involved in the list, but it is an inevitable word in the classroom atmosphere; therefore, the context in which the word is used is also important while identifying the importance of the vocabulary items. With this in mind, a number of criteria were utilized to decide the GSL: word frequency, structural value, universality, subject range, definition words, word-building capacity, style (Howatt, 1984: 256). In the light of these criteria, West identified the most frequent 2000 words on the basis of a written corpus of 5,000,000 words, and eventually published *the General Service List of English Words (GSL)* (1953: 84).

General Service List (GSL) has had extensive impact in the field of L2 research and methodology. As well as frequency count of each word, the GSL gives frequency information of the words within different meaning senses, which makes it still a practical list. Apart from shedding light upon the lexical research, the GSL has given direction to writers in the production of learner dictionaries, graded readers and textbooks. Teachers can also take it into account while deciding which words to teach. According to Zimmerman (1997), in spite of being old and the existence of many other up-to-date lists, it is still the most widely used of high-frequency word list.

2.1.3. Lexical Competence

“Lexical competence is at the heart of communicative competence” (Meara, 1996: 35). It can simply be defined as the ability to recognize and use the vocabulary of a language. As a matter of fact, this ability is multidimensional in nature. Breadth (size)

and depth of vocabulary are two basic facets of lexical competence (Nation, 1990), and Meara (1996) suggests automaticity of access (fluency) as a third dimension.

First, *breadth of vocabulary knowledge* is the number of words the meanings of which are known by a learner, which is the size of a learner's lexicon. While identifying lexical size of a learner or a language, counting can be a bit complicated because it is not easy to decide whether “*listen*”, “*listens*”, “*listening*” and “*listened*” should be counted as one word or four. Therefore, we should begin with what to count as a word. Nation (2001) suggests various ways of counting vocabulary items:

a) Tokens: It is a way of counting every word in a text. Even if the same word occurs more than once, we will count each occurrence. For example, the English proverb “*A friend in need is a friend indeed.*” consists of eight tokens (running words) even though some words appear twice in it such as “*a*” and “*friend*”.

b) Types: Another way is counting only different words in a text. If the same word occurs once more, it is not counted again. That is, the sentence “*A friend in need is a friend indeed.*” includes six types, but eight tokens.

c) Lemmas: A lemma contains a headword (base form of a word / root / stem) and some of its inflected forms. As an example, the headword “*dance*” and its inflected forms “*dances*”, “*danced*” and “*dancing*” are counted as one lemma. Why all those words are counted as one lemma is the learning burden, which is the amount of effort necessary for learning a word. That is, when learners grasp the inflectional system of English, they will not make extra effort to learn inflected forms of a particular headword such as “*old, older, oldest*” and “*watch, watches, watching, watched*”. However, there exist some problems with using lemma as a counting unit. First, the same form of words used in a different part of speech (“*talk*” as a verb, and “*talk*” as a noun) are accepted as different lemmas despite revealing almost no learning burden. Second, it is not clear whether irregular forms such as “*people*”, “*mice*”, “*went*”, “*bought*”, “*best*”, “*worse*” are counted as a part of the same lemma or as different lemmas. Naturally, the learning burden of such irregular forms is considerably more than those of regular ones. Finally, sometimes it may be difficult to decide what the headword is (Sinclair, 1991).

d) Word Families: A word family includes a headword, all of its inflections, and its closely related derivatives. For instance, the headword “*attract*” comprises the following members in its family: “*attracts*”, “*attracted*”, “*attracting*”, “*attractive*”,

“*attractively*” “*attraction*”, “*attractions*”. Similarly, “*swim*”, “*swims*”, “*swam*”, “*swum*”, “*swimming*”, “*swimmer*” can be counted as the members of the same word family. In some cases, it may also be challenging to determine whether a word should be included in a particular word family or not. Nevertheless, a study indicates that human mind groups the members of a word family together (Nagy, Anderson, Schommer, Scott and Stallman, 1989). Thus, it seems more effective to use word families as the unit of counting and teaching vocabulary items.

Second, *depth of vocabulary knowledge* refers to the quality of lexical knowledge; it displays how well we know individual words and how well the words are organized in our mental lexicon (Stæhr, 2009). While vocabulary size is about how many words are known, the depth is related to what is known about each individual word such as its spelling, pronunciation, meaning, collocations, associations, register and grammatical patterns, all of which will be discussed in the following section.

Third, *automaticity of access* or *fluency* is the ability to retrieve words as quickly as possible in language use. In other words, it is our speed of access in recalling words from our lexicon and using them fluently to convey our messages during the process of communication. Size, depth and fluency should not be considered in isolation as they are three interrelated strands of lexical competence, thereby overlapping one another.

2.1.3.1. Aspects of Knowing a Word

For most of us, knowing a word basically means being conscious of its meaning and form (pronunciation or spelling). Naturally, they are two main components of lexical knowledge, and establishing form-meaning relation is vital aspect of vocabulary acquisition. However, word knowledge and use contain many other aspects rather than awareness of form and meaning. So as to know a word entirely, a learner must know its:

- a) spoken / phonological form (pronunciation)
- b) written / orthographical form (spelling)
- c) meaning(s)
 - ✓ *referent (the person, thing, action or situation a word refers to in real life),*
 - ✓ *concept (our idea or mental picture of what a particular word is), and*
 - ✓ *“central”, “core”, “dictionary” meaning of a word, also known as denotation.*

d) grammatical behaviour (grammatical patterns)

- ✓ *parts of speech (word classes): noun, adjective, verb, adverb, pronoun, determiner, preposition, conjunction, determiner*
- ✓ *word parts: root, stem, affixes for common derivations and inflections of a word*
- ✓ *lexical rules*

e) collocations

- ✓ *knowing the way words are used together and which words occur side by side. Some nouns are used with particular verbs e.g. “do” is used with “homework”, but “make” collocates with “decision”; so “do decision” is wrong.*

f) associations

- ✓ *lexical relations of a word with other words, such as synonymy, synformy, antonymy, hyponymy, meronymy, homonymy, homophony and polysemy*

g) frequency

- ✓ *knowing how often a word is used in a text or language. e.g. “buy” has more common use compared to “purchase”.*

h) appropriateness and constraints on use

- ✓ *extra meanings or constraints added to a word by the contexts of immediate situation and culture, also known as connotations,*
- ✓ *stylistic constraints: formal, informal, old-fashioned, slang, etc.,*
- ✓ *register variation: whether it is often used in written or spoken language,*
- ✓ *cultural variation: appropriateness of words in language situations or culture*
- ✓ *subject area in which a word is generally used,*
- ✓ *discourse function of a word, etc.*

i) automaticity (ability to use a word fluently in communication).

(Adapted from Nation, 1990: 31; Nation, 2001: 23-27; Schmitt, 2000: 22-66)

Rather than focussing only form and meaning, knowing a word requires familiarity with all these aspects, which constitutes *the learning burden of a word*. Learning burden is simply the amount of effort necessary for learning a word, and each word has discrete learning burden since learners from different language backgrounds have different levels of difficulty in acquiring a word (Nation, 2001).

The mastery of components above is a requisite for correct and appropriate use of a word in a variety of contexts. However, it is almost impossible to master all dimensions of word knowledge at once. Some word knowledge features are acquired

earlier than some others. A learner can be aware of the spelling and basic meaning of a word, but cannot pronounce it. Similarly, some words are used in speech unconsciously, without an in-depth knowledge of their relevance to the existing context, situation or culture. Various lexical aspects develop at different rates, so it is very difficult to describe how each of these aspects is acquired.

2.1.3.2. Degrees of Word Knowledge: Receptive or Productive?

Words are by no means isolated units of language, so there are many aspects in our word knowledge and there exist many degrees of knowing a word (Nation 2001). For instance, we can understand relatively more words than we use actively in our speech. In other words, there is a considerable difference between the number of the words we comprehend and produce. This is because some words are known receptively (passively), and some others productively (actively). *Receptive knowledge* is our capacity to recognise and understand the fundamental meaning of a word when we see it in a text or hear it in a conversation. On the other hand, *productive knowledge* concerns our actual use of a word while producing our messages both in spoken and written form. While receptive knowledge (passive vocabulary) is usually associated with reading and listening skills, productive knowledge (active vocabulary) is related to speaking and writing.

There are some inferences on interrelation between receptive and productive knowledge despite the lack of consensus on these assumptions. To begin with, new words are often learned receptively first and then this receptive knowledge turns into a productive level, which means reception precedes production. Secondly, one's passive vocabulary size is greater than active vocabulary size, so we understand more words than we use in our speech. Lastly, production involves comprehension; that is to say, if we use a word actively, it is also known receptively.

All vocabulary items may not be known both receptively and productively. Learners may grasp the meaning of a word in isolation, but may not use it appropriately in a meaningful context. Receptive and productive classification can be applied to not only knowledge of a word in general but also distinct aspects of lexical knowledge such as pronunciation and spelling. Seeing *form*, *meaning* and *use* as basic components of

knowing a word, Nation (2001: 27) classifies various aspects of word knowledge in the light of receptive and productive levels (*see Table 2.1*).

Table 2.1: What is involved in knowing a word?

Form	spoken	R: What does the word sound like? P: How is the word pronounced?
	written	R: What does the word look like? P: How is the word written and spelled?
	word parts	R: What parts are recognizable in this word? P: What word parts are needed to express the meaning?
Meaning	form and meaning	R: What meaning does this word form signal? P: What word form can be used to express this meaning?
	concept and referents	R: What is included in the concept? P: What items can the concept refer to?
	associations	R: What other word does this make us think of? P: What other words could we use instead of this one?
Use	grammatical functions	R: In what patterns does the word occur? P: In what patterns must we use this word?
	collocations	R: What words or types of words occur with this one? P: What words or types of words must we use with this one?
	constraints on use	R: Where, when and how often would we expect to meet this word? P: Where, when and how often can we use this word?
<i>Note: R = receptive knowledge, P = productive knowledge</i>		

All in all, instead of regarding a word as being known receptively or productively, it will be better to analyse the degree of receptive/productive control of the different aspects of word knowledge (Schmitt, 2000). Anyway, there is no clear cut boundary to categorize a word or its components as receptive or productive. In this respect, Melka (1997) proposes that receptive and productive mastery of words should be viewed as two poles of a continuum. Some features of a word-knowledge may be converted into production, but some others may still be at receptive level. Thus, different types of lexical knowledge are mastered differently and at different degrees.

2.1.4. Nature of L2 Vocabulary Acquisition

As a limited set of rules, grammar can be mastered within a certain time; however, there is no possibility of learning the entire lexicon in a language. Vocabulary learning is such a complicated process that L2 learners cannot acquire all the words simultaneously; rather, it takes a long period of time and great deal of effort. Many of our students are able to learn even the basic meaning of a word after various exposures. Therefore, vocabulary acquisition is incremental in nature (Schmitt, 2000). It tends to increase both in number and amount. At first, learners may come across only the basic meaning of a vocabulary item, but later they will gradually begin to recognize all other meaning senses as their lexical competence develops.

Not only vocabulary acquisition is incremental in general, but also individual aspects of word knowledge develop on a regular increase (Schmitt, 2007). Instead of being known or unknown, one's knowledge of each lexical aspect ranges on a continuum from zero to partial and eventually to precise knowledge (Henricksen, 1999). Schmitt (2000: 118) explains these partial/precise degrees of lexical knowledge by giving an example about spelling in *Figure 2.1 below*:

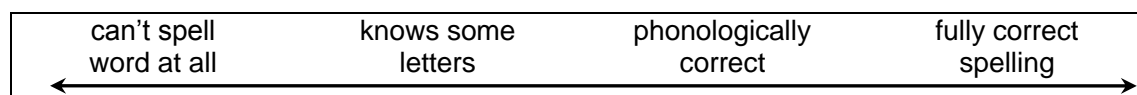


Figure 2.1: Partial/precise degrees of lexical knowledge about spelling

In this way, words and individual lexical features are learned in gradual manner, but some aspects may be acquired later than the others. However, it seems that various kinds of word knowledge are interconnected; therefore, increase in one aspect of word-knowledge is expected to facilitate the knowledge of related aspects (Schmitt, 2000).

Graves (1987) outlines six learning tasks for vocabulary development:

- 1) learning to pronounce known words,
- 2) recognising new meanings for known words,
- 3) acquiring new words which represent known concepts,
- 4) learning new words for new concepts,
- 5) enriching the meanings of known words, and
- 6) developing words from receptive into productive levels.

Owing to these multidimensional characteristics, words cannot always be learned at one occasion of exposure. Rather, learning may require numerous exposures in different forms and contexts so that meaning and use of words can be retained and put into practice. Even native speakers may not explore some aspects of many words throughout their lives. Lexical development never ends both in terms of size and depth. Keeping this in mind, language teachers should create a learning atmosphere in which students repeatedly encounter a word in a range of contexts so as to master it entirely.

2.1.5. Learning Vocabulary in L2

Word knowledge is by far the most valuable resource for comprehension and transmission of any message during oral or written communication. However, mastering a great number of vocabulary items in a short time is a challenging task for L2 learners. The nature of L2 learning gives them limited time and improper atmosphere for lexical development compared to native speakers acquiring their L1 words through numerous exposures over many years. In this respect, Cobb (1999: 345) suggests that “students typically need to know words measured in thousands, not hundreds, but receive language instruction measured in months, not years”. Hence, vocabulary learning lays a heavy load to the shoulders of L2 learners.

A learner can grasp lexical items in two different manners: *explicitly* or *implicitly* (*‘intentional’* and *‘incidental’* learning can be considered as alternative terms, respectively.) On the one hand, *explicit learning* is acquiring knowledge of lexical items by way of conscious strategies such as memorization and word lists (Richards and Schmidt, 2002). Since intentional learning occurs by means of a deliberate program mostly in a classroom environment, students directly concentrate on the words to be mastered. Despite being time-consuming, it provides learners with greater chance to acquire lexical items. This usually enables learners to pass the word tests, but it does not guarantee that they can use the words they memorise appropriately in real contexts.

On the other hand, *implicit learning* concerns acquisition of words primarily through unconscious exposure to the target language, in written and / or spoken forms (Richards and Schmidt, 2002). Learners are not required to do explicit vocabulary exercises. Here learning can be incidental but not deliberate, and it happens without learners’ intention, so they are not aware of what part of lexis has been learned. Implicit

learning reflects unintentional acquisition of vocabulary through listening, reading, interaction or communication. Since learners are likely to be exposed to more lexical items in a short time, mastery of words would be slower in incidental learning. For a successful incidental learning, it is essential for learners to have sufficient language proficiency level, a large L2 vocabulary and knowledge of inferencing strategies; and the context should adequately be rich in clues (Schmit and McCarthy, 1997).

Whether explicit or implicit style is more efficient way of learning L2 vocabulary has been debated intensively for years. In view of L1 acquisition occurring mostly through exposure, incidental learning is the dominant means of mastering vocabulary for native speakers (Schmitt, 2000). In time, we acquire most of words in our mother tongue through interaction with our social environment without explicit intention. However, for many L2 learners, the classroom is the only context to be exposed to the target language and the time allocated for this is quite limited. Thus, it is almost impossible for students to infer word meanings from context without knowing *threshold vocabulary*, which is described as the minimum level of lexical knowledge required for functional ability in a foreign language (Richards & Schmidt, 2002).

In conclusion, Schmitt (2000) argues that some explicit learning is compulsory for learners until they reach the threshold vocabulary size which will enable them to begin learning incidentally through exposure to written or spoken language. Mastering some basic vocabulary explicitly can provide some kinds of basis for incidental learning to take place. Thus, explicit and implicit learning are two interdependent parts of a continuum, and their systematic combination will prompt more efficient vocabulary acquisition (Zimmerman, 1994; Paribakht and Wesche, 1997; Nation and Waring, 1997; Schmitt and McCarthy, 1997; Schmitt, 2000; 2007; Celce-Murcia, 2001).

2.2. MAIN APPROACHES IN TEACHING VOCABULARY

Many learners have a strong desire to extend their L2 lexicon due to the vital role of words on SLA. However, many teachers regard vocabulary learning as a low-level intellectual activity (Coady, 1997b), and they do not make room for a systematic vocabulary instruction in L2 classrooms. Despite the research results favouring explicit vocabulary teaching, they leave their students on their own to acquire a considerable number of L2 words. In fact, L2 teachers need to share the responsibility of such a

challenging task with their students. They are also required to create an efficient learning context in L2 classrooms in light of the implications of the relevant research.

A rich L2 lexicon is the greatest resource which language teachers can supply to their students. However, it is hardly possible to equip learners with this magic tool without having knowledge of leading approaches in L2 research and methodology. L2 lexical research draws attention to three major approaches in teaching vocabulary (Coady, 1997a; 1997b; Morin and Goebel, 2001), which will be discussed hereafter.

2.2.1. Context Alone Approach (Contextual Guessing) (Guessing from Context) (Inferring from Context) (Incidental Learning) (Extensive Reading)

Generally parents do not teach words explicitly to their children during their L1 acquisition. Rather, they learn most of vocabulary through repeated exposures in various situations in life. In a parallel manner, this approach argues that learners should get maximum exposure to L2. It is obvious that the best way of doing this is to take them to a country where L2 is the primary language (Schmitt, 2000), but it is not applicable most of the time. Therefore, advocates of this view put forth another alternative: exposing students to L2 through extensive reading. In this way, learners are believed to acquire all the words they need from context as a by-product of reading, so there is no need for direct vocabulary teaching in L2. Thus, it views contextualised reading as the main source of vocabulary learning.

As a leading proponent of this view, Krashen (1989; 1993) asserts that learners acquire vocabulary through extensive reading as long as they receive comprehensible input in their own area of interests. Naggy, Herman and Anderson (1985) argue that children learn majority of words through incidental learning from written context. Naggy and Herman (1987) also advise teachers to foster extensive reading since it can prompt more vocabulary growth than any type of explicit instruction. In their opinion, even small amount of regular extensive reading will provide learners with countless encounters with words in a range of meaningful context, which leads to more effective learning. According to Naggy and Anderson (1984) and Naggy and Herman (1984; 1985), there are such a great number of L1 words in printed elementary school English that it is unlikely to teach them one by one, which is a drawback of explicit instruction.

2.2.1.1. Criticism on Context Alone Approach

Although some studies favour acquisition of L2 words incidentally from context, the empirical evidence they have revealed is quite open to dispute for some reasons (Coady, 1997a; 1997b). First, both incidental vocabulary learning hypothesis and Krashen's extensive reading studies are primarily based on research evidence from children's L1 acquisition rather than L2. Naggy, Herman and Anderson (1985) found that L1 learners can learn 15% of words they encounter for the first time. However, there exists no comparable research in the second language acquisition (SLA), so it is uncertain whether L2 learners can acquire words from written context at similar rates or not. In his article to find evidence for Input Hypothesis, Krashen (1989) also analysed 144 research studies, but solely three or four of them were related to SLA, thereby making that research evidence unsatisfying.

Second, many studies giving support to Krashen's claims are methodologically inaccurate since their control groups were not given any exposure to the target words. For instance, Pitts, White and Krashen (1989) tried to investigate the lexical gains of intermediate ESL learners who read extensively the first two chapters of a novel. Naturally, less amount of vocabulary was acquired by the control group who did not read the novel. In a similar study by Day, Omura and Hiramatsu (1991), EFL learners who read a story silently showed greater vocabulary gains on the post-test than the control group who did not join the task of reading the same story. Dupuy and Krashen (1993) also conducted a study on university students who took a surprise vocabulary test after watching five scenes of a film and reading the next five scenes. The experimental group performed better than the control group who did not see the film or read the text. Hence, the validity of such studies is debatable without giving control groups opportunities to deal with the target words.

Besides, the participants in L2 research favouring incidental learning are mostly above intermediate level of language proficiency. Chern (1993) and Naggy (1997) provided persuasive arguments about the benefits of extensive reading for the learners with higher L2 proficiency. Grabe and Stoller (1997) also concluded that extensive reading of newspapers for at least two hours a day increases recognition vocabulary of a L2 learner; but note that it was only a case study of a subject who was a highly motivated adult learner. Acquiring words through extensive reading seems logical for

L2 learners who have already achieved advanced reading proficiency in a language. However, research findings do not support that such gains occur with beginner students.

Finally, there exists some negative evidence about L2 vocabulary acquisition through extensive reading. Tudor and Hafiz (1989) found that 3-months extensive reading program using graded readers developed L2 learners in terms of reading and writing skills, but their vocabulary remained unchanged. In another research with EFL adult learners, they (1990) concluded that subjects had no significant vocabulary gain in reading graded readers. Hulstijn's various studies with adult L2 learners (1992) also indicated that learners' recall of inferred word meanings within incidental learning tasks was very low in contrast to the meaning given them explicitly.

Sökmen (1997) proposes five potential problems related with guessing words from context. To start with, learning words through inferring from context appears to be a slow process. Therefore, for many learners, it may not be the most effective way of mastering a large amount of L2 vocabulary in a limited time (Carter and McCarthy, 1988). Second, learners often make mistakes in guessing the correct meanings because it is an error-prone process by nature. Especially, the attempts by learners with low-level L2 proficiency mostly come to an end with inaccurate guesses, perhaps owing to the inadequate contextual clues or lack of training to perform such kind of activity. Third, without mastery of sufficient L2 vocabulary, efficient reading comprehension may not occur even when students are competent in using reading strategies (Haynes and Baker, 1993). Moreover, paying too much attention to infer from context may result in the neglect of the fact that every learner has different strategy for coping with unknown words in a text. In this respect, Hulstijn (1993) recommends that teachers should teach inferring skills as an option and permit learners to decide which methods to choose. Lastly, guessing a word successfully from context does not guarantee the storage and the long-term retention of that word in memory. Mondria and Wit de-Boer (1991) found that enriching the contextual clues in reading texts improved learners' inferring skills but there was no improvement in retention of these words.

2.2.1.2. Strong Points of Contextual Guessing

The weak points above do not mean throwing contextual guessing away (Sökmen, 1997). Incidental learning also plays a crucial role in our lexical acquisition,

especially beyond the early stages of SLA. First of all, there exist such a great number of words in a language that it is not possible to teach all of them explicitly due to time pressure. After L2 learners reach a threshold level of lexical competence, they are able to infer meaning of new words from context on their own through extensive reading.

Moreover, the multidimensional nature of word knowledge cannot be handled only through direct instruction. Knowing a word includes knowing its spelling, pronunciation, derivations, syntactic properties, collocations, frequency and appropriateness in addition to its meaning (Nation, 1990). It seems impossible to master all these dimensions at once, and it requires a numerous exposures to it in a variety of contexts. In this regard, the basic meaning of a word can be introduced explicitly to students first, and then they can acquire the other aspects by means of contextual learning (Schmitt and McCarthy, 1997). Additional encounters with a word in different contexts help us consolidate it in our memory as well (Schmitt, 2000).

Last but not least, some words or lexical aspects may be more suitable to be learned incidentally than others. Low frequency words are claimed to be acquired better through reading extensively (Coady, 1997a; Schmitt and McCarthy, 1997; Schmitt, 2000; Nation, 2001). In their study, Arnaud and Savignon (1997) concluded that acquisition of complex lexical idioms requires constant exposure to language as well as low frequency words. Likewise, Ellis (1997) asserts that learners mostly acquire phonological or orthographical regularities of L2 words in an incidental manner even though spelling and pronunciation can also be learned explicitly. Briefly, it is indispensable that majority of lexical competence emerges from meaningful encounters.

Incidental learning is likely to give better results when accompanied by other methods. Elley (1989) explored that teachers' oral reading of stories slightly contributes to vocabulary acquisition of L2 learners. However, oral reading accompanied by explicit teaching of word meanings led to vocabulary gains of 40% from one story while the gains of the subjects who received no lexical instruction remained only in 15%. With this in mind, an increasing number of scholars have recently put forth arguments for not focussing only on incidental learning of L2 vocabulary (Nation, 1990; 1993; Coady, 1993; 1997a; 1997b; Nation and Newton, 1997; Sökmen, 1997; Laufer, 1997a; Schmitt and McCarthy, 1997; Schmitt, 2000; 2007; Folse, 2004; 2010), and for the necessity to support it with other effective methods such as explicit instruction

(Stahl and Fairbanks, 1986; Haynes, 1993; Coady, 1993; Stoller and Grabe, 1993; Zimmerman, 1994; Paribakht and Wesche, 1997).

2.2.2 Explicit Teaching (Direct Teaching) (Explicit / Direct Instruction)

This viewpoint suggests systematic and direct teaching of certain lexical items via a number of deliberate and focussed techniques and even direct memorization of most frequent words (Coady, 1997b). Generally dealing with elementary foreign language learners, the advocates of this approach claim that more direct attention should be paid on the development of learners' vocabulary skills. Obviously, there exist many ways of teaching words explicitly such as giving word definitions, synonyms, translation, word associations and using realia, visual materials, word games, semantic mapping or mnemonic techniques. Direct teaching allows teachers to present a great number of words easily within a short time and helps students focus consciously on any aspects of lexical knowledge. Increased awareness of certain words leads learners to notice and figure out them easily when they are exposed to. Explicit vocabulary instruction may also increase students' interests and motivation in learning words, thereby accelerating overall SLA process. Hence, the explicit teaching of lexical items may offer some advantages, which are not easily attained in the contextual approach.

2.2.2.1. Strong Points of Explicit Vocabulary Instruction

According to this approach, direct vocabulary instruction plays a pivotal role at initial phase of L2 learning, but it can be more and more context-based later on (Nation, 1990, 1993; Coady, 1993, 1997b; Nation and Newton, 1997; Schmit, 2000). It does not underestimate the value of extensive reading in L2 vocabulary learning. Rather, it lays stress on the urgent need for beginners to acquire a critical number of words which was required for successful reading comprehension, and argues that elementary L2 learners can master this threshold vocabulary more effectively via explicit instruction.

Coady (1997a) highlights that beginner students have a paradox: they must read extensively to learn new words, but it is unlikely for them to be able to read and guess unknown words from context without knowing certain words. According to Nation and Coady (1988), a learner should know about 98 % of words in a text for successful

guessing from context. This finding begs a question here: how can they reach this threshold lexical knowledge which will make them independent vocabulary learners? Thus, direct vocabulary instruction may play a vital role on overcoming this beginners' paradox and helping them learn adequate words to be proficient readers and guessers.

Native speakers acquire most of their vocabulary through incidental learning and the rate of L1 words learned by way of direct instruction is small. However, in L2 vocabulary acquisition, explicit teaching has the leading role in that there are some critical words, acquisition of which should not be left to chance and direct teaching methods should be applied at the early stages of SLA. Namely, Nation (1993, 1995) argues that the most frequent 2000 words are so important that they should be learned as soon as possible by way of effective methods. According to Coady (1993), these lower limit words should be mastered to the point of automaticity. Schmitt (2000) also underlines the indispensability of certain explicit study for L2 learners until they attain sufficient threshold vocabulary to start learning words through contextual guessing.

Apart from high frequency words, some other lexical items may be better candidates for explicit study. According to Ellis (1997), word meaning is especially more responsive to conscious learning in opposition to form. The research on collocations suggests that complicated multiword units cannot be mastered well only by means of natural exposure, so they require both explicit instruction and multiple encounters to be used productively (Coady, 1997b). Furthermore, Nation (1993) suggests that learners with academic purposes should firstly concentrate on direct learning of academic or technical vocabulary in their field before concerning extensive reading activities. To sum up, explicit instruction of L2 words can give benefits to learners at all levels.

2.2.2.2. Criticism on Explicit Vocabulary Teaching

Nation (2001) mentions three major criticisms about direct vocabulary instruction. First, explicit learning isolates a word from its context, thereby making it more difficult to retrieve. According to Judd (1978), decontextualised words cannot be recalled easily. Learning words within a context certainly helps students with form-meaning association (Laufer and Shmueli, 1997), but there is a significant amount of

evidence showing that a great number of words can also be learned through explicit instruction in a limited time and remembered for a long time (Nation, 2001).

Second, decontextualised teaching does not facilitate learners' use of words for communicative purposes. This criticism is somewhat correct: learning lexical items in isolation may not contribute to the use of words. However, we should note that use is only one of many other aspects of lexical knowledge. Knowing its form and meaning, and making form-meaning connections are also prerequisite for using a word. Those lexical features can be handled effectively through explicit teaching. Furthermore, direct vocabulary instruction is by no means decontextualised presentation of words; that is, it is also possible to teach words within a sentence or a more extended context.

The final criticism is that direct teaching is ineffective and useless since a language has too many words to deal with one by one. However, proponents of explicit approach do not suggest teaching all the words directly in a L2. Rather, they lay stress on the explicit teaching of most frequent 2000 words which will make a learner familiar with at least 85 percent of words in any type of text (Nation and Waring, 1997).

2.2.2.2. Research on Explicit Vocabulary Instruction

More and more supporting evidence have appeared in favour of explicit vocabulary teaching in recent L2 lexical research. Oxford and Scarcella (1994) highlight the necessity of direct instruction for effective L2 vocabulary development. They argue that learners generally cannot acquire all the words they need only by meaningful reading, listening, speaking and writing; therefore, they require additional support from well-planned direct instruction determined by needs analysis, which also leads effective use and prolonged retention of vocabulary. They also conclude that incidental vocabulary learning is insufficient for most adult learners and that contextualised and partially decontextualised vocabulary instruction is beneficial.

Paribakht and Wesche (1997) revealed that vocabulary learning through contextualized reading is effective but contextualized reading accompanied by explicit instruction is superior. Although reading alone contributes slightly to vocabulary knowledge, reading plus vocabulary instruction lead to acquisition of greater number of words along with more depth of knowledge. Zimmerman (1994) also explored that L2

students learning certain target vocabulary through systematic instruction produce much better results than those who try to acquire them only through free or assigned reading. The study concluded that reading is useful but it is not sufficient for learning technical words, thereby showing that a combination of extensive reading and explicit instruction is more effective means of dealing with the vocabulary needs of L2 learners.

In her analysis of vocabulary teaching in the history of L2 methodology, Sökmen (1997) concludes that “the pendulum has swung from direct teaching of vocabulary (the grammar translation method) to incidental (the communicative approach) and now, laudably, back to the middle: implicit and explicit learning” (p. 239). Although it is undeniable that contextual reading facilitates L2 vocabulary learning, an increasing number of studies prove that L2 learners acquire vocabulary more efficiently during explicit teaching (Stahl and Fairbanks, 1986; Haynes, 1993; Coady, 1993; Stoller and Grabe, 1993; Laufer and Shmueli, 1997; Min, 2008). Above all, systematic combination of vocabulary instruction with incidental learning through reading is a more effective approach than contextual learning alone (Zimmerman, 1994; Paribakht and Wesche, 1997).

2.2.3. Strategy Instruction (Strategy Training)

The proponents of this approach regard context as an important source of vocabulary acquisition, but they also emphasize that strategy training is crucial for students to learn vocabulary from context on their own. Stenberg (1987) asserts that most words are acquired through context, but contextual learning method work best when students are taught learning-to-learn strategies. Thus, according to this viewpoint, it is unlikely for learners to cope with context without mastering specific vocabulary learning strategies (VLS).

Strategy training helps students become independent vocabulary learners both inside and outside of the classroom. The high frequency words may be worth teaching explicitly, but for the words which occur infrequently, Nation (1990) urgently advises using that time to teach students VLS such as guessing from context, learning word roots and affixes, dictionary use and mnemonic techniques. By means of different learning strategies, they will be able to continue to acquire less frequent words on their own and without much effort.

Along with direct instruction, strategy training has a key role on the development of lexical knowledge for advanced literacy skills such as summarizing a text, identifying the gist and rhetorical devices in a text (Williams, 1985; Huckin and Bloch, 1993; Parry, 1997). Natural exposure to language alone cannot equip L2 learners with such academic literacy skills. Hence, strategy instruction is quite important for advanced-level language learners who already have a certain L2 competence.

There is plenty of research evidence about VLS such as inferring meaning, learning affixes, keeping vocabulary notebook, dictionary skills, wordlists, and mnemonic strategies. As an example, Hulstijn (1993) revealed that learners skilled at inferring meaning could acquire vocabulary more easily than those who cannot infer well. Students were also stated to learn or memorise about thirty words per hour by means of strategies such as word lists or keyword method (Schmitt, 2000).

In conclusion, the efficiency of strategy training varies from one learner to another. After examining a variety of techniques in teaching words, Oxford and Crookall (1990) also suggest that such techniques do not offer equal benefits to all students. Therefore, L2 teachers should teach vocabulary learning strategies as options and give them freedom to choose whichever strategy to apply in learning words. In this way, learners will take over the responsibility of their own learning through adopting such strategies (Schmitt, 2000). They can also be encouraged to develop their own vocabulary learning strategies (Cunningsworth, 1995). Good L2 learners were found to use more vocabulary learning strategies and rely on more various strategies than poor learners (Ahmed, 1989). With this in mind, rather than just leaving students alone, teachers should train them in effective vocabulary learning strategies so as to help them develop their lexical competence on their own.

2.2.4. Which Approach is the Best Way of Teaching Vocabulary?

There has been a long running debate on the most effective way of fostering L2 vocabulary acquisition. However, it may be impractical to label one of the approaches above as the best option. Each approach seems to constitute an indispensable part of a whole, so they should be combined simultaneously to produce more satisfying effect in vocabulary teaching. Every strategy has its own strengths and it is difficult for other

approaches to compensate these strong points, so a harmony of practical approaches is superior to any single method. Instead of proposing them as better or worse, we should regard all these approaches as complementary. Briefly, after the mastery of high value words are achieved through explicit study, strategy training helps L2 learners expand their lexical competence on their own by facilitating their ability to guess unknown vocabulary incidentally from context.

Beyond these major approaches above in vocabulary teaching, three more strands will be highlighted for a well-planned vocabulary teaching program (*See Table 2.2*). First of all, vocabulary items should be recycled or revised through practical classroom activities so as to be learned thoroughly. According to Allen (1983), L2 learners acquire vocabulary best in classroom context which creates a sense of need for learning words. Students may not learn the meaning of a word with only one exposure. With this in mind, classroom activities should be planned and organized in such a way to offer students a variety of meaningful encounters with words in different contexts, which will promote recognition, storage, and retention of words in their memory.

Second, newly-learned words should be practiced through communicative tasks. L2 learners cannot achieve the full mastery of words without using them for communicative purposes. Communication activities will offer students opportunities to use language in interactive oral production (Nation and Newton, 1997). These communicative tasks such as role plays and games will provide students with several benefits: a meaningful context to revise new words, a good chance to use words productively or apply their strategies freely, an authentic and enjoyable atmosphere to communicate, and a high morale in social skills.

Last but not least, it is also crucial for teachers to raise learners' awareness and motivation towards vocabulary acquisition. L2 learners should be aware of what knowing a word really is and how the acquisition process occurs since most part of vocabulary learning occurs outside the classroom walls. In their studies, Altman (1997) and Koda (1997) recommend raising learners' meta-cognitive awareness of SLA processes. According to Altman (1997), "Regardless of the source, once an item entered conscious attention, the more likely it was to be noticed again." (p. 93). This can lead learners to value words and take responsibility of their own learning more consciously. On the other hand, many students think that they will not use these words out of the class, so they feel no need to learn. At this stage, teachers should try to create a sense of

personal need for learning words in the minds of their students other than passing an exam or pleasing the teacher (Allen, 1983). L2 learners can be motivated through enjoyable communicative activities such as word games or some competitive tasks, in which they can learn and use L2 vocabulary for their own purposes like enjoying, winning the game, or fulfilling a social interaction with their friends. In this way, they can grasp the pivotal role of words for effective communication more easily.

Table 2.2: Six Major Strands for a Systematic Vocabulary Instruction

<p>1) Explicit Teaching:</p> <p>* <i>Explicit teaching of words should be given priority at the initial phase of SLA up to a point beyond which beginners can successfully read a text and guess unknown words from context.</i></p> <p>* <i>Certain lexical items such as high frequency words are also vital enough to deserve explicit attention. Those words opening the door to further learning should be taught explicitly as quickly as possible (Schmitt and McCarthy, 1997).</i></p> <p>2) Incidental Learning:</p> <p>* <i>It is unlikely to teach all the words in a language through explicit study alone due to limited time in L2 classrooms. Vocabulary items not handled explicitly, especially low frequency words, can only be mastered incidentally by way of extensive reading (Coady, 1997a; 1997b).</i></p> <p>* <i>Beyond the early stages of SLA, a learner will mostly require incidental strategy so as to guess and learn remaining words in a language independently.</i></p> <p>3) Strategy Training:</p> <p>* <i>Teachers should also train their students about how to continue to improve their L2 lexicon by equipping them with effective vocabulary learning strategies (Oxford and Scarcella, 1994).</i></p> <p>4) Recycling Vocabulary through Classroom Activities:</p> <p>* <i>Words should be recycled through practical classroom activities so as to be learned deeply.</i></p> <p>5) Practising Vocabulary through Communicative Tasks:</p> <p>* <i>Full mastery of words cannot be achieved unless they are used with communicative purposes.</i></p> <p>6) Awareness and Motivation Raising Activities:</p> <p>* <i>L2 teachers should raise students' awareness and motivation towards lexical acquisition so that they can value words and take responsibility of their own learning more consciously.</i></p>
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All in all, “most researchers recognized that a well-structured vocabulary programme needs a balanced approach that includes explicit teaching together with activities providing appropriate context for incidental learning” (Celce-Murcia, 2001: 286). In other words, a well-designed vocabulary program requires combination of direct instruction and encouragement of students to learn incidentally from context with

the help of strategy training. Hence, all the reasonable approaches should be combined harmoniously for maximum results since they address divergent but crucial aspects of vocabulary acquisition.

2.3. HOW TO PRESENT VOCABULARY ITEMS IN THE CLASSROOM

Now that the quality of teaching depends on many variables, there seems no best way of presenting vocabulary which suits all situations. However, teachers can take into account various useful guidelines and implications revealed by L2 lexical research. According to Schmitt (2000), neither exposure to language nor practice through communicative activities alone will guarantee the students' acquisition of sufficient vocabulary, so "current best practice includes both principled selection of vocabulary, often according to frequency lists, and instruction methodology that encourages meaningful engagement with words over a number of recyclings" (p. 14). Thus, words should be chosen carefully, taught explicitly and recycled periodically by teachers.

2.3.1. How Many Words to Teach?

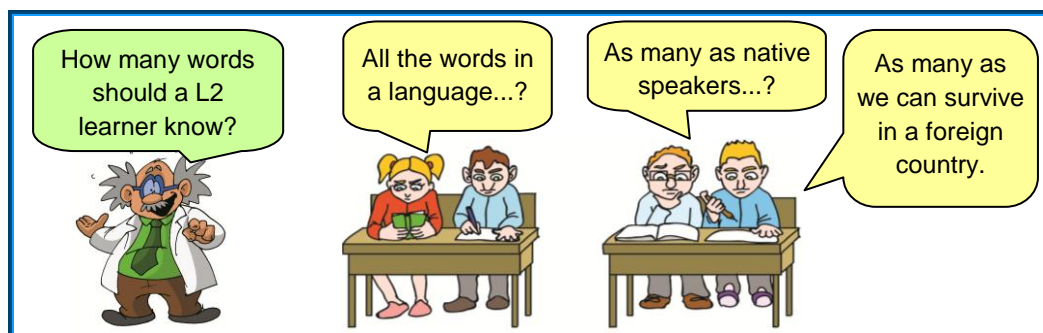


Figure 2.2: How many words to teach

An important step in designing a well-planned vocabulary programme is to set a realistic goal on how much vocabulary should be taught to L2 learners. Several replies can be given to that question: (a) all the words in the target language, (b) as many as native speakers of that language, (c) as many as learners can carry out the language tasks they aim at, such as surviving abroad or reading academic texts (*see Figure 2.2*). However, so as to decide the amount of vocabulary to be taught to L2 learners, the

following issues should be examined in detail: (a) the size of L2 vocabulary, (b) the vocabulary size of native speakers, (c) the needs and the aims of L2 learners (Nation and Waring, 1997; Schmitt, 2000; Nation, 2001).

2.3.1.1. The Size of L2 Vocabulary

It is almost impossible to identify the exact number of words in a language due to the changing nature of words in time, new words or new meanings may be added to the existing words and some words may fall into disuse. Even so, few attempts have been made to explore the potential size of English, estimates of which are usually based on dictionaries. In their study, Goulden, Nation and Read (1990) analyse the words in *Webster's Third New International Dictionary* (1963), which is one of the largest non-historical dictionaries of English. Having over 450,000 entries, the dictionary is suggested to comprise around 114,000 word families. If the entries such as proper names, compound words, abbreviations and alternative spellings are excluded, it contains above 54,000 word families. Certainly, this size is too much to be dealt with in classrooms. Now that even native speakers cannot know every word in a language, teaching all the lexical items of English is not an attainable goal.

2.3.1.2. The Vocabulary Size of Native Speakers

We can consider how many words native speakers know in order to set more feasible target in vocabulary teaching. Goulden, Nation and Read (1990) estimate that educated native speakers of English have vocabulary size of about 17,000 word families. D'Anna, Zechmeister, & Hall (1991) and Zechmeister *et al.* (1995) suggest similar figures as well. Reviewing many studies, Nation & Waring (1997) conclude that the lexical size of an average university graduate is around 20,000 word families.

If our aim is to acquire a native-sized vocabulary, then we should master 15,000-20,000 word families. However, Schmitt (2000) argues that building such a native-sized vocabulary might be achievable for non-native speakers of English, especially for highly-motivated ESL learners. However, it is not realistic for students in EFL classrooms because EFL learners are estimated to “need more than eighteen years of classroom exposure to supply the same amount of lexical input which occurs in just one

year in natural setting (Thornbury, 2002: 20)". While a 5-year-old beginner native speaker has the lexicon of roughly 4,000 or 5,000 word families, many adult EFL learners cannot achieve this vocabulary growth within plenty of years (Nation & Waring, 1997). Thus, not only learning the entire lexicon of a language but also obtaining native-like lexical growth is far beyond the goals for most EFL learners.

2.3.1.3. The Needs and the Aims of L2 Learners

The number of words to be taught to L2 learners largely depends on their need and purpose of learning the target language. If they want to visit foreign country for a short time, they will need a short survival list of 120 items, including words related with their daily activities such as greeting, talking about ourselves, ordering food, shopping, reading signs and finding accommodation (Nation & Crabbe, 1991). In addition, around 2,000 words will be a realistic goal for L2 learners who aspire to express themselves in their daily conversations. (Schonell *et al.* 1956). Nation and Waring (1997) also suggest learning 2,000-3,000 words to speak and write productively in daily life. Obviously, this size may not be sufficient to converse thoroughly on every topic, but it enables satisfying interactions with native speakers on our daily activities (Schmitt, 2000).

For more proficient learners aiming at reading authentic texts, mastering 3,000-5,000 word families is suggested so as to comprehend this kind of written material (Nation & Waring, 1997). Laufer (1997a) also regards 3,000 word families as a lexical threshold for reasonable comprehension of unsimplified written texts. As for academic reading such as university textbooks, the size should be nearly 10,000 word families (Hazenbergh & Hulstijn, 1996). Hirsh and Nation (1992) estimates that roughly 5,000 words would be needed to read an unsimplified novel written for teenagers.

In his study which regards 98% coverage of a text³ as ideal for unassisted comprehension, Nation (2006) urges the following sizes in order to make some usages of English: 6,000 word families to watch a child's movie, 7,000 to take part in a conversation, 8,000 and 9,000 to read a newspaper and a novel, respectively. He concludes that the size of 6,000-7,000 word families is required for comprehension of spoken texts and that of 8,000-9,000 word families for written texts. Recent studies also

³ *Text coverage means the percentage of running words in a text known by a reader.*

do not conflict with Nation's findings. Webb and Rodgers (2009a) argue that 6,000-7,000 word families is needed for watching movies; and in another study they (2009b) suggest 7,000 word families as lexical demands of following television programmes.

2.3.2. Selection of Words to Teach

A language comprises a great number of words, all of which are not equally important for L2 learners. That is, some lexical items seem to be more vital than the others to fulfil certain tasks. It should be kept in mind that any word indispensable in one context can be useless in another one. With this in mind, another crucial point in teaching vocabulary is principled selection and gradation of vocabulary items.

White (1988: 48-50) and Richards (2001: 7-8) offer some criteria for deciding which words to teach. These are frequency, coverage, range, availability, similarity, learnability, opportunism, centres of interest, defining power and teachability.

- a) **Frequency:** It is the number of occurrences of a word in written or spoken texts.
- b) **Coverage:** Including the meaning of similar items, some words can replace or cover other words: e.g., the verb "go" has higher degree of coverage than "walk".
- c) **Range:** It can be defined as the number of different texts where a word occurs. If a word has a wide range, it appears in many different texts.
- d) **Availability:** In spite of being infrequent, some words are available in that they easily come to our mind when we think certain themes. As an example, "salt" and "pepper" are equally available to native speakers, so they can be taught together.
- e) **Learnability:** If words are easy to learn, then they should be introduced earlier than difficult ones.
- f) **Opportunism (Expediency):** Some words can be good candidates for teaching only because they are related to our learners' immediate situations. e.g., school equipment such as "board" and classroom language like "Be quiet!"
- g) **Centres of Interest:** Reflecting different interests of learners, a set of words related to clothing, food or entertainment may be chosen as targets to teach.
- h) **Teachability (Demonstrability):** Now that concrete words can be demonstrated more easily via visual aids, it seems logical to teach them before abstract items.

i) Defining power: We can also select some words on the grounds that they are useful in defining some other words. “*container*” is not one of the most frequent words, but it may be presented as it helps define words like “*jug*” and “*bucket*”.

j) Similarity: Some L2 words may enter a lexical syllabus owing to their similarity to their L1 equivalents; e.g., “*television*” in English and “*televizyon*” in Turkish.

Apart from the criteria above, socio-cultural interests of native speakers and L2 learners should be taken into account while making decisions about the lexical content (Gairns and Redman, 1986). In particular, selection of words may also depend on other specific factors such as the course objectives, the amount of time available, and so on.

2.3.3. Which Words to Teach

Lexical research asserts that frequency, coverage and range are the most significant criteria in selection and gradation of vocabulary for teaching. In other words, the most useful words are those with higher frequency in a wide range of texts and those giving a rich coverage of any text. In light of these common criteria, L2 teachers can anticipate whether a word is worth paying an explicit attention or not. Nation (1990, 2001) categorises four kinds of vocabulary level in any text, and Nation and Newton (1997) underline the importance of these word levels by showing their size and coverage in a written academic text (*see Table 2. 3*).

Table 2.3: Word levels in a written academic text (Nation and Newton, 1997: 239)

Level	Number of Words	Text Coverage %
High-frequency words	2,000	87%
Academic vocabulary (UWL)	800	8%
Technical vocabulary	2,000	3%
Low-frequency words	123,200	2%
Total	128,000	100%

2.3.3.1. High-frequency Words

It may be difficult for EFL learners to reach the lexical size of a native speaker within a short time. However, it is fortune that a small group of English words occur in any text so often that if learners grasp this most frequent and widely used vocabulary,

they will automatically know a great amount of the running words in a written or spoken text (Nation and Waring, 1997). High frequency words cover a very large proportion of the running words in any type of text; therefore, mastery of them will provide learners with a good deal of comprehension.

The classic list of high frequency words is Michael West's *General Service List of English Words (GSL)* (1953). The GSL comprises about 2,000 word families, 167 of which are grammatical words like *the, and, a, to, some*; and the rest are content words including nouns, adjectives, verbs and verbs. Despite its age and including few obsolete words like "*shilling*" or excluding some important up-to-date words like "*computer*", it is still a predominantly used inventory with the advantage of being practical. According to Nation (2001), the content of frequency lists usually shows roughly 80% correspondence with one another if they are based on well-designed corpus data, but the frequency rank order may change from one list to another. Likewise, Hwang and Nation (1995) prove that the GSL highly overlap with even more recent word frequency lists.

Text coverage is considered as important criterion for deciding the exact number of high frequency words. In their extensive study based on a collection of texts totally composed of 5 million words, Carroll, Davies and Richman (1971) revealed that knowing the most frequent 2,000 words gives over 81% coverage of running words in a written text (*see Table 2.4*). In another study on a written corpus of one million running words (including different 500 texts with about 2,000 words), Francis and Kucera (1982) also found similar results. They suggested that a lexical size of 2,000 lemmas provides nearly 80% of text coverage (*see Table 2.5*). Since the study uses lemma as a counting unit, it is clear that 2,000 word families would result in slightly more coverage.

Table 2.4: Vocabulary size and text coverage (Carroll, et al. 1971)

Vocabulary size	Text coverage (%)
10	23.7%
100	49%
1,000	74.1%
2,000	81.3%
3,000	85.2%
4,000	87.6%
5,000	89.4%
12,448	95%
43,831	99%
86,741	100%

Table 2.5: Vocabulary size and text coverage (Francis and Kucera, 1982)

Vocabulary size (lemma)	Text coverage (%)
1,000	72.0%
2,000	79.7%
3,000	84.0%
4,000	86.8%
5,000	88.7%
6,000	89.9%

Table 2.6: Text coverage of the GSL words (based on Nation and Waring, 1997)

Study	Type of text	Text Coverage
Sutarsyah (1993)	various academic texts	78,4%
Hwang (1989)	articles in newspapers	82,1%
Sutarsyah, Nation and Kennedy (1994)	an economics textbook	82,5%
Hirsh and Nation (1992)	short novels	90,6%
Schonell, <i>et al.</i> (1956)	informal spoken texts	95%

Many studies confirmed that 2,000 word families of the GSL cover from 78% to 90% of the running words in different kinds of written texts, with the average of over 80% text coverage (Hwang, 1989; Hirsh and Nation, 1992; Sutarsyah, 1993; Sutarsyah, Nation and Kennedy, 1994) (*see Table 2.6*). As for informal spoken text, these recurring words may supply learners with higher coverage of about 95 percent (Schonell, *et al.* 1956; Adolphs and Schmitt, 2003). Thus, the first 2,000 word families are claimed to be the appropriate boundary for high frequency words since this word-level covers nearly 85 percent of running words in any written text and the extra coverage of next 1,000s is quite less. Hwang and Nation (1995) also proposed research evidence about labelling the most frequent 2,000 word families as high frequency words. In their view, L2 learners should master this size of vocabulary before initiating an academic study.

Now that the most frequent 2,000 words of English help someone know over 80% of the words in any text, mastering this critical vocabulary should be initial goal for L2 learners. L2 teachers should give high priority to effective teaching of those words since they are vital for any real language use and give very high text coverage despite being relatively small in number. According to Nation (2001), learning and teaching of those high-priority words can be achieved in different forms: direct teaching, direct learning, incidental learning from context or communication activities, and planned encounters with words through graded readers or vocabulary exercises. No matter how it is attained, L2 teachers should do their best to create an effective learning atmosphere where students can efficiently absorb these high frequency words. On the other hand, Schmitt (2000) urges that frequency lists should not be viewed as a strict rule. Although they are useful guide in deciding what to teach, language teachers should be free to add some other words which their learners need or want to know.

Giving about 80% coverage of a text, knowing just 2,000 high-frequency words will surely be insufficient for L2 learners to gain adequate reading comprehension or to guess the meaning of unknown words in any text. Rather, research evidence asserts that they will need clearly larger vocabulary size. Laufer (1989) finds out that 95% of text coverage is threshold for reasonable comprehension of a text. According to Nation and Coady (1988), it is necessary to know about 98 % of lexical items in a text for successful guessing in context. In their study, Liu and Nation (1985) also suggest that there should be only 1 unknown words in every 25 (96% text coverage) so that L2 readers can effectively guess the meaning of the unknown words from context. More recent research confirms that 98% coverage of a text (1 unknown word in 50) is required for unassisted reading comprehension (Hirsh and Nation, 1992; Hu and Nation, 2000; Nation, 2006; Nation and Chung, 2009; Laufer and Ravenhorst-Kalovski, 2010).

To sum up, mastering high-frequency words is of top priority for L2 learners, but it is solely not enough to allow satisfactory reading comprehension. Thus, if learners have academic purposes in mind, academic and/or technical words are the next level of useful vocabulary to teach or learn beyond the most frequent 2,000 words. As for the students learning a L2 with social or communicative purposes, focussing on low frequency words will be the most suitable target especially through their mastery of vocabulary learning strategies.

2.3.3.2. Academic Words

Academic words are those commonly used in different kinds of academic texts, and they are of utmost importance for learners who intend to carry out academic studies. The *Academic Word List* (AWL) (Coxhead, 2000) is viewed as the best list of this specialised vocabulary. Developed from a written corpus of 3.5 million words, the AWL consists of 570 word families, which are not in the most frequent 2,000 words but appear very often in a wide range of academic texts. Despite covering about 10% of the running words in many written academic texts, the list includes only 1.4% of the total words in fictions like novels or stories, which reveals academic nature of the AWL. The list does not include technical words peculiar to just one specific field; rather, it contains common lexical items shared by a variety of academic disciplines such as “*analyse*”, “*approach*”, “*create*”, and “*context*”.

Another outstanding academic word list is the University Word List (UWL), which comprises over 800 word families and provides almost 9% additional coverage of academic texts (Xue and Nation, 1984; Nation, 1990). As stated by Nation (2001), learning items in the UWL after the most frequent 2,000 words increases the coverage of academic texts from 78.1% to 86.6%. If learners preferred focussing on the third 1,000 most frequent words to the UWL, then they would get only 4.3% extra coverage, which is considerably less than 9%. In short, mastery of these general academic words helps students do their academic studies more efficiently; hence, these academic words are also suggested to be taught or studied explicitly like high-frequency words.

2.3.3.3. Technical Words

If learners want to specialise in a certain subject matter, learning technical vocabulary will be another practical target for them. Technical words are special lexical items which occur in a particular field of study such as law, linguistics, and economics. Each discipline has its own technical vocabulary. For instance, words like “*antibiotic*”, “*biopsy*”, and “*diagnosis*” are peculiar to medicine. Some technical words related to geography are “*canyon*”, “*delta*” and “*glacier*”. These words are restricted to a specific subject area, and they do not generally take place in other disciplines.

When technical dictionaries of some fields are examined, it can be concluded that there exist roughly 1,000 words in each area, and this size may cover about 5% of running words in a text of a given field (Nation, 2001). Teaching of technical words can be achieved best within the context of the relevant discipline, and it may require expert knowledge of that field. According to Nation (2001), technical words can also be viewed as high-frequency words in a particular subject, so teachers should help learners see the differences between the general meaning and the technical uses of these words.

2.3.3.4. Low-frequency Words

As rarely used lexical items, some words occur very infrequently in texts. There exist thousands of low-frequency words in any language. Despite being the largest group in size, they cover only about 5% of the vocabulary items in academic texts. As stated by Nation (2001), they contain the words with average frequency which cannot

enter the high-frequency list, actual low-frequency words, proper names and technical words of other fields. The size and content of people's technical words differ according to their professions, hobbies and interests. Thus, unlike high-frequency words, our technical vocabulary may be other people's low-frequency words (Nation, 2001).

It is really difficult to find out the exact number of low-frequency words, but it is likely to make a rough estimate. If the English language is regarded to have 114,000 word families, low-frequency words should be over 110,000 word families, except for about 4,000 word families as a grand total of high frequency words, academic vocabulary, and technical words in a certain discipline (*see Table 2.7*).

Table 2.7: Brief Overview of Which Words to Teach / Learn in a L2

Word Level	Size	Text Coverage
High-frequency words	2,000 wfs	80%
Academic words (AWL)	570 wfs	10%
Technical words in a specific area	1,000 wfs	5%
Low-frequency words	about 110,000 wfs	5%
Total	114,000 wfs	100%

Briefly, a great number of low-frequency words seem to provide L2 learners with a relatively small amount of text coverage. With this in mind, there may be no point in spending a good deal of class time to teach these words explicitly. Rather, Nation (1990) recommends using the limited teaching time to equip students with effective vocabulary learning strategies such as guessing from context, learning word roots and affixes, applying mnemonic devices, using word cards and dictionaries.

2.3.4. In Which Order Should Vocabulary Be Presented?

As for gradation of vocabulary teaching, teachers should ensure that really crucial words are learned in L2 classroom by making a cost/benefit analysis advised by Nation (1995). The most frequent 2,000 words are undoubtedly worth this cost and go into need-to-learn category since they make learners familiar with about eight out of every ten words in any written text irrespective of the subject matter. Seeing that this small amount of vocabulary does the most of the work in language (Schmitt, 2000), it

may not be sensible to master other words before these useful words are learned well. With this in mind, teachers should firstly focus their attention on explicit teaching high-frequency words through a systematic programme of vocabulary instruction.

For learners of English for academic purposes (EAP), the next level of words to be taught directly can be academic words and technical vocabulary of their fields. As for other learners, strategy training to cope with unknown low frequency words will be suitable route to keep on. The size of low-frequency words is so big that the complete mastery of them is unrealistic even for native speakers with no time pressure. Instead of teaching them explicitly, teachers should help students develop effective strategies to learn low-frequency words on their own like guessing from context. Thus, they can independently learn infrequent words through extensive reading and self-study.

Actually, teachers' task does not finish here. They should also provide learners with opportunities through which they can expand and consolidate their lexical size both explicitly and incidentally such as extensive reading, vocabulary exercises, keeping vocabulary notebook, songs, problem-solving activities, word games and other communicative tasks. Last but not least, as well as being a facilitator, teachers should be a perfect model to students with their good vocabulary learning behaviours.

2.3.5. How Many Items to Teach per Class Period

Once teachers decide which words to teach, another question is how many new items should be presented per lesson. Obviously, it depends on many factors such as:

- ✘ the levels, needs, interests and motivations of the learners,
- ✘ the learners' familiarity with the words,
- ✘ the difficulty of the words in terms of length, spelling and pronunciation,
- ✘ the similarity of the words to its L1 equivalent,
- ✘ the teachability or demonstrability of the word (abstract or concrete),
- ✘ whether they are learned for production (in writing or speaking) or for recognition (in listening and reading) (adapted from Thornbury, 2002; 75-76).

We can get some impressions of ideal vocabulary load for each lesson. Generally speaking, an average of ten new words seems sensible to teach for each sixty-minute lesson (Schmitt, 2000). Thornbury (2002) refers to the principle adopted by

coursebooks, sections of which generally introduce nearly twelve words. Finally, Gairns and Redman (1986) regard presenting eight to twelve productive items as reasonable lexical input in a sixty-minute lesson. They find the lower figure (eight) suitable for beginners and the upper one (twelve) for advanced learners.

Intensive vocabulary teaching courses should be planned and arranged by taking the negative effect of forgetting into account. While many teachers approve of presenting eight words per lesson, it is estimated that the complete mastery of 1,000 words within 125 hour-time is beyond the capacities of many students (Gairns and Redman, 1986). Without doubt, a certain extent of forgetting occurs over these kinds of intensive courses. Therefore, while planning their content, several periodical hours should be assigned for practice, recycling and revision of the words learned beforehand.

2.3.6. Sequence of Presentation

Whether meaning or form of a word should be presented first is also a matter for concern. A teacher may give the meaning first by showing a picture of an apple and then introduce its form by saying “*It is an apple.*” On the other hand, the word “*apple*” can be repeated several times (form) before showing its picture (meaning). Both of them are reasonable; however, meaning first approach is claimed to “create a need for the form, opening the mental files, and making the presentation both more efficient and more memorable” (Thornburry, 2002: 76), especially if learners meet that word for the first time. While practising the previously learned items, “form first” presentation is better. It offers learners opportunity to guess or recall the meaning on their own, and this extra effort will lead to long-term retention of the given words (Nation, 2001).

2.3.7. Memory, Repetition, Recycling, and Revision of Vocabulary Items

Memory is our mental capacity to keep and store information, and there are basically two types of memory (Richards and Schmidt, 2002). Short-term memory (also called as “*working memory*”) keeps information temporarily for a short time owing to its little storage capacity. It actively manipulates information necessary for cognitive tasks such as comprehension, learning or reasoning. On the other hand, long-term memory stores information permanently with its unlimited capacity. Only fully-learned

information can be transferred from short-term memory into long-term memory. When necessary, the information in long-term memory is called back to short-term memory and it is processed here again. Thus, according to Schmitt (2000), the objective of vocabulary teaching should be effective transfer of lexical knowledge from the short-term memory into the long-term memory; otherwise it is more likely to be forgotten.

Given the multidimensional nature of knowing a word, learners should meet and use a word many times to acquire it truly (Schmitt, 2007). As a remedy against forgetting, recycling is vital to consolidate all aspects of word knowledge and strengthen the link between form and meaning of a word. In fact, it is scientifically difficult to identify the exact number of repetition or exposure for mastery of a word since it is affected by many variables. One encounter is usually argued to be insufficient for learners to grasp even the basic meaning of a word. Naggy (1997) indicates that the possibility of learning and retaining a word through one exposure in reading is between about 5% - 14%. According to Kachroo (1962), 7 or more repetitions are needed for a word to be learned from a coursebook. In their study, Crothers and Suppes (1967) find out that most words are learned after 6 or 7 repetitions. Likewise, Tinkham (1993) also indicates that 5 to 7 repetitions will be sufficient for most learners to master a word. In his analysis of many studies, Nation (1990) emphasises that 5 to 16 or more repetitions are necessary to learn a word. In brief, a successful vocabulary program calls for 7 or more encounters with a word (McKeown, Beck, Omanson, and Pople, 1985).

Words can be repeated in different ways. In mass repetition, learners continuously repeat or study a word many times within only one period of time until they feel comfortable. On the other hand, spaced repetition is done at intervals by spreading the study of a word across a long period of time (Nation, 2001). Research findings display that spaced repetition leads to more effective learning and long-lasting retention than mass repetition does (Bloom and Shuell, 1981; Dempster, 1987; Baddeley, 1990). In addition, empirical research suggests that repeating aloud results in better retention than silent repetition (Seibert, 1927; Gary and Gary, 1982; Kelly, 1992; Hill, 1994). Hence, our ears also help our eyes in the retention of words.

Relevant research suggests that most forgetting occurs soon after initial learning, and later, the rate of forgetting slows down (Seibert, 1927; 1930; Pimsleur, 1967; Griffin, 1992). Anderson and Jordan (1928) measure the recall of learning over different

periods of time: immediately after learning, one week, three weeks, and eight weeks later. They calculate the rates of retention as 66%, 48%, 39% and 37%, respectively.

The rate of forgetting gives us implications for spacing of repetitions. Accordingly, new words should be repeated immediately after the end of learning session before too much forgetting happens, and later, “the repetitions should be spaced at increasingly larger intervals” (Nation 2001; 76). Russell (1979: 149) suggests a simple revision schedule for newly-learned material: 5-10 minutes after the end of learning period, one day later, a week later, one month later, and lastly six months later. These kinds of schedules can guide teachers and coursebook writers to recycle and revise vocabulary items in a more principled way.

Noticing, retrieval, and generative/creative use are three important processes for retention of words (Nation, 2001). Noticing is paying attention to an item, and words should be noticed and regarded as useful in order to be learned. Unless a word is recognised by learners at first, next encounter will not be a repetition. Retrieval is subsequent recall of a word from memory after initial meeting. Seeing that it requires greater cognitive effort and it is more similar to actual use of word, retrieval is more effective than seeing a word and its meaning (Landauer and Bjork, 1978; Baddeley, 1990). Successful recall increases retention of words. With this in mind, after presenting a word form, teachers should wait before giving its meaning so that students have a chance to guess or recall it, which will lead to longer retained learning (Nation, 2001). Last but not least, students may meet or use a word in different contexts. Rather than teacher’s presenting it again, learners’ generative / creative use of words in new contexts leads to better retention, thereby increasing their speed of access to lexical items. Hence, teacher should supply learners with opportunities to use word creatively in various contexts like word games, competitive tasks, and other communicative tasks.

2.4. PRINCIPLES IN TEACHING VOCABULARY

Careful selection and gradation of lexical items will not be sufficient for effective vocabulary teaching. L2 teachers should also have knowledge of guidelines and implications revealed by the related research. In this regard, Nation (1990, 2001) and Schmitt (2000, 2007) suggest some pedagogical principles for teaching vocabulary:

a) Avoid cross-association: Cross-association is a common problem in vocabulary acquisition, which is the main focus of this study. *See part 2.8 for details.*

b) Dual coding: Dual coding means using two divergent ways together to convey the meaning of a word: visually and verbally (Paivio and Desrochers, 1981). In the dual coding theory (Paivio, 1986; 1991; Clark and Paivio, 1991), information is processed and stored in human memory through simultaneous work of two separate but interrelated subsystems: one for visual knowledge and the other for language. Human mind includes a network of verbal (linguistic) and imaginal (visual) representations for words; and it is more likely for people to learn, store and recall words if they image a word mentally rather than only establishing verbal links in the memory.

In this theory, visual encoding and verbal encoding are two ways of transmitting the meaning of words, and teachers should use both of them simultaneously for effective learning. Visual encoding can be carried out by showing or drawing pictures of a word, using realia, or just acting it out. L2 teachers can use pictures, list semantic features of words, and make illustrations through tables, charts and diagrams to convey the meaning of the words. Use of visual materials helps students create mental images of the words in their minds. As for verbal encoding, the word meaning can be conveyed by means of linguistic devices such as giving definition or L1 translation, using synonyms or antonyms and uttering examples about the word.

Paivio (1991: 265) mentions the mnemonic superiority of the visual encoding over verbal one, which implies the higher priority of using visuals in vocabulary teaching. As positive research evidence, Chun and Plass (1996) find out that learning vocabulary from written texts accompanied by pictures is more effective than the other two learning conditions; text-only and text plus video. Visually learned words are more likely to be remembered than those learned verbally. However, linguistic coding cannot be left aside because using visual materials only may also have some drawbacks. For instance, too many details in pictures may distract learners from grasping the real meaning of the words (Tiryakioğlu, 2006). Thus, teachers should use both verbal and visual techniques for effective teaching, long-term retention, and easy recall of words.

c) Exemplification of the concept: Each word has a concept which may be an abstract idea or mental picture of that word. Teaching the meaning of a word largely depends on providing good examples of the concept it refers to. In Nation's words

(2001: 215), “examples help bring a message alive.” Examples may be positive or negative (Carroll, 1964). Positive examples reflect the actual concept of a word by giving its characteristic features. Negative examples indicate things, objects or people which are non-examples for the given concept. After defining the concept “*pet*”, the words such as “*cat*” and “*fish*” may be given to learners as positive examples but the items like “*elephant*”, and “*lion*” are negative examples (see Table 2.8).

Table 2.8: Positive and negative examples for the word “*pet*”.

pet A pet is an animal living at home. (definition)	
Positive Examples A cat is a pet. A fish is a pet.	Negative Examples An elephant is not a pet. A lion is not a pet.

Positive examples help learners conceptualise a word in their minds, whereas negative ones demonstrate the boundaries of that concept by restricting the use of the word. That is, learners can differentiate a word from the other similar words through negative examples (Öztürk, 2007). Nation (1990) and Carroll (1964) offer some suggestions about exemplification. First, multiple positive examples should be presented to learners to avoid misinterpretation. Shown only one picture as a positive example of the concept “*woman*”, students may misunderstand the concept as “*granny*” if the person in the picture is quite old. Hence, giving several positive examples (pictures) will prevent such kind of misconception and provide better comprehension. Second, explaining the actual concept, positive examples need to be given earlier than negatives. Third, beyond positive ones, learners may also need negative examples to identify the limits of a certain concept, but Carroll (1964) thinks that it is better to provide more positive examples.

In conclusion, whether positive or negative, examples should be arranged in an effective way to facilitate learning. Personalising a lexical item will also have a vital role on retention and later recall of that item. Students easily conceptualise and relate words with their real life if they are expected to give some personal examples about the newly-learned words, or associate them with up-to-date events and their past experiences (Sökmen, 1997).

c) Attach equal importance to four strands: According to Nation (2001, 2008), vocabulary learning will be more effective in a well-balanced language course which devotes equal time to four major strands:

1) *Meaning-focussed input:* Learners should acquire new words through comprehensible input from reading and listening activities, in which their main focus is understanding meaning. Activities like extensive reading, listening to stories are means of learning vocabulary through meaning-focussed input.

2) *Language-focussed learning:* This strand includes teachers' direct teaching of words and vocabulary learning strategies as well as students' deliberate learning and study of words through vocabulary exercises and activities like word cards or word list.

3) *Meaning-focussed output:* As productive skills, speaking and writing stimulate learners to use vocabulary they know. Therefore, learners should also be given opportunities to use and consolidate their knowledge of words through writing and speaking activities such as re-writing, discussions, conversations, problem-solving, role-plays, retelling, giving prepared talks and other communication activities.

4) *Fluency development:* Beyond learning new words, learners should be able to access quickly and use them fluently. Activities of this strand should contain no unfamiliar vocabulary since here students do not learn new words but become more automatic in using them. To increase their speed of access, they should deal with easy materials or activities such as reading or listening to easy input, giving an easy talk, and speed reading. If a well-designed course lacks this strand, learning performed in the other three strands cannot put into practice by learners in real life situations.

d) Teach the underlying meaning of a word: Having more than one meaning sense, polysemous words are used in different meanings within different context. As an example, "*fork*" has several meanings such as "*tool for eating*", "*agricultural tool for farmers to lift materials like hay*", "*part of a bicycle*", "*part of a branch on a tree*", "*road junction*", and so on (Nation, 1990: 53). In general, one of these meaning senses is more basic, concrete and frequent than others, which is called "core meaning". Obviously, "*a tool for eating*" is the basic meaning sense of "*fork*".

On the one hand, Schmitt (2007) suggests that almost all the meaning senses can be expressed by extending the definition of a word so that it can reflect underlying meaning concept. According to him, the meaning of "*fork*" can be extended through

such a definition as “*a tool used for eating or in gardening and anything so shaped*”. In this way, learners can understand it in wider range of contexts. On the other hand, Öztürk (2007) supports teaching the core meaning of the words instead of trying to form a definition which includes each meaning sense. According to her, as the most common and concrete one, core meaning sense is usually easier to understand and teach compared to abstract underlying meaning, and learners can guess the other meaning senses on the basis of the core sense because they are often figurative extensions of it. All in all, this matter needs some more research evidence.

e) Estimate learning burden of a word: Learning burden is the amount of effort necessary for learning a word (Nation, 2001). The more a word includes patterns which we are familiar with, the less its learning burden will be (Nation, 1990). For instance, the learning burden of many words will be light if the target language (L2) is similar to students’ native language (L1). Thus, teachers should do their best to reduce the learning burden of words by explaining systematic patterns, making analogies within L2 and focussing on similarities or differences between L1 and L2 (Nation, 2001).

f) Teach word families instead of words: While teaching a new word, teachers should have regular tendency to comment on the other members of its family (Schmitt, 2000). It will take little time, and seeing the complete family will make learners familiar with inflectional and derivative rules. After the presentation of a word, it may be useful to encourage learners to guess its derivatives or the other members of its family.

g) Teach word parts and lexical rules: Knowledge of common affixes or word stems will aid learners to guess the meaning of unknown words. According to Nation (1990), explicit learning of word parts is one of three effective ways for students to cope with low-frequency words, together with contextual guessing and mnemonic devices.

h) Focus attention on multi-word units and collocations: In English, a group of words function as meaningful unit with a fixed form. These multi-word units include compound words (*e.g. timetable*), phrasal verbs (*e.g. hang out*), fixed phrases (*e.g. once upon a time*), idioms (*e.g. couch potato*) and proverbs (*e.g. It never rains, but it pours.*) As for collocations, some words occur with some others regularly. As an example, “do” collocates with “wrong”, but not with “mistake”; “make mistake” is more appropriate.

Learning multiword units and collocations is very challenging for EFL learners. It is likely to communicate without them, but as learners’ proficiency increases, mastery

of these multiword units and collocations becomes vital to be a fluent and native-like user of a L2 (Schmitt, 2007). Related research indicates that multi-word units and collocations cannot be acquired ordinarily, and they require to be learned explicitly (Cowie, 1992; Verstraten, 1992; Arnaud and Savignon, 1997; Lewis, 1997).

i) Check comprehension: After presenting the new words, teachers should check whether learners have comprehended the concept or not so as to avoid their misunderstanding. Nation (1990) proposes various ways of controlling comprehension:

- ✚ asking learners to distinguish between positive and negative examples,
- ✚ asking them to identify or describe the characteristic features of the concept,
- ✚ asking them to give L1 translation of the word.

Sökmen (1997: 239-245) also mentions several principles in teaching vocabulary, which will be discussed hereafter.

j) Build a large sight of vocabulary: Teachers should give vocabulary a high priority in the syllabus and devote a special time in the classroom so that learners can develop a good perception of vocabulary and gain automatic access to word meanings.

k) Integrate new words with the old: As stated in lexico-semantic theory, firstly we learn words; after that, as the size of our lexicon gets bigger, our minds try to establish systems which associate the words with each other and arrange them in an organised way (Lado, 1990). As a network of interrelated words, these systems enhance memory and facilitate the recall of the words. Memory theory also proposes that well-organized information can be learned easily without much effort (Baddeley, 1990). In a way, integrating newly-learned words with the old ones leads to a long-lasting retention.

l) Provide a number of encounters with a word (Repetition and Recycling): Knowing a word has many aspects, so one encounter may be insufficient for a student even to learn one meaning sense, not to mention understanding of all other dimensions. Therefore, newly-learned words should be repeated and practised several times in different meaningful contexts through a variety of exercises, tasks and activities.

m) Use a variety of techniques: Teacher should use many different ways to present L2 words. The more techniques we use in presenting the meaning of a word, the more efficiently our students can learn, store and retrieve that word.

n) Promote a deep level of processing: The more we process, think about and use mental information, the more likely we retain and recall that information (Craik and

Lockhart, 1972; Craik and Tulving, 1975). Likewise, a word will be remembered more easily if a learner gains a deeper level of semantic processing with it.

o) Encourage independent learning strategies: L2 teachers cannot teach all the words within a limited class time. Therefore, learners should be encouraged to learn new words independently through extensive reading, strategy training and self-study.

In conclusion, in their meta-analysis of about seventy relevant lexical studies, Stahl and Fairbanks (1986) conclude that an effective vocabulary teaching should:

- ✘ include both definitional and contextual information about the words,
- ✘ encourage learners to process information about words at deeper level,
- ✘ provide multiple exposures to a word (also cited in Coady, 1997b: 281-282)

2.5. TECHNIQUES IN TEACHING VOCABULARY

“At the beginning of each unit, every time I fill up two large blackboards with a number of new words for my students to study. While they are taking notes, I look at the boards by standing at the backside of the classroom. I am scared of imagining what a difficult task it is to learn this huge amount of vocabulary for my students.”

These lines reveal a teaching experience shared by my colleague in a meeting. In fact, teaching vocabulary is not just filling boards with many words and asking learners to memorise them. Word list is also a self-strategy for students to learn vocabulary. However, there are many techniques for teachers to present meaning of L2 words.

Techniques of vocabulary teaching are generally classified as visual and verbal techniques. A bit differently, Cross (1991) reveals four ways of clarifying word meaning: ostensive means (by showing visually), verbal definition, audio presentation and running context. Each technique may be used alone or in combination with others.

2.5.1. Visual Techniques (Ostensive Means)

Visual aids are extensively applied to convey the meaning, and practically used for teaching a wide range of vocabulary items, especially concrete ones. As well as being easy to use for teachers, visuals are means of learning words concisely and effectively for learners at all levels. Beyond presentation, visual materials are also

functional tools for practice, revision and testing of lexical items (Gairns & Redman, 1986). Visually-learned items are more likely to be remembered (Chun and Plass, 1996) since they activate both visual and verbal subsystems in our mind (Clark and Paivio, 1991; Paivio, 1991). Words can be conveyed visually in many forms:

a) using pictures and other visuals such as flashcards (hand-made or commercial), photographs, posters, wall charts, board drawings, maps, picture dictionaries, picture cards, cut-out figures or illustrations from books, newspapers and magazines, and also graphic organizers like tables, charts, diagrams, figures;

b) bringing real objects (realia) to classroom, which arouse students' interests;

c) using body language to demonstrate word meaning. The whole body can be used to introduce “*body parts*”, and facial expressions are a way of showing feelings like “*happy*”, “*sad*” or “*angry*”. Many verbs can be taught through our actions and mimes. A range of other meanings such as “*big*”, “*small*”, and “*cold*” and “*fast*” can also be conveyed via our hands, arms and other gestures.

2.5.2. Verbal Techniques (Verbal Definition)

It is not likely to present all the lexical items visually, such as abstract words. In many cases, the target words are arisen incidentally in the classroom and the teacher may not have the visuals at hand (Gairns and Redman, 1986). Hence, as an alternative, meaning of a word can be given via language and linguistic devices. Verbal techniques take many forms (Thornburry, 2002; Cross, 1991; Gairns and Redman, 1986):

a) Definition: A simple definition of a word can be introduced to learners.

b) Example sentences: It will be facilitative to give several example sentences.

c) Illustrative situations: Learners are given a scenario to contextualise a word.

d) The use of general knowledge: A word meaning can also be taught with the help of students' general knowledge. The concept “*city*” can easily be given to the learners knowing the names of many cities in their countries. e.g., “*Istanbul is a city.*”

e) Synonyms: Words with similar meanings are often used to convey meaning. A more difficult word like “*chilly*” can be clarified through its easy synonym “*cold*”.

f) Antonyms: The use of words with opposite meanings can be helpful, as in “*I’m not happy; I’m sad.*” It will also be practical to write “*happy ≠ sad*” on the board.

g) Cognates: If L2 word is similar in form and meaning to that in L1, we can take advantage of this. e.g., “*telephone*” in English is like “*telefon*” in Turkish.

h) Hyponymy (The use of related words): Teachers can make use of meaning relations between words. Hyponymy is a relationship between two words, in which one includes the meaning of the other: “*fruit*” and “*apple*”. The general term (*fruit*) is called as “superordinate”, and the specific one (*apple*) as hyponym (Richards and Schmidt, 2002). Thus, general or specific terms can be given to clarify a word meaning. We can use specific terms (hyponyms) like “*tomato*”, “*potato*” and “*carrot*” to teach general term “*vegetable*”. General words such as “*animal*” and “*flower*” also help learner conceptualise meaning of more specific words “*tiger*” and “*rose*”, respectively.

i) Scales and Clines: Some items like *adverbs of frequency* is better learned when they are arranged in sequence on a scale. It may also be useful to teach “*cool*” and “*warm*” between “*cold*” and “*hot*” by means of a scale.

j) Translation: In some cases, rather than spending lots of time with unsuccessful explanations, it is preferable to give mother-tongue equivalent, which is a more direct route to the meaning of a word. It may be used to deal with incidental vocabulary which may come up in a lesson, but over-dependence on translation prevents learners from developing an independent L2 lexicon, whereby they try to recall L2 words through their L1 equivalents (Thornbury, 2002). According to Gairns and Redman (1986), it is a quick way of handling low-frequency words unworthy of explicit attention and a valid technique to emphasise the danger of false cognates – the words similar form in two languages but different in meaning. Sometimes we may permit our students to apply it especially to check their comprehension.

2.5.3. Audio, Audio-Visual and Interactive Techniques

Audio presentation is another way of conveying meaning. Learners can grasp animals not only through visuals but also by hearing their sounds. Moreover, many verbs like “*sing*”, “*play*” and “*cry*” can be introduced through audio presentation. With the advent of new technological devices such as computers and interactive boards, a

number of visual, audio, audio-visual, and interactive materials can also be used as means of teaching vocabulary. These are as follows: slides, videos, games, cartoons, movies, CDs, DVDs and other computer-aided learning programs.

Furthermore, Cross (1991) emphasises another technique: creating a running context, such as a story, in which all the new words are associated with each other in an interesting way. This can be applied either during the initial presentation of the words or after handling them separately to strengthen the link between them. It is also likely to hearten learners to create their own context, which will be more effective.

Besides its meaning, other aspects of word knowledge can be explained or practised through various techniques. For instance, techniques such as repetition and reading aloud can be used to highlight the spoken form (pronunciation) of a word. Also, dictation can be a useful way to handle its spelling (written form). Authors in the lexical field touch on further techniques concerning other aspects of lexical knowledge such as grammatical patterns, collocations, associations and use (Nation, 1990; 2001; 2005; Schmitt, 2000; Coady and Huckin, 1997, Schmitt and McCarthy, 1997; Cross, 1991).

2.6. VOCABULARY LEARNING STRATEGIES (VLS)

Apart from teachers' systematic approach to encourage effective vocabulary learning, learners' lexical development highly depends on their own efforts and attitudes. They should make individual attempts to learn new words both in and out of classroom. Thus, teachers should enlighten learners about vocabulary learning strategies (VLS) so that can take the responsibility of their own learning. As stated by Nation (1990), after explicit teaching of the most frequent 2,000 words, it is vital to supply learners with effective VLS so that they can cope with low-frequency words. Sökmen (1997) also highlights the urgency of making students independent learners since it is unlikely to for them to acquire all vocabulary they need in the classroom.

On the basis of Rubin's (1987: 29) description of learning, vocabulary learning strategy can be defined as a set of behaviours or processes, through which lexical information is discovered, stored, recalled and consolidated by learners. The efficiency of VLS is depend on many variables like "the proficiency level, L1, and culture of students, their motivation and purposes for learning the L2, the task and text being used,

and the nature of the L2 itself” (Schmitt, 2000: 133). A study by Cohen and Aphek (1981) showed that word lists are better for beginners, and more advanced learners benefit much from learning words within context. Beyond their proficiency level, the feelings and learning styles of the students are of utmost importance. With this in mind, teachers should introduce learners with VLS as many as possible so that they can select those which suit their learning style best, instead of urging certain strategies to them.

Despite the existence of a number of researches on individual VLS, a few attempts have been made to categorise VLS. Nation (2001) splits up VLS into three general groups: planning, sources and processes, each of which includes strategies related to different aspects of word knowledge. Gu and Johnson (1996) consider metacognitive regulation and cognitive strategies as two broad categories, and divide cognitive ones into 6 subcategories: note-taking, guessing, rehearsal, encoding, using a dictionary, and activation strategies. In his study, Stoffer (1995) devises a Vocabulary Learning Strategy Inventory comprising 53 VLS, and classifies those strategies under 9 categories:

1. Strategies involving authentic language use
2. Strategies involving creative activities
3. Strategies used for self-motivation
4. Strategies used to create mental linkages
5. Memory strategies
6. Visual/auditory strategies
7. Strategies involving physical action
8. Strategies used to overcome anxiety
9. Strategies used to organize words (also cited in Schmitt, 1997: 205)

A comprehensive taxonomy of VLS is proposed by Schmitt (1997) through his study with 600 Japanese EFL learners. The list includes 58 strategies divided into 5 categories. His taxonomy is mainly based on Oxford’s (1990) classification of language learning strategies which include memory (MEM), cognitive (COG), metacognitive (MET), and social strategies (SOC). So as to adapt Oxford’s general taxonomy into VLS, Schmitt firstly adds a new category named “determination strategies (DET)”, and then, groups these 5 categories under two major headings: discovery strategies and consolidation strategies. He inserts social strategies into both of these heading since they can be used for both discovering and consolidating word meaning (*see Table 2.9*).

Table 2.9: Taxonomy of Vocabulary Learning Strategies (Schmitt, 1997: 207-208)

DISCOVERY STRATEGIES	
Strategies for discovering the meaning of a new word	
DET Analyze part of speech	SOC Ask teacher for L1 translation
DET Analyze affixes and roots	SOC Ask teacher for paraphrase or synonym of new word
DET Check for L1 cognate	SOC Ask teacher for a sentence including the new word
DET Analyze any available pictures or gestures	SOC Ask classmates for meaning
DET Guess from textual context	SOC Discover new meaning through group work activity
DET Bilingual dictionary	
DET Monolingual dictionaries	
DET Word lists	
DET Flash cards	
CONSOLIDATION STRATEGIES	
Strategies for consolidating a word once it has been encountered	
SOC Study and practice meaning in a group	MEM Use Key Word Method
SOC Teacher checks students' flash cards or word lists for accuracy	MEM Affixes and roots
SOC Interact with native-speakers	MEM Part of speech
	MEM Paraphrase the word's meaning
MEM Study word with a pictorial representation of its meaning	MEM Use cognates in study
MEM Image word's meaning	MEM Learn the words of idiom together
MEM Connect word to a personal experience	MEM Use physical action when learning a word
MEM Associate the word with its coordinates	MEM Use semantic feature grids
MEM Connect the word to its synonyms and antonyms	COG Verbal repetition
MEM Use semantic maps	COG Written repetition
MEM Use 'scales' for gradable adjectives	COG Word lists
MEM Peg Method	COG Flash cards
MEM Loci Method	COG Take notes in class
MEM Group words together to study them	COG Use the vocabulary section in your textbook
MEM Group words together spatially on a page	COG Listen to tape of word lists
MEM Use new word in sentences	COG Put English labels on physical objects
MEM Group words together within a storyline	COG Keep a vocabulary note book
MEM Study the spelling of a word	MET Use English-language media (songs, movies, newscast, etc.)
MEM Study the sound of a word	MET Testing oneself with word tests
MEM Say new word aloud when studying	MET Use spaced word practice
MEM Image word form	MET Skip or pass new word
MEM Underline initial letter of the word	MET Continue to study over time
MEM Configuration	

2.6.1. Discovery Strategies

According to Schmitt (1997), learners apply discovery strategies to find out the meaning of a new word at first sight. They can be divided into two sub-categories.

2.6.1.1. Determination Strategies

Learners use determination strategies to figure out the meaning of a new word without help from a person or a resource. If a word's meaning is not known, it can be discovered through guessing from context, using reference materials like dictionaries, checking for L1 cognate or analysing the structural patterns of the given word such as its root, affixes and part of speech.

2.6.1.2. Social Strategies

Social strategies rely on learners' interaction with other people. In order to explore the meaning of a word, learners may also use such strategies as asking teachers, classmates or someone who knows.

2.6.2. Consolidation Strategies

Consolidation strategies are put to use for recalling a word's meaning after it has been encountered (Schmitt, 1997). Learners can make some effort to consolidate vocabulary items through four different types of strategies as follows:

2.6.2.1. Social Strategies

Apart from the initial discovery of a word's meaning, social strategies can also be employed at later stages for consolidation of words. Learners can study and practise words in a group cooperatively, they can ask teachers to check their lexical accuracy, or

they can interact with native speakers, which is the best way of putting our lexical knowledge into practice.

2.6.2.2. Memory Strategies (Mnemonic Devices)

Memory strategies, traditionally known as mnemonics, are the main focus of this study, so they will be handled in detail later. (*See part 2.7 for further information.*)

2.6.2.3. Cognitive Strategies

Unlike memory strategies which particularly focus on manipulative mental processing to relate newly-learned words with existing knowledge, cognitive strategies use simple mechanical means to study vocabulary such as rote repetition (Schmitt, 1997). Students can also consolidate words through various cognitive strategies. They can take notes in classroom, utter or write words repeatedly, review them through word lists and flashcards and keep vocabulary notebooks.

2.6.2.4. Metacognitive Strategies

Learners employ these strategies to check and evaluate their lexical development through a general review of their learning process (Schmitt, 1997). They can search the efficient ways of vocabulary learning. They can try to maximise their exposure to the words through a variety of sources. They can also use spaced practice, skip unimportant words in texts, revise their learning by self-testing, and keep on studying words in time.

2.6.3. Research on L2 Vocabulary Learning Strategies

Recent studies indicate that vocabulary learning strategies (VLS) are employed by many students (Gu and Johnson, 1996; Schmitt, 1997). However, it is evident that good language learners use more VLS than poor learners having little knowledge of how to deal with new words (Ahmed, 1989; Sanaoui, 1995). As concluded by Ahmed (1989), good learners utilise a wide range of VLS, are conscious of their own learning,

are able to learn vocabulary from context, and establish meaning relations between newly-learned and old words. According to Schmitt (1997), high-level strategy use may be outcome of learners' awareness of the vital role of vocabulary.

According to the relevant research, some widely used VLS are rote repetition (O'Maley and Chamot, 1990), taking notes about words (Ahmed, 1989), and memorisation of words (Cohen and Apeh, 1981). In his study, Schmitt (1997) finds out that bilingual dictionary use and repetition are mostly used and considered as useful by L2 learners. Students apply word lists frequently and successfully, which is regarded as an effective way of learning a number of words in a short time (Nation, 1982).

Furthermore, studies reveal that L2 learners use mechanical strategies like repetition more extensively than complex strategies involving active manipulation of lexical information such as inferencing, imagery and semantic grouping (O'Maley and Chamot, 1990; Schmitt, 1997). Schmitt (2000) regards these mechanical strategies as "shallow activities" since they are less effective than "deeper ones" requiring greater cognitive effort. As deeper VLS, the keyword method (Hulstijn, 1997) and forming associations (Cohen and Apeh, 1981) are found to facilitate better learning and promote longer retention than rote memorisation. It appears that many students do not use such kinds of memory (mnemonic) strategies mostly because they are not conscious of how to apply them.

2.7. MNEMONIC DEVICES (MEMORY STRATEGIES)

Many L2 learners usually grasp the meanings of words at first encounter, but find difficult to keep them in memory and recall in due time. To cope with this problem, learners may be suggested to use mnemonic devices (memory strategies). Mnemonics are strategies intended to assist memory, and they help learners organise new information mentally, retain it effectively in their memory and recall it easily. Mnemonic strategies "involve relating the word to be retained with some previously learned knowledge, using some form of imagery or grouping" (Schmitt, 2000: 135).

For L2 learners, there may be many ways of connecting new words with their prior knowledge or experiences. Mnemonic strategies are so significant that they cover nearly half of the all vocabulary learning strategies in Schmitt's (1997) taxonomy.

Some of them include associating words with their synonyms or antonyms, grouping, using pictures or imagery, paraphrasing, semantic mapping, using physical actions and using some special techniques like the keyword, peg and loci methods.

Mnemonic devices can be verbal, visual, or both. However, according to Thornburry (2002), the best mnemonics should include visual imagery elements because it is argued that creating these visual images requires learners to do deeper mental processing, whereby stronger associations are established between the new words and their previous knowledge.

2.7.1. The Mnemonic Keyword Method

The best-known and mostly researched mnemonic technique is the keyword method. It is based on combining aspects of a word's phonological form and meaning in a mental image (Schmitt, 2000). That is, the keyword method involves creating a mental image which associates the pronunciation or spelling of a L2 word with the meaning of another word, mostly in L1. As an example, the German word "*rathaus*" (town hall) sounds like English phrase "*rat house*" and English learners of German can easily remember it through a mental image of "*a lot of rats coming out of a town hall*" (see Figure 2.3).

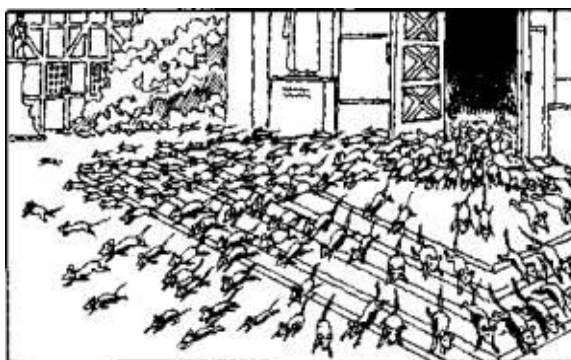


Figure 2.3: Image of rats coming out of a town hall (Gairns and Redman, 1986: 92)

The keyword method connects a new L2 word to a familiar L1 word (keyword) through a chain of two links; similarity in sound (acoustic link) and mental image which integrate the target word with the keyword (imagery link) (Atkinson, 1975). According to Hulstijn (1997), the keyword method has three stages:

1. An L1 or L2 word is selected as a keyword by considering its acoustic / orthographic similarity with the L2 word targeted to be learned,
2. A strong association is formed between the target word and the keyword so that learners remember the keyword when they see or hear the target word,
3. The concept of the keyword and the target word are linked in a visual image.

Levin (1993) regards “three Rs” as vital components of a mnemonic strategy: recoding, relating and retrieving. In sum, the keyword method requires learners to find a L1 or L2 word resembling the target L2 word (*recoding*), to create a visual image integrating these two concepts (*relating*), and to recall it when necessary (*retrieving*).

2.7.1.1. Examples for the Keyword Method

Many examples can be given for various applications of the keyword method:

✚ If English learners of Japanese try to remember the meaning of the word “*katana*” (sword) in Japanese, they can relate it with the word “*cat*” in English, and then, imagine “*a samurai cat waving a sword*”. When the L2 word “*katana*” is heard, the sound similarity will remind the created image of “*cat*”, which will lead them to recall the meaning of the given L2 word (Schmitt, 1997).

✚ Spanish word “*pan*” (bread) resembles the English word “*pan*”, so it can be better recalled by imagining “*a loaf of bread in a pan*” (Kütük, 2007).

✚ English learners of Spanish may also associate the Spanish word “*perro*” (dog) with “*pear*” in English. Then, two concepts can be combined through a mental image of “*a dog holding a pear in its mouth*” (Belezza, 1981).

✚ An acoustic link can be formed between the Tagalog word “*lamok*” (mosquito) and English word “*lamb*”, and the visual image of “*a lamb covered with mosquitoes*” may be helpful to remind it to learners (Carney and Levin, 1998).

✚ Spanish word “*pato*” (duck) can be linked with English word “*pot*”, and they can be linked in mental image of “*a duck sitting on a pot*” (Rough and Atkinson, 1975).

Instead of using L1 words as keywords, L2 words to be learned can also be related with other L2 words previously known by learners. Here are some examples:

✚ It is likely to link the English word “*carline*” (old woman) with the known word “*car*”. It can be better memorised by creating a mental image of “*an old woman driving a car*” (Presley, Levin, and McDaniel, 1987).

✚ English word “*apex*” (highest point) can also be associated with another familiar English word “*ape*” (monkey). It can be recalled well by imagining “*an ape at a highest point of a building*” (Blachowicz, Fisher and Watts-Taffe, 2005).

As an alternative to interactive visual images, L2 words and keywords can be related through a definition in meaningful sentence. After an acoustic link is formed between the French word “*fâché*” (angry) and the English word “*fascist*”, simply thinking a sentence like “*A fascist make me “fâché (angry)”*” may help an individual store the target word easily (Hulstijn, 1997). It is also likely to associate new words with general knowledge of the students. For example, the French word “*colombe*” (pigeon) can related with “*Columbus*” (discoverer of America) through a mental image of “*Columbus standing on his ship with a pigeon on his shoulder*” (Hulstijn, 1997). Sometimes we can take the advantage of the similarity of few letters or sounds between words to link them.

The efficacy of the keyword method largely depends on the memorable quality of the keywords and the mental images. Each keyword is peculiar to its own context. Thus, all keywords do not show the same efficiency, and neither do mental images. The more salient, odd or bizarre the visual image is, the more easily learners can remember the interaction between the words (Hulstijn, 1997). Levin, Levin, Glasman, and Nordwall (1992) find out positive evidence about the efficacy of student-generated mental images. However, teacher-supplied visual interactions are also suggested as effective (Presley, *et al.* 1987). Lastly, each image should be unique and a different keyword should be used for each word (Hulstijn, 1997) in case learners get confused.

2.7.1.2. General Findings of Research on the Keyword Method

In recent years, mnemonics, especially the keyword method, have been extensively researched seeing that they offer a powerful means of memorizing and retrieving information. Mental imagery was firstly applied to L2 vocabulary acquisition by Raugh and Atkinson (1975). This study carried out four experiments, all of which

proved the efficacy of the keyword method on learning Spanish vocabulary items. In one of the experiments where the method was compared with various control procedures, the keyword group produced a final test score of 88% correct compared to 28% for the control group. In another study, Atkinson and Raugh (1975) checked the efficiency of the keyword method on the acquisition of Russian vocabulary, and found further positive evidence. Next, the mnemonics have become well-known through a variety of studies by Levin and Presley (reviewed in Presley, *et al.* 1987).

After these initiatives, rich amount of L2 lexical research has repeatedly proved the efficacy of applying mnemonic strategies, and their facilitative role on vocabulary retention has been highlighted by many reviews. The great majority of these studies have confirmed Atkinson's (1975) idea that the keyword method is one of the best strategies to facilitate both immediate and delayed retention of L2 words. Thus, mnemonics have been suggested as one of the most effective vocabulary learning strategies (Levin, 1981; 1986; Presley, Levin and Miller, 1982; Cohen, 1987; 1990).

Now that there are so many studies about the use of the keyword method, it is better to give general findings. Due to existence of dozens of studies supporting almost all findings, only one sample has been given for each. *See Presley, et al. 1987, Hulstijn, 1997; Rodriguez and Sadoski, 2000; Nation, 2001; and Sagarra and Alba, 2006 for detailed information.*

✚ The keyword method facilitates learning and enhances both immediate and delayed recall of L2 words (Levin, *et al.* 1992). However, long-term benefits of the method are not as clear as immediate superiority in view of some negative research evidence as well as many positive ones.

✚ Keyword method has proven to be more effective than some other vocabulary learning strategies such as repetition (Carney and Levin, 1998), rote memorisation (Sagarra and Alba, 2006), unstructured learning (Kasper and Glass, 1988), and context method in which subjects are given a meaningful sentence about the target words (Levin, *et al.* 1992).

✚ It can be employed with a range of populations, such as young children (Presley, Levin and Miller, 1981), college students (Kasper and Glass, 1988), elderly learners (Gruneberg and Pascoe, 1996), and disabled (Gruneberg, Sykes and Gillet, 1994) or educationally disadvantaged learners (Avila and Sadoski, 1996).

✚ The efficacy of keyword method is not limited to receptive recall of words, but it also efficient in some productive recall tasks (Gruneberg and Pascoe, 1996).

✚ It promotes vocabulary learning in a variety of languages, both L1 and L2, such as English (Rodriguez and Sadoski, 2000), German (Desrochers, Wieland and Coté, 1991), Spanish (Raugh and Atkinson, 1975), Italian, (Lawson and Hogben, 1998), Chinese (Wang and Thomas, 1992), Russian (Atkinson and Raugh, 1975), and so on.

✚ The keyword method is successful both when the keywords are generated by students (Levin, *et al.* 1992) and supplied by teachers (Sarıçoban and Başıbek, 2012).

✚ Its benefits can be proven in different learning contexts, such as natural classroom conditions (Rodriguez and Sadoski, 2000), laboratory settings (Atkinson and Raugh, 1975) and computer-assisted learning (Raugh, Schupbach and Atkinson, 1977).

✚ Learners generally consider it as enjoyable. (Avila and Sadoski, 1996).

✚ In addition to different kinds of concrete words including nouns, adjectives, and verbs, it can also be applied to learn abstract words (van Hell and Mahn, 1997).

✚ Apart from language learning, the keyword method is also effective in other study fields such as maths, science, and social studies.

2.7.1.3. Recent Research on the Keyword Method

As well as general findings of previous research, it will also be useful to revise more recent studies which investigate the effect of the mnemonic keyword technique on L2 vocabulary acquisition. In two different studies, Desrochers, Gélinas and Wieland (1989) and Desrochers, *et al.* (1991) examined the use of the keyword method in learning German nouns and their grammatical gender. The results of both studies displayed that mnemonic instruction facilitated the recall of genders for both English and French learners of German.

In classroom setting, Brown and Perry (1991) compared three learning strategies in terms of immediate and delayed retention of ESL vocabulary. They found that keyword-semantic (keyword plus context) strategy produced higher retention in delayed recall tests compared to other two strategies, namely keyword only and semantic only

(meaning through context). However, lower-proficiency students in keyword only group showed better performance in immediate recall tests.

Levin, *et al.* (1992) conducted four experiments to compare the keyword method with free study and the context method in which target words were used in meaningful sentences. In all experiments, students using keyword method showed better performance than students using sentence-context and free study both on the immediate and delayed recall, even on a post-test requiring the use of words in new sentences.

A study conducted by Hogben and Lawson (1994) examined the immediate and delayed retention of the words by comparing the standard keyword with the multiple elaboration method. After providing standard keyword training to all subjects, half of them were additionally trained in establishing other associative links between words. The subjects in the multiple elaboration group do better than those in the standard keyword method on all immediate post-test, but the standard keyword group was superior on the delayed post-test which was conducted 2 weeks later.

Avila and Sadoski (1996) tested the efficacy of the keyword method on low-achieving students with limited English proficiency, and they proved that the use keyword technique was superior and practical with disadvantaged learners in a public school classroom setting. The findings also revealed that the learners considered the method both effective and enjoyable.

In another study by Carney and Levin (1998), five experiments were carried out to examine the effect of the keyword method and repetition on immediate and long-term retention of the words. The results demonstrated that the keyword method is more advantageous in both immediate and delayed recall. However, delayed recall findings also revealed that, in terms of total number retained, there was a bit faster forgetting rate for keyword students compared to those in repetition control group.

Rodriguez and Sadoski (2000) investigated the effectiveness of (1) rote rehearsal, (2) context, (3) keyword, (4) context/keyword methods on students' immediate and delayed retention of EFL vocabulary in natural classroom settings. The findings of the study showed that both immediate and delayed performances of students in the context/keyword group are superior to those in other three groups.

Atay and Ozbulgan (2007) examined the effects of memory strategy instruction together with contextual learning on vocabulary recall of Turkish EFL learners. The

results revealed that mnemonics enhances vocabulary learning, and that strategy instruction should be integrated into contextual vocabulary learning. The study also suggests that teachers should be provided with strategy instruction as a part of methodology courses given at teacher education programs.

In a recent study with upper-intermediate level learners, Sariçoban and Başibek (2012) compared the mnemonic strategy with the context method in terms of their effects on immediate and long-term retention of EFL vocabulary items. The findings of the study showed that the mnemonic technique is more effective on both immediate and delayed recall of the words compared to the context method. Many other recent studies also highlighted the efficacy of mnemonic keyword method on facilitating recall of vocabulary items (e.g., Lawson and Hogben, 1998; Sagarra and Alba, 2006).

2.7.1.4. Benefits and Limitations of the Mnemonic Devices

Countless studies and reviews have dealt with the mnemonics, especially the keyword method. There exists sufficient amount of positive research evidence about the effective use of the keyword method in L2 vocabulary learning and teaching. However, their usefulness should not be overestimated since they often cannot be put into practice with all the words (Hulstijn, 1997). For this reason, teachers should make learners be conscious of both limitations and strengths of the mnemonic devices.

Although mnemonics are generally regarded to facilitate comprehension and retention of L2 vocabulary, some shortcomings are also reported in the literature. First, the keyword method is claimed to demand much time, effort, creativity and training, especially finding a suitable keyword. In this regard, Schmitt (2000) states that elaborate mental processing may take time, but it is worth spending time if it is used for significant words such as the high-frequency words and technical vocabulary.

Second, its long-term efficacy is seen questionable in view of the existence of evidence suggests that the benefits of the keyword method are temporary (Wang and Thomas, 1999; Wang, Thomas and Ouellette, 1992). However, some others argue against this criticism by offering further positive evidence about the long-term retention of the method (Gruneberg, 1998; Beaton, Hyde, Shufflebottom, Gruneberg and Sykes,

2005) even 10 years after the study (a case study by Beaton, Gruneberg and Ellis, 1995). Indeed, it needs to be studied further.

Moreover, some studies argue that rote learners perform better when there is no immediate tests which are claimed to provide subjects with additional practice for learning (Thomas and Wang, 1996; Wang and Thomas, 1992; Wang, *et al.* 1992). On the other hand, regarding immediate tests as indispensable for studies, Gruneberg (1998) argues that it is pedagogically unreasonable to omit them wilfully. Furthermore, against the critique of its being less efficient for the production of L2 words, Beaton, *et al.* (2005) argue that the keyword method helps both receptive and productive learning of words only if they create good mental images.

The keyword method has some other critics suggesting that it is not well-known, rarely used without explicit training, and has very-limited application (Sternberg, 1987). Indeed, the keyword method is seldom used in L2 instruction. According to Hulstijn (1997), the underlying reasons are that it cannot be successfully applied all the vocabulary items and it is less effective for productive learning of words than reception. Despite accepting some limited application possibilities, he maintains that they are not sufficient enough to ban such an effective technique from the classroom. As a matter of fact, it may be useful for particular types of learners. “Mnemonic strategies may not be for all students all of the time, the research evidence overwhelmingly suggests that they are for many students some of the time” (Levin, 1993: 242).

As for the advantages, the rationale behind the power of memory strategies is that they facilitate deeper processing in memory, better learning and easier retrieval of the words. Cohen and Aphek (1981) assert that mnemonics involve elaborate mental processing of the words in learners' minds, which assists longer retention. According to Thomson (1987), mnemonic devices lead to speed learning and better recall since they facilitate the integration of new material into existent cognitive units and supply retrieval cues. Many studies indicate that mnemonics are systematic procedures which enhance memory for better learning (Paivio and Desrochers, 1981; Presley, Levin and Delaney, 1982; Belezza, 1983; Paivio, 1983; Levin and Presley, 1985; Levin, 1986).

Another benefit of the mnemonics, namely the keyword method, is its applicability to a wide variety of situations. The related literature suggests that the effective use of keyword method on vocabulary acquisition is fixed in range of learning

contexts, for different learners, with various languages, and with different retention measures, e.g., immediate or delayed recall, and receptive or some productive tasks. The success of keyword method has been proven in other disciplines rather than language learning. The method is also considered as enjoyable and interesting by participants who actually use it within the experimental studies.

There is also much evidence about the superiority of mnemonic strategies over some other vocabulary learning strategies, or unstructured learning (no strategy control). Owing to deeper processing they offer, mnemonics promote longer retention than other mechanical strategies like repetition, rote memorisation, and word list; which is proven by many studies mentioned before. However, it does not mean they are vain. Rather, we can effectively learn many vocabulary items through word list (Nation, 1982), and even rote repetition contributes to our lexical knowledge. Nevertheless, mnemonics entail more active manipulation and establish more direct links between forms and meaning of the words, which make them more retrievable for learners. The findings of a recent study by Sagarra and Alba (2006) also showed that strategies requiring deeper processing, namely the keyword method, produce better retention than strategies involving shallower processing such as rote memorization.

Although a number of studies suggest that the keyword method is more advantageous than the context method, there is also criticism about some of these research studies. After their review of many studies conducted, Presley, *et al.* (1987) criticise the way the contextual strategies are operationalized. They state that the subjects are given limited time and only one context (mostly one sentence) for each vocabulary item although curriculum specialists recommend using multiple contextual exposures. On the other hand, inferring from context strategy should not be confused with the context method of some studies in which subjects are given an example sentence about words. It may also be not practical to directly compare a mnemonic technique with inferring from context because they are different in nature. While mnemonics are vocabulary remembering strategies, providing context helps learners *discover* meaning. Unlike mnemonics, the context method does not try to form an associative link between the word and its definition. It involves simply inferring meaning of words from context. In short, they involve manipulation of quite different cognitive processes in learners' mind. Thus, there is no good reason to expect inferring from context to facilitate long-term retention of meaning (Presley, *et al.* 1987).

Since mnemonics establish a direct link between the words and their definitions, they are expected to help learners better encode the words and retrieve them easily from memory. However, they should not be considered as a substitute for other strategies such as inferring from context, but a helpful addition (Hulstijn, 1997). There exist considerable amount of research evidence which suggests that combined context/keyword method is more effective than either method alone (e.g., Brown and Perry, 1991; Rodriguez and Sadoski, 2000; Atay and Ozbulgan, 2007). It seems that the mnemonics and the context strategy are complementary. They make different but convergent contributions to vocabulary acquisition. While one facilitates the recall of words through associative mental links, the other helps us become self-reliant learners by fostering our ability to discover the meaning of the words independently.

2.7.2. Other Types of Memory Strategies

a) Pictures: Learners usually study new lexical items with their definitions or L1 equivalents. However, it is also likely to learn words by pairing them with pictures. There is no doubt about the facilitative role of pictures on memory (Gairns and Redman, 1986). Research results showed that L2 words paired with pictures are learned better than those paired with L1 equivalents (Kopstein and Roshal, 1954; Webber, 1978).

b) Imagery (Visual Imagery) (Visualisation): Visual imagery is also effective way of memorising vocabulary. Instead of pictures, learners can produce their own pictures in mind. Studies reveal that creating mental images of a word's meaning is more effective than rote repetition (Schmitt, 1997).

c) The Peg Method: It is a useful mnemonic technique for remembering a list of ordered items (words) or numbered information. It involves learners' recall of unrelated items by linking them with easily memorisable rhyme, namely "pegs" or "hooks". Rhyming peg-words represent numbers, such as "*one is a bun, two is a shoe, three is a tree, and so on.*" In this method, learners first memorise a set of rhyming words like given above, and then, they are given a picture or asked to create a mental image in which new items and peg words are associated (Schmitt, 1997). As an example, it was used well to teach the order of the USA presidents (Lorayne and Lucas, 1974). The first president, George Washington, was pictured with a bun in his hair (one is a bun), and

John Adams with a large Adam's apple and a shoe tied around his neck (two is a shoe) and so on. In this way, learners could recall more easily the order of the presidents.

d) The Loci Method: It involves relating new items with known places. Learners imagine a familiar place, such as a street or a room, and later, they mentally put the first item to be recalled into the first location and the second one into the second location and so forth (Schmitt, 1997). So as to recall the target vocabulary items at later time, they take an imaginary walk in this place and retrieve them with the help of the location with which they are linked.

e) The Finger Method: Similar to Loci Method, new items to be learned can be associated with a finger. This technique can be successfully used with children in learning numbers, days of the week, the months of the year, and so on (Holden, 1999).

f) Letter Strategies: Focussing on a word's spelling may also facilitate its recall. According to relevant research, the initial letters of words are the most important feature in word recognition (Marchbanks and Levin, 1965). Acronyms and acrostics are common letter strategies, which are also called "first letter mnemonics". Acronyms are words which are formed by the initial letters of many other words. As an example, the acronym "HOMES" may help learners remember the names of the Great Lakes in the USA. Here each letter represents one of these lakes (Huron, Ontario, Michigan, Erie, and Superior) (Scruggs, Mastropieri, Berkeley, and Marshak, 2010). Acrostics involves using the sentences in which the first letters of words represent a list of information to be recalled. For instance, the sentence "***M**y **v**ery **e**ducated **m**other **j**ust **s**erved **u**s **n**ine **p**izzas*" helps students to remember the planets in order (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, etc.) (Scruggs, *et al.* 2010).

g) Rhyming & Phonological Form of the Words: As well as its spelling, pronunciation of a word may help learners. They can make mental representations of the sound of a word or make use of similar rhyming words, e.g. "*one is a bun, two is a shoe, three is a tree, and so on*" (Schmitt, 1997). Learning numbers via such kind of rhyming may be fun, especially for young learners. In language learning, another common practice is relating sounds with a familiar word (or picture), e.g., "A" with "apple", "B" with "banana", and "C" with "cat", so forth.

h) Personalisation: Learners can relate words with their personal experiences. We can link the word "*doll*" with our childhood memory of playing with a doll.

i) Physical Mnemonics: The use of body and physical actions is also suggested to facilitate the recall while learning a language. There is a common saying that the best learning is attained by doing, which is also the basis for a common methodology, Total Physical Response. Physical mnemonics or drama can be effectively used in vocabulary learning, especially with young learners. They can physically act out to display the meaning of words, such as those about *illnesses*, *classroom commands*, and *actions*.

j) Grouping: Grouping is another technique to help recall. Free-recall studies show that people arrange words in groups instinctively without prompting (Schmitt, 1997). There are various types of grouping words. As an example, words can be arranged spatially on a page to form some patterns or shapes such as triangles, rectangles, pyramids, etc. (see *Figure 2.4*).

e.g., the body parts

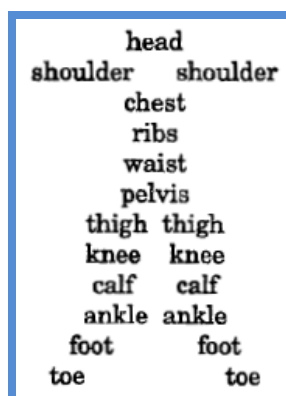


Figure 2.4: Spatial Grouping (Holden, 1999: 46)

k) The Narrative Chain Method: New words can be effectively associated with each other through a narration, such as an event, a story, a tale or an anecdote. It will help learners establish better links between new words and those known previously.

l) Semantic Elaboration: L2 teachers can also elaborate learners' lexical knowledge by making multidimensional associations or building semantic networks among words, which enhances their retention. Semantic elaboration should be regarded as combination of many memory strategies rather than only one strategy. According to Sökmen (1997), semantic elaboration activities function as integrating new lexical items with the old, enhancing deep level of processing, and establishing concreteness. Sökmen (1997) discusses four types of semantic elaboration techniques:

1) *Semantic Feature Analysis*: It involves the analysis of the meaning components of words. In the analysis, in order to differentiate the meaning features of the words, learners fill in a diagram or grid with pluses or minuses to show presence or absence of a feature, respectively (see Table 2.10).

Table 2.10: A sample for semantic feature analysis

Animal	Semantic Feature								
	mammal	reptile	insect	bird	lives on land	lives in water	a pet	farm animal	forest animal
cat	+	-	-	-	+	-	+	+	-
eagle	-	-	-	+	+	-	-	-	+
snake	-	+	-	-	+	+	-	-	+
ant	-	-	+	-	+	-	-	-	+

2) *Semantic Mapping*: A group of learners firstly brainstorm about the concept of a word and its associations; and then, the targeted results and links among words are diagrammed on a map (see Figure 2.5). There may be various ways of analysing a word, so teachers should be careful while guiding the group interaction.

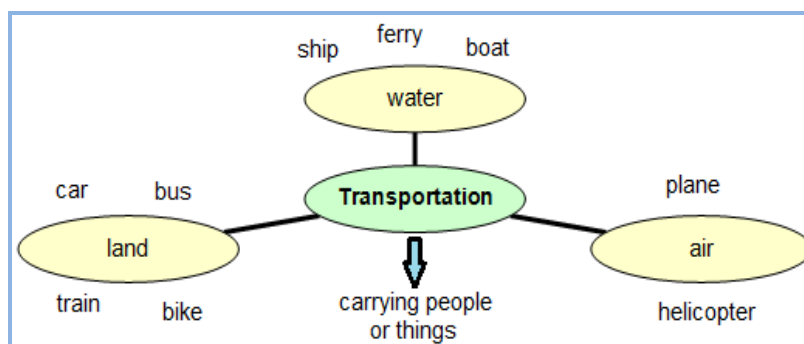


Figure 2.5: A sample for semantic mapping

3) *Ordering*: Learners can also arrange or order a list of lexical items according to some criteria. Putting some scrambled words into a specific order may involve learners more deeply in the process of learning. For instance, gradable adjectives can be better understood by students when they are put in a logical order, e.g., *huge* / *big* / *medium-sized* / *small* / *tiny* (Gairns and Redman, 1986).

4) *Pictorial Schemata*: Another elaboration technique is creating pictorial schemata, such as scales or clines, grids, tree diagrams. Whether they are teacher-

supplied or student-generated, they make meanings of the words more visual and concrete, thereby facilitating their retention and retrieval (*see Figure 2.6*).

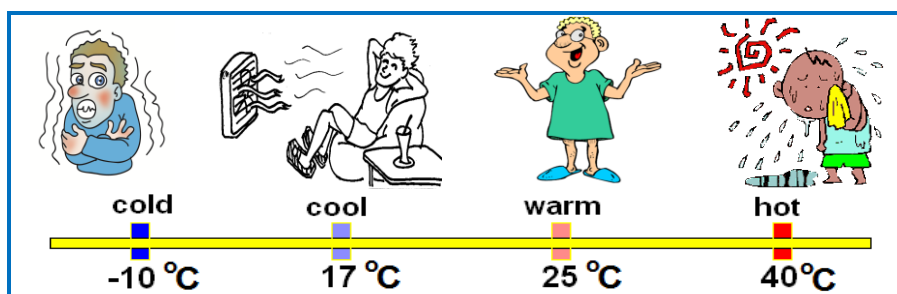


Figure 2.6: A sample for pictorial schemata

In conclusion, research results reveal that mnemonic devices usually provide learners with opportunities to encode vocabulary items more effectively so that they can easily retrieve them from memory. However, the mnemonics, like the keyword method, are rarely given place in L2 instruction. Many teachers and textbook writers find it “odd” and “unnatural” technique mostly because they are not really conscious of what the keyword method is (Hulstijn, 1997). Naturally, it may have some limitations. However, as Hulstijn (1997: 204) concludes from the review of relevant research, “there are no theoretical reasons to suspect the keyword method of playing an inhibiting role”; rather, it is facilitative to vocabulary acquisition. Hence, they can be evaluated with their functions, rather than their nature.

2.8. CROSS-ASSOCIATION IN VOCABULARY ACQUISITION

Cross-association is one of the most potential problems in L2 vocabulary learning and teaching. Cross-association means forming incorrect form-meaning correspondence while learning a word’s meaning for the first time, and it generally appears if two or more semantically similar words are taught or learned together (Schmitt, 2007). In other words, if two words have many similar semantic features, it will be difficult for learners to remember which word form refers to which concept (Öztürk, 2007). Thus, it may be unreasonable to teach the words similar in form and/or in meaning at the same time because it can give rise to learners’ confusion, thereby leading them to make wrong form-meaning association.

In cross-association, students are able to learn both the word forms and meanings, but they confuse which forms correspond to which meanings. As an example, the words like “*right*” and “*left*” are generally cross-associated by learners in that they are too similar and share the same semantic features with the exception of “direction” (Schmitt, 2000). Accordingly, as I did, it is more likely to observe some students showing their “*left*” hands even though they are instructed to raise their “*right*” hands. As a foreign language teacher, in the early years, I have witnessed some students cross-associated the words like “*mommy*” and “*daddy*”, writing such sentences like “*Mommy is a driver, and daddy is a housewife.*” so as to imply just the opposite. We have also smiled, as a whole class, at the student saying “*I like eating kitchen.*”, intending to express his like about “*chicken*”. In sum, learners have difficulty in discriminating between cross-associated words.

Given the danger of cross-association, the words to be presented together should not be similar semantically, phonologically or orthographically. Antonyms (*fat - thin*) and synonyms (*look - stare*) are more likely to be confused (Nation, 1990). Being similar in form, synforms (*price - prize*) are also deceptive words for learners (Laufer, 1997a). Lastly, words from the same semantic sets like *numbers*, *food* and *clothes* are regarded to be inclined to cross-association. There is much evidence that the words which sound and look similar are puzzled by L2 learners (see Laufer, 1997b: 146-148, for review). Seeing that even the native speakers of English may sometimes confuse the similar words like “*affect - effect*” or “*deductive - inductive*” (Schmitt, 2007), cross-association is more likely to occur in L2 vocabulary acquisition when semantically related words are presented simultaneously. Hence, studies show that it is a serious problem for L2 learners (Higa, 1963; Tinkham, 1993; 1997; Waring, 1997).

2.8.1. How to Teach Related Words

The probability of cross-association brings to mind a controversial issue of how to present the words similar in form and meaning. Those words can be introduced in two ways: in semantic sets or in semantically unrelated sets. On the one hand, a semantic set, also known as a lexical set, simply refers to grouping words which share certain semantic features. It involves a systematic arrangement of words in meaningful chunks such as *clothes*, *food*, *colours*, *body parts* and *months*. Such directly associated

words are claimed to make learning difficult since one word in the group can be substituted for another (Nation, 2000), which is the basis for cross-association (*see Table 2.11 below*).

Table 2.11: Directly associated words to be substituted (adapted from Nation, 2000: p.7)

	a shirt		hot
	a skirt		warm
I'm wearing	a jacket	because it is	cool
	a coat		cold
	a sweater		

On the other hand, if vocabulary items are introduced in semantically unrelated sets, they will not share similar semantic features with one another, as in “*green, slimy, frog, pond, hop, croak, swim*”. Being more indirectly associated with each other, these words can work together to make a meaningful sentence like “*The green slimy frog croaked and hopped into pond.*” (Nation, 2000: 7). Therefore, such kind of thematic grouping is argued to make learning easier (Higa, 1963; Tinkham, 1997; Nation, 2000).

West (1955) regards grouping related items as undesirable because it requires the presentation of words with different frequencies or usefulness at the same time and the use of unrealistic context. Hence, whether words should be taught in semantic sets or semantically unrelated sets is still a matter of intense debate in L2 lexical research, and deeper insight of the issue can only be achieved by considering the relevant research.

2.8.1.1. Research in favour of presenting words in semantic sets

Some studies support the common teaching practice of grouping semantically related words together (Gairns and Redman, 1986; Haycraft, 1993; and Hashemi and Gowdasiaei, 2005; Stahl and Naggy, 2006; Graves, 2006). This view is based on the familiar psychological principle that it is easier to learn well-organised information than unorganised one (Baddeley, 1990). It is thought that, if the words similar in meaning or sharing common elements are organised and taught within the same lexical set (semantic cluster), it will facilitate the acquisition of the given words. As another justification for this perspective, it will be easy to recall semantically related words from memory as they are stored in the brain in a similar fashion (Nation, 2000).

According to Tinkham (1997), there are two motivations driving this viewpoint. First, semantic clustering seems to be convenient both for two distinct methodologies in L2 teaching. Beyond structure-based methods, more learner-centred approaches also adopt semantic grouping mostly to serve new words despite caring the communicative needs of learners. Second, grouping words in accord with their semantic features is believed to help learners explore the semantic boundaries among the concepts of words in the set (Gairns and Redman, 1986). That is to say, learning related words simultaneously is regarded to offer useful framework so that learners can see semantic similarities and differences among them, e.g., *car, plane, bike, and train*.

McCarthy (1990) mentions the benefits of using word associations in teaching vocabulary. Seeing that words are semantically organized and stored in brain, learners are regarded to recall words more easily based on these semantic and conceptual mapping (Aitchison, 1994). Therefore, teaching words in semantic sets is thought to be compatible with the efficient organization of semantic fields in our brain. Likewise, Haycraft (1993: 44) makes an analogy between introducing words in unrelated sets and a tree with no trunk and branches but only leaves. He also suggests that semantic clustering will help students easily form interrelations among words in their mind.

Hashemi and Gowdasiaei (2005) analysed the effectiveness of teaching vocabulary in semantic sets versus semantically-unrelated vocabulary instruction in terms of both vocabulary size and depth. The results revealed that students taught words in semantically related sets achieved greater gains in both their vocabulary depth and breadth than those taught the same words in unrelated sets. Emphasizing the facilitative role of presenting new words in semantic sets, the study provides teachers with pedagogical implication that they should systematically arrange the new words under appropriate topics and teach vocabulary in meaningful contexts.

2.8.1.2. Research against teaching lexical items in semantic sets

An increasing amount of research, on the other hand, suggests teaching lexical items in semantically unrelated sets (Higa, 1963; Tinkham, 1993, 1997; Waring, 1997; Nation, 2000; Erten and Tekin, 2008; Bolger and Zapata, 2011). These studies suggest that presenting semantically related words at the same time will take longer time to learn and will make their learning more difficult than introducing them in unrelated sets.

In fact, this standpoint stresses that semantically related words are not appropriate for initial learning, and as learners' knowledge of the given items develops, meeting them in semantic sets will have a less negative effect (Nation, 2000).

The opponents of teaching words in semantic sets propose "interference theory" of human mind as a rationale. According to this theory, the more similarity there exist between a new item to be learned and those learned just beforehand, the more difficult it will be to learn the given item, due to interfering effects of these similar items on each other (Tinkham, 1997). Similarly, when the words to be learned are too similar or share too many semantic features, they will interfere with learning each other (Waring, 1997). Thus, it is argued that learning semantically and syntactically related words at the same time will impede rather than facilitate their learning and retention.

As evidence for presenting words in semantically unrelated sets, McGeoch and McDonald (1931) found out that introducing similar words concurrently have an interfering effect on the acquisition of the given words. The subjects in the study had difficulty especially in learning synonymous and antonymous words. According to a study by Pigada and Schmitt (2006), learners confused not only semantically related words but also words similar in form, which are called "synforms" by Laufer (1997b). Higa (1963) also analysed the intra-list interference relationships between six groups of semantically related words and unrelated words. The study revealed that simultaneous learning of three lexical sets – namely synonyms, free associates (*e.g., bed & sleep*) and opposites (antonyms) – have more interfering effect than words in unrelated sets.

Tinkham (1993) carried out two experiments to compare vocabulary learning rates of subjects in both semantically related sets and semantically unrelated sets. The results indicated that words can be learned faster and with fewer trials through unrelated groupings compared to semantic clustering. In his replication of Tinkham's (1993) study, Waring (1997) verified that learning the semantically related words required more learning trials and longer time than the unrelated ones. Both studies revealed that it is more advantageous to teach words in semantically unrelated sets.

Another study by Tinkham (1997) provided evidence about the facilitative role of thematic clustering on learning new vocabulary items rather than semantic clustering which had an inhibitive function. Finkbeiner and Nicol (2003) also provided positive evidence for teaching words in semantically unrelated sets. They investigated the

vocabulary recall of the learners who were presented with new words in either semantic or unrelated sets. The results revealed that the recall of vocabulary items taught in semantic sets was quite slower than those introduced in unrelated sets.

With their study, Erten and Tekin (2008) compared introducing words in semantic sets versus semantically unrelated sets in terms of both immediate and delayed recall as well as test completion time. The results showed that presenting words in semantically unrelated sets produces higher degree of retention and recall than learning them in semantic sets. Test completion time was also much longer for the students learning the words in semantic sets. Hence, this study also confirmed that teaching words in semantically-related sets have unfavourable impact on learning rather than facilitating it, and it based these results on the interfering effect of cross-association.

2.8.2. Teachers' Dilemma in Avoiding Cross-association

Despite convincing research evidence against teaching related words together, there is still a general tendency to present new words in semantic groups. Whether language-focused or communicative-based, almost all methodologies in L2 teaching still present new words in lexical sets (Tinkham, 1997). Similarly, most EFL courses are full of semantically related lexical items, especially in Turkey. Namely, the ELT curriculum prepared by the Turkish Ministry of National Education (MNE) (MEB, 2013) and suggested textbooks do not serve new words in unrelated sets; neither do coursebooks by well-known publishers. (*See Table 2.12 for the contents of the current national ELT curriculum in Turkey and the unit names in textbooks*).

Table 2.12: General tendency to teach related words in semantic sets in Turkey

National Curriculum	"Students will be able to recognise the names of fruits." (p. 10) "Students will be able to recognise the names of vehicles." (p. 20) ELT Curriculum for Primary Schools (MEB, 2013)
Textbooks published by Ministry of Education	✚ Unit 4: My Clothes, Unit 5: Body Parts, Unit 7: Pets, Unit 13: Toys Time for English Grade 4 (Ersöz, <i>et al.</i> 2011) ✚ Unit 1: Family, Unit 3: Food and Drinks, Unit 6: Weather Conditions Spot on Grade 6 (Bacanlı Kurt, <i>et al.</i> 2011)
Coursebooks by well-known publishers	✚ sports (p. 32), health problems (p. 34), food (p. 40), clothes (p. 50) Real Life Elementary (Hobbs & Keddle, 2010) ✚ family members, (p. 8), body parts (p. 20), school subjects (p.26) Solutions Türkiye A1 (Falla & Davies, 2012)

The limitations imposed by centrally-issued national curricula, EFL coursebooks, and nationwide exams lead Turkish EFL teachers into a dilemma. They are, on the one hand, obliged to teach vocabulary in semantic sets. On the other hand, they should avoid cross-association, which is suggested to be one of the vital principles in teaching words (Nation, 1990; Schmitt, 2000, 2007). Thus, it is very confusing for EFL teachers whether to comply with the national curriculum and the textbooks by presenting words in lexical sets or to cope with the danger of cross-association.

Nation (2000) offers course designers some guidelines to avoid cross-association. He advises them not only to select words according to their usefulness (frequency) and in a way to avoid interference but also to present them in realistic communication situations through texts, themes or tasks (thematic clustering) rather than unnatural semantic sets. However, it seems that many course designers have left teachers alone to cope with the problem so far.

According to Nation (2000), L2 teachers can also take some precautions to minimize cross-association. First, they can make learners conscious about the dangers of learning related words. Second, the differences between the related items can be increased in two ways: (a) by teaching the related items at different times, (b) using them in a wide range of context. More specifically, teachers are suggested to teach the most useful ones of the cross-associated pairs first, and then continue with the other at least several days later (Nation, 2000). In fact, almost all teachers are likely to agree on informing students and practising words in various contexts. However, it is really challenging for them to plan and teach the related words at different times by deviating from the national curriculum and without help from a textbook.

In addition, as teachers, we cannot control everything in L2 classrooms. We try to teach only one item, e.g., “*skirt*”, but some students may want to learn the other clothing items like “*shirt*” and “*shorts*”. In this situation, what should we do to avoid students from cross-associating between the words “*skirt*” and “*shirt*”, which are similar both in form and in semantic features? That question has been the main motivation of this study, which investigates whether there is another way of handling cross-association while teaching words in semantic sets.

2.8.3. The Use of Mnemonic Devices for Minimising Cross-association

Many Turkish EFL teachers are required to teach vocabulary items in semantic sets due to the constraints by the centrally issued national curricula and the textbooks based on it. In these circumstances, learners, unfortunately, are faced with the danger of making cross-association between semantically or syntactically similar words. Nation (1990: 47) suggests that 25% of similar words taught simultaneously are generally cross-associated by the students. Furthermore, there is very little information to give teachers insights about how to cope with this problem. As an exception, in his article, Nation (2000) advises learners to find some mnemonic tricks to differentiate between the words similar in form and meaning so that they can minimize the effect of interference. It seems to me that this task may be a bit difficult for EFL students at first, especially for young learners. Hence, I have thought that, instead of students, teachers may apply mnemonic devices like imagery or keyword method to minimise the effect of cross-association. Nevertheless, there seems no empirical research evidence about the efficacy of mnemonics on minimising the probability of cross-association until now.

2.8.4. The Rationale behind Using Mnemonics to Avoid Cross-Association

There exists a good deal of recent research evidence about the facilitative effect of mnemonics on L2 vocabulary learning and retention (e.g., Desrochers, Gélinas and Wieland, 1989; Desrochers, *et al.*, (1991); Brown and Perry, 1991; Levin, *et al.*, 1992; Hogben and Lawson, 1994; Avila and Sadoski, 1996; Lawson and Hogben, 1998; Carney and Levin, 1998; Rodriguez and Sadoski, 2000; Sagarra and Alba, 2006; Atay and Ozbulgan, 2007; Baleghizadeh and Ashoori, 2010; Sariçoban and Başıbek, 2012). Therefore, mnemonic devices can also be suggested to help L2 learners cope with the problem of cross-association. Actually, the use of mnemonic devices for minimizing cross-association in teaching L2 vocabulary can be based on three justifications:

- 1) methodological motivation,
- 2) theoretical framework,
- 3) personal teaching experiences.

2.8.4.1. Methodological Motivation: Scaffolding

Scaffolding can be proposed as methodological motivation behind helping learners avoid cross-association in L2 vocabulary acquisition. *Scaffolding* is a term developed by Wood, Bruner and Ross (1976) as a metaphor to indicate the facilitative role of parents on the language development of their children (Hammond and Gibbons, 2005). As we all know, scaffolding is a temporary structure on the outside of a building used by workers to reach necessary points during its construction. Scaffolding is crucial but short-term support for a building; and it is taken away when the building is completed and stands independently.

As a metaphor of learning context, the term scaffolding is also used to describe “the temporary assistance that teachers provide for their students to assist them to complete a task or develop new understandings, so that they will later be able to complete similar tasks alone” (Hammond and Gibbons, 2005: 9). Likewise, teachers are suggested to pull that support back as soon as students gain the necessary skills so that they can do certain tasks independently later on. EFL teachers should also help their learners extend their understandings of a subject or overcome a prospective problem in the learning context. It seems to me that the danger of cross-association is by no means an exception.

After informing students about the dangers of learning related words together, EFL teachers should train them in applying mnemonic strategies so as not to cross-associate between similar vocabulary items. At first, the students may have difficulty in using mnemonic devices to this purpose. Therefore, teachers can help them avoid cross-association for a certain time as a temporary assistance. As EFL students learn how to use such mnemonic strategies, the support from the teacher can be withdrawn and they can independently find some mnemonic tricks to distinguish between confusing words, as in the concept of scaffolding.

2.8.4.2. Theoretical Framework

Three theoretical bases can be put forward about the use of mnemonic devices to keep L2 learners away from cross-associating between similar words. First, according to *the depth (levels) of processing hypothesis*, a word will be learned better and

remembered more easily if learners gain a deeper level of semantic processing with the given word (Craik and Lockhart, 1972; Craik and Tulving, 1975). The relevant lexical research reveals that mnemonic devices entail such kind elaborate mental processing of the words, thereby facilitating better learning, longer retention, and easier retrieval (e.g., Cohen and Aphek, 1981; Thomson, 1987; Sagarra and Alba, 2006; Nemati, 2009). This deeper level of cognitive processing offered by mnemonics may also minimise the potential danger of cross-association in L2 vocabulary acquisition.

Second, *dual coding theory* postulates that human memory processes and stores information through concurrent work of two distinct but interrelated subsystems; one deals with visual images and the other with verbal information. It is also suggested that better learning will take place if both of these subsystems work together rather than either alone (Clark and Paivio, 1991). Similarly, many mnemonic devices, especially the keyword method and the configuration technique, activate both verbal and visual mental processes (Paivio, 1986; 1991). With this in mind, the present study offers mnemonics as an alternative solution to the problem of cross-association since they involve elaboration at both semantic and imaginal levels.

Third, within the scope of *schema theory*, (Anderson, 1977; Bartlett, 1932), learning is described as interactive process between new information and learners' background knowledge. It is believed that "every act of comprehension involves one's knowledge of the world as well" (Anderson, Ralph, Diane and Ernest, 1977: 369). Schemas are viewed as conceptual systems for understanding the knowledge, and all the new information is processed, interpreted, organised and stored through relevant schemas or sub-schemas in mind (Anderson, 1977). In this theory, if a new item is associated with learners' relevant existing knowledge (schema), it will be learned, stored, and retained more effectively. Correspondingly, the power of mnemonic devices is that they facilitate the integration of new material into existing cognitive units and supply retrieval cues (Thomson, 1987), which likely to activate the appropriate schema. This power may also avoid the interfering effect of learning similar words at the same time.

All in all, Levin (1986) argues that the rationale behind mnemonic strategies is that they meaningfully integrate new information with related schemas in mind, as a result of which information can be processed deeply and retrieved easily. In addition, our lexicon is viewed as a network of associations, "a web-like structure of inter-

connected links” (Sökmen, 1997: 241), and mnemonics are suggested to facilitate learners’ making such associative links between words. According to O’Malley and Chamot (1990), “the information from long-term memory can be used to enrich the learner's understanding or retention of the new ideas by providing related information or schemas in which the new ideas can be organized” (p18). Likewise, mnemonic devices establish direct links between new words and our prior knowledge and make use of the information existing in our long-term memory. All these strengths intersect at mnemonics, which may minimise negative effects of learning words in semantic sets and help L2 learners avoid cross-association between similar words.

2.8.4.3. Personal Teaching Experiences

It has been almost 20 years since I started using mnemonic devices in both learning and teaching EFL vocabulary, but without knowing the terms “*mnemonics*” and “*cross-association*” at larger part of this time. As a foreign language learner, I could not memorise EFL words easily, and I used to confuse many of them, especially those similar in form and meaning. One day, while I was looking at confusing English words “*soap*” and “*soup*”, I realised that the letter “u” in the word “*soup*” resembles a “*bowl*” with which we can eat soup (*see Figure 2.7*).

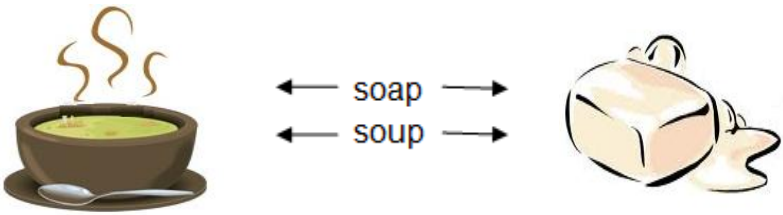

Cross-associated Words	Mnemonic Trick
	

Figure 2.7: A sample mnemonic device for the English word “*soup*”

With the help of this basic mental imagery, I have not confused those words once again. Then, I applied such mnemonics many times so as not to be puzzled in learning semantically or orthographically similar words. Sometimes I used a mental imagery or configuration technique. I also related new words with more familiar words in L2, sometimes with L1 words or with any kind of knowledge in my life.

At first, using such kinds of mnemonic tricks was an individual strategy for me to cope with confusing words; therefore, I never thought of applying it in classroom settings when I started to work as an EFL teacher of Ministry of Education in 2005. However, before long, I noticed that some of my fourth grade students consistently cross-associate between the word-pairs in my quizzes or exams such as “*rubber-ruler*”, “*aunt-uncle*”, “*shirt-skirt*”, “*twelve-twenty*”, “*mom-dad*”, “*chair-chalk*”, “*right-left*”. Seeing this, I could not stop myself from sharing the mnemonic tricks – which I used when I were in their shoes – with my young learners. They usually viewed these tricks as enjoyable. Not enjoying mine, they sometimes found more effective mnemonics.

As an EFL teacher with eight years of experience, mnemonics have given me a great support to help my students cope with cross-association. As an example, a simple mnemonic device, namely the keyword method, can be applied while teaching semantically related words “*mom*” and “*dad*”, which are likely to be cross-associated. After presenting them in isolation via visual aids, we can associate the English word “*mom*” with the Turkish word “*mama*” (baby food), and provide students with a visual image of “*a mother giving food to her baby*”. We can also exemplify it with such a sentence “*Mom gives us baby food (mama).*” When they hear the L2 word “*mom*”, the sound similarity of the L1 word “*mama*” will remind them the created image, and this will help students discriminate between “*mom*” and “*dad*” (see Figure 2.8).




L2 word	The keyword in L1	Mental picture
 <p data-bbox="395 1637 461 1666">mom</p>	 <p data-bbox="596 1637 849 1666">“mama” (baby food)</p>	 <p data-bbox="895 1637 1362 1666">A mom gives us “baby food” (mama).</p>

Figure 2.8: A sample use of the keyword method for the English word “*mom*”

On the other hand, we can also focus on the spelling (orthographical form) of the confused words in order to find some mnemonic tricks. Timko (1970) revealed evidence that outlining the word form with lines or figures (configuration) provides learners with cues to recognize or recall the target item easily. For instance, every year while I

introduce EFL vocabulary related to school equipment, many of my students confuse the words “*rubber*” and “*ruler*”. I can keep my students away from cross-association by drawing the letter “l” in the middle of the word “*ruler*” as if it was a figure of a ruler, as in *Figure 2.9 below*. Through such a simple board drawing, almost all of my students can differentiate between the given words. In the same way, English words “*right*” and “*left*” may be less confusing for Turkish learners if they establish a link between the first letter (I) of “*left*” and the final letter (I) of its Turkish correspondence “*sol (left)*”

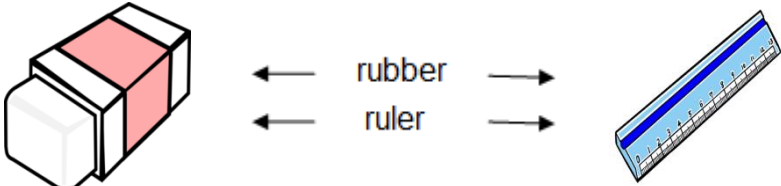

Cross-associated Words	Mnemonic Device
	

Figure 2.9: A sample mnemonic device for the English word “ruler”

My impression is that finding a mnemonic trick related with only one of the confused pairs generally seems to be sufficient, but if possible mnemonic devices can be applied for both cross-associated words. Sometimes the confused words may be more than two, e.g., “*clock-chair-chalk*”. In this situation, the use of mnemonics for all the items in the group may solve the problem more effectively.

In conclusion, it should be kept in mind that such kind of personal experiences are not enough to give teachers insights to minimise the interfering effect of presenting words in semantic sets. For this reason, the facilitative role of mnemonic devices on avoiding cross-association should be proven empirically, which is the main focus of this study.

CHAPTER 3

METHOD

3.1. AIM

The present study was mainly conducted to explore the effect of mnemonic devices on minimizing the problem of cross-association in L2 vocabulary acquisition. More specifically, the aim of this study was to investigate not only the extent of learners' cross-association between similar words when EFL vocabulary is taught in semantic sets but also the use of mnemonic devices to solve this prospective problem. In this regard, the facilitative role of mnemonics was also analysed in terms of both instant learning and delayed retention the target words when EFL teachers were required to present vocabulary in semantically related sets.

3.2. RESEARCH DESIGN

This study comprised three experiments, each of which employed a quasi-experimental research model in pre-post test design with both a treatment and a control group. All experiments were carried out within the same research design but with different sets of EFL words. Since the research was performed in a natural classroom situation, two intact third-grade classrooms were randomly assigned to one of two teaching conditions. The experimental groups were taught some EFL vocabulary in semantic sets through mnemonic techniques. The control groups were presented the same target words by means of usual vocabulary instruction.

In the light of the difference between the pre-test and the post-test results of the participants, both groups were compared in terms of not only occurrence of cross-association but also achievement in immediate recall of the words. The long-term retention of EFL words in two distinct teaching conditions was measured through the delayed post-tests conducted two weeks after each treatment. As well as checking the effect of the mnemonic devices on avoiding cross-association, the data from the control

groups were also used to find out whether the students would cross-associate between similar words when L2 vocabulary is taught in semantic sets.

After the first experiment had been achieved productively, it was replicated two more times with different groups of words so as to obtain more consistent and reliable results about the potential effect of mnemonic devices on the problem of cross-association in L2 vocabulary acquisition.

3.3. SETTING

The study was carried out in a state primary school in the central district of Bursa, which is located in western Turkey. There are two main reasons why this particular school was selected as study setting. First of all, the researcher had been working as an EFL teacher in this school for 3 years when the present study was conducted. This would not only facilitate the planning and implementation of the current research but also ensure natural group dynamics. Secondly, it registers students from a neighbourhood where middle-class working people live. Obviously, working with such a homogenous group of participants would reduce possible individual variations.

The experiments were implemented in a natural classroom setting, as a part of a 15-week English course held by the school administration for the third grade students. As a matter of fact, the class teachers of third graders in this particular school thought that it would be more beneficial for their students to start learning English, at least in half of four free-activity classes in a week. They shared this idea with the parents, the school administrators and the teachers of English in the school, and they all came to an agreement on the issue.

As one of the EFL teachers in the school, the researcher was proposed to teach English in this course. At this point, the researcher briefly informed the administrators, the class teachers, and the parents about the current study. All parties consented to the implementation of three experiments within the organised course. In view of his research study, the researcher did not accept to be paid for the course, so he took part in this project voluntarily. Consequently, each of two third-grade classes had 2 hours of English lessons per week for 15 weeks, 3 of which were allocated for the experiments

within the current study. In this way, the content of the course was planned by taking the present study into account, which was a great chance.

3.4. PARTICIPANTS

The participants of the study were 58 third grade EFL learners (33 males and 25 females) from a state primary school in the city of Bursa in Turkey, and their teacher who had 8 years of teaching experience. The ages of the students ranged from 9 to 10 years, and they were native speakers of Turkish. Third grade students were considered as ideal subjects for this study since they had no prior knowledge of English. It must be noted that foreign language education officially began at the fourth grade in Turkish primary schools at the time this study was conducted.

Since the current research was conducted in a natural classroom environment, both experimental and control group were already established classes of students. Therefore, neither random selection nor any other statistical sampling methods were implemented. However, it was clearly known that those students had not been assigned to a class on the basis of any criterion by the school administration when they enrolled in the school. Instead, the students in each class were all chosen randomly by drawing lots. Initial interviews done with the class teachers of both groups confirmed that there were no significant differences between them in terms of academic achievement. In this regard, these two classes were randomly assigned to either experimental or control groups.

Having no information about the experiments, the participants were unlikely to be influenced by the sensation of the experiments, which were carried out in natural classroom settings. Both experimental and control group received the vocabulary instruction as they usually did within the course. So as to rule out the variations in teaching procedure, both groups were taught by the same teacher, who was also the researcher of the present study.

3.5. MATERIALS

The materials used in this study can be classified under two broad categories:

- a) instructional materials for teaching the target words in the experiments,
- b) tests for data collection and analysis.

The following section will give a detailed account of how these materials were prepared and put into practice.

3.5.1. Instructional Materials

Instructional materials comprised the pictorial flashcards and the visual images for teaching target words through two mnemonic devices: the keyword method and the configuration technique. A picture flashcard of each vocabulary item was prepared by the researcher prior to the experiments. The participants in both experimental and control groups were presented the target vocabulary items by means of these illustrated flashcards. Pictorial flashcards were two-sided. On the front side, there were pictures of the target words and their English spellings below so as to be used in teaching stage. The reverse side included only the pictures of the related words without their English label underneath so that learners can guess the meaning themselves, especially in the practice stage (*see figure 3.1*).

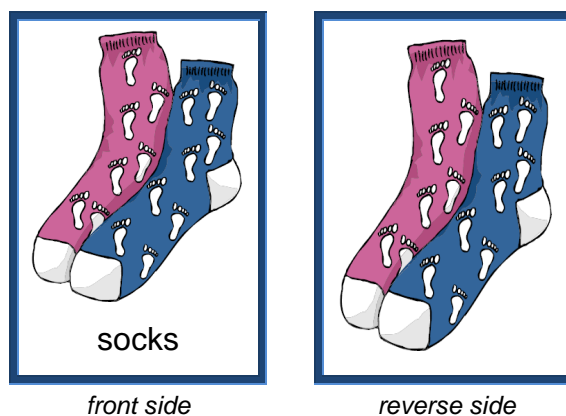


Figure 3.1: A sample pictorial flashcard for teaching the English word “socks”

Visual images for mnemonic vocabulary instruction were the other instructional materials, which were employed in presenting words only to the participants in the experimental groups. The keyword method and the configuration (spelling) of the

confused words were two types of mnemonic devices applied in this research. The visual images of the keyword methods included three elements:

- a) the target (L2) word,
- b) the keyword (mostly in L1)
- c) the mental picture which associates the spelling or pronunciation of L2 word with the meaning of the keyword mostly in L1 (*see Figure 3.2*).

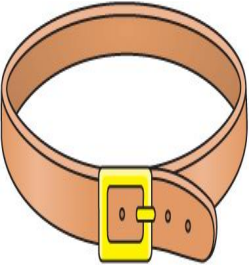
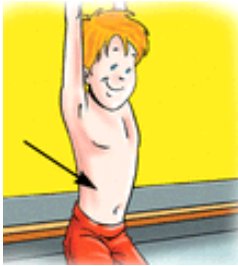

L2 word	The keyword in L1	Mental picture
 <p>belt</p>	 <p>"bel" (waist)</p>	 <p>Belts are worn around the "waist" (bel).</p>

Figure 3.2: A sample visual image of the keyword method for the English word "belt"

As another mnemonic device, the configuration technique was applied in order to avoid cross-association in L2 vocabulary acquisition. The visual images of this technique consisted of two cross-associated words and a mnemonic figure related to their orthographical forms (spelling) so as to help participants to differentiate between them (*see Figure 3.3*).

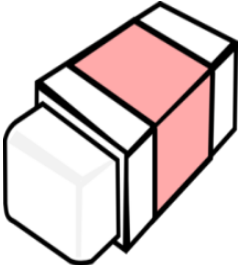
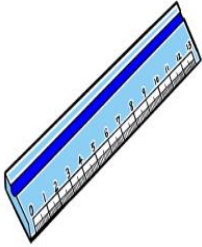

Cross-associated Words	Mnemonic Figure
 <p>← rubber →</p> <p>← ruler →</p> 	 <p>ru er</p>

Figure 3.3: A mnemonic configuration to differentiate between "rubber" and "ruler"

Pictorial flashcards and visual images for mnemonic vocabulary instruction were prepared in big size so that even those students sitting at the back side of the classroom can see them easily.

3.5.2. Tests for Data Collection

Three kinds of word recognition tests were carried out as data collection tools of the present study. The vocabulary knowledge of the participants in both groups was tested prior to the treatment, immediately after the treatment, and finally after a two-week interval. The pre-tests, the immediate post-tests, and the delayed-post tests were all prepared by the researcher. The reliability of these tests was also checked by means of Cronbach's Alfa scale in SPSS, a statistical software program.

All the tests were in the multiple-choice formats, where participants had to choose the English equivalents of the target words with the help of the pictures given as clues above the options (*see Figure 3.4 and 3.5*). Pupils in each class were familiar with multiple-choice tests as it is almost the main form of testing in Turkey. The tests were composed of 8 vocabulary items, each of which had four options. As an exception, in the pre-tests, the choice "I don't know" was also added as a fifth option in order to prevent tests-takers from inflating their scores by guessing, as in online version of Nation and Beglar's (2007) Vocabulary Size Test, which is available at <http://my.vocabularysize.com>. While writing the options of the test items, it was noted that at least one option comprised the cross-associated words which was semantically or orthographically similar to the right answers.

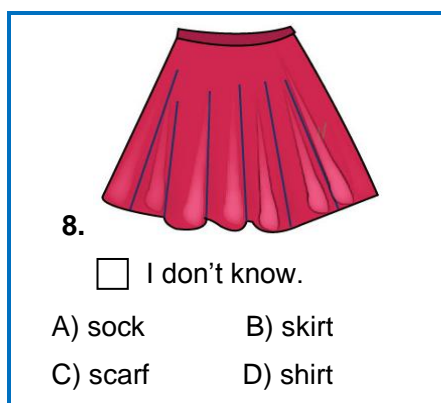


Figure 3.4: A sample test item from the pre-test

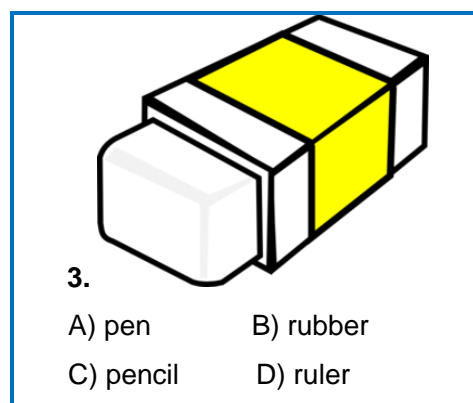


Figure 3.5: A sample test item from the post-test

The forms of the pre-tests were not exactly the same as those of the immediate post-tests and the delayed post-tests. The order of the test items, the arrangement of the options, and the pictures given as cues were completely different in all three tests. These changes were made so as to eliminate the possibility that the students would recall the right answers from their pictorial memory.

3.6. PROCEDURE

3.6.1. Experiments

This study involves three experiments investigating the effect of mnemonic techniques to avoid cross-association in L2 vocabulary acquisition. The schedule of the experiments was prepared in the light of the syllabus of the 15-week English course organised in the school. (*See Appendix A for detailed information on the schedule of the experiments*).

The first experiment was done in the seventh week of the course, and it was replicated twice with different groups of words in order to get more consistent and reliable results. In Experiment I, the participants were taught a set of words defining *family members*. The target words in Experiment II and III comprised *school equipment* and *clothing items*, respectively. In the first two experiments, only one of two cross-associated pairs was taught through mnemonic techniques. However, in Experiment III, all of 8 target lexical items were presented via mnemonic devices (*see Table 3.1*).

Table 3.1: The lexical sets and the target words presented within the experiments

Experiments	Lexical Set	Target Words
Experiment I	Family Members	mom, dad, sister, brother, aunt, uncle, grandmother, grandfather
Experiment II	School Equipment	book, notebook, rubber, ruler, pencil, pen, chair, chalk
Experiment III	Clothing Items	shirt, skirt, scarf, socks, boot, sneakers, belt, cap

Each experiment lasted about 40 minutes; 35 of which was spent for vocabulary instruction and practice, and the remaining 5-minutes were for the immediate post-tests. The delayed post-tests were administered two-weeks after the treatment.

3.6.2. Preparations

Several arrangements were made before the experiments. First, as the third graders who had no knowledge of English as a foreign language, the participants were taught some basic language functions and structures within the organised course. Some of them were as follows:

- greeting people,
- introducing oneself,
- subject pronouns,
- numbers,
- colours,
- present form of verb “to be” (*am / is / are*),
- expressing possession with “*have got / has got*”.

In this way, they would be able to understand the example sentences relevant to the target vocabulary items. The participants in both experimental and the control groups were taught these structures and functions through the same procedure and within the same period of time. (*See Appendix A for details on the syllabus of the course*).

Second, the decisions on how many words to teach in the experiments were made in view of the relevant research. According to Schmitt (2000), it seems reasonable to teach roughly ten new words in a sixty-minute lesson. In this regard, eight lexical items were considered as ideal vocabulary load to be taught in a 40-minute period of the experiments.

Third, the selection of the target words was another significant issue. All the words were taken from “*Time for English Grade 4*” (Ersöz, *et al.* 2011), a textbook provided by the Ministry of Education in Turkey. In order to see the true effect of mnemonics to avoid cross-association, the words similar in form and meaning were

chosen as the target words, e.g., “*rubber-ruler*”, “*chair-chalk*”, “*aunt-uncle*”, “*mom-dad*”, “*shirt-skirt*”, and “*socks-scarf*”. These words were regarded as likely to be cross-associated due to having similar semantic features or spelling. *See Appendix B for the target words used in the experiments.*

In addition, much importance was attached to develop visual aids for presenting vocabulary items more effectively. In this respect, pictorial flashcards illustrating each target words and the visual images for teaching some lexical items through mnemonic techniques were prepared by means of computer programs. *See Appendix C for picture flashcards; and Appendix D for visual figures prepared through mnemonic devices.*

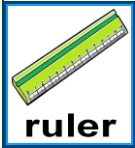
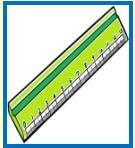


Last but not least, considerable time and effort was spent to design the tests for data collection. While writing the test items, a great care was taken to select the relevant pictures and design the test options. *See Appendix E for the pre-tests; Appendix F for the immediate post-tests; and Appendix G for the delayed post-tests carried out in three experiments.*

3.6.3. Treatment

About 30 minutes before the treatment, the participants in both groups were given the same pre-test to measure their previous knowledge of the target words. The administration of the pre-tests took about 5 minutes. Not informed about the test in advance, 31 students in the experimental group were taught 8 semantically-related words by means of mnemonic strategies whereas the other 27 students in the control group got the usual teaching of the same target vocabulary without mnemonic devices.

Each group had the same length of instruction, which was about 35 minutes. The instruction of each target word lasted almost 3 minutes ($8 \times 3 = 24$ minutes). About 5 minutes were dedicated to the practice of 8 lexical items through a simple activity. Finally, the subjects were given the rest 6 minutes to write the target words into their notebooks. The procedures conducted in both classes were also identical except for one section, where the experimental group practised the words through mnemonic devices while the control group did the similar type of practice without mnemonic techniques. *See Table 3.2 below for the procedure followed to teach target words in experiments.*

Table 3.2: The procedure followed for vocabulary instruction in the experiments

Procedure for Experimental Groups	Procedure for Control Groups
<p>* The administration of the pre-test</p> <p style="text-align: center;">Pictorial flashcard</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>ruler</p> <p><i>front side</i></p> </div> <div style="text-align: center;">  <p><i>reverse side</i></p> </div> </div> <p>* The teacher shows the reverse side of the flashcard to provide a context for teaching the target word, and asks learners what it can be in Turkish.</p> <p>* When the students guess the meaning of the word in their native language, the teacher repeats the English pronunciation of the word three times.</p> <p>* After the word is pronounced clearly, the teacher shows the front side of the flashcard. Seeing the spelling of the new word, the students repeat its pronunciation three times after the teacher.</p> <p>* The teacher writes the word and its Turkish equivalent on the board. He also writes an example sentence related to that word, such as “<i>My ruler is green.</i>”</p>	<p>*The administration of the same pre-test</p> <p>* The same procedure as the experimental group</p>
<p>* The teacher applies mnemonic devices in order to prevent students from cross-associating between previously learned “<i>rubber</i>” and “<i>ruler</i>”. Here the visual image below is shown, and mnemonic figure is explained.</p> <div style="text-align: center;">  </div>	<p>* Instead of mnemonic figure for the experimental group, the control group is shown another visual of the word, and a new example sentence is given.</p> <div style="text-align: center;">  <p>“The teacher has got a ruler.”</p> </div>
<p>* After the teacher presents all the vocabulary items in the same way, the target words are practised through a simple activity. Within this activity, the teacher shows the reverse sides of 8 flashcards, and the students guess and tell their meaning in English.</p> <p>* Finally, the students write the target words and their Turkish equivalents into their notebooks.</p>	<p>* The same procedure as the experimental group</p>
<p>* The application of the immediate post-test</p>	<p>* The same immediate post-test</p>
<p>*The use of delayed post-test after two-week interval</p>	<p>* The same delayed post-test</p>

While practising the target words through mnemonic devices, the experimental group was given some mnemonic tricks to help them differentiate between the semantically related words. Mostly the keyword method was applied as mnemonic device. Focusing on the orthographical forms of the words, the configuration technique was also used to teach only one target word in each experiment. The mnemonic instruction was given in Turkish so as to ensure comprehension by the participants. In the keyword technique, while the students were looking at the visual images, the sample instruction was as follows: [As you see, the English word “*mom*” sounds like the Turkish word “*mama*” (baby food). “*Mom*” means “*anne*” in Turkish. In order to remember the meaning of “*mom*”, you can imagine that “*A mom gives us baby food (mama)*”]. As for the configuration technique, the mnemonic figures concerning the spelling of the words were explained to the participants.

The participants in the control group did usual vocabulary practice in order to compensate for the absence of mnemonic practice which was applied in the experimental group. Instead of the mnemonic image shown to experimental group, the participants in the control group were presented with a different visual of the target word. They were also provided with a new example sentence related to that visual in order to counterbalance the mnemonic explanation given to the experimental group. Each vocabulary item was presented to both groups in the same pattern described in *Table 3.2 above*.

Immediately after the treatment, the participants in both groups were given the same post-test so as to analyse and compare their recognition of the target words. In view of the number of the items to be answered, 5 minutes were devoted to the implementation of the immediate post-test. Following the teaching session, no assignment was given to the students. Finally, after a two-week interval, another post-test was provided to the participants in both groups so as to check their delayed recall of the target words. Once again, the subjects were given 5 minutes to complete the test. They were also not informed about this delayed post-test in order to avoid the regular attempts to study the taught words beforehand.

3.7. DATA COLLECTION AND ANALYSIS

Data were collected during the first semester of 2011/2012 academic year. *See Appendix A for details on the weekly procedure of data collection.* Pre-tests, immediate post-tests and delayed post-tests were used as data collection tools. Almost none of the participants had previous knowledge of English. Therefore, in both groups, there were only few students familiar with the target words before the experiments. With this in mind, instead of measuring the participants' prior knowledge of the target words, the pre-tests were mainly used to eliminate those who had already known all or some of the target words. On the basis of their scores on the pre-tests, the data of some students were excluded at the analysis stage. Another factor to be kept out from the analysis was that some students missed the key teaching session. As a consequence, the number of participants whose data were analysed was less than the whole participants in each experiment.

All data were analysed by means of a statistical software program, Statistical Package for the Social Sciences (SPSS version 21). The quantitative data obtained from the pre-tests, the immediate post-tests and the delayed post-tests were entered to SPSS program. The results of these tests were analysed to see whether there exists any significant difference between mnemonic and usual vocabulary instruction in terms of their effect on minimizing the learners' cross-association between similar words. A detailed analysis of the incorrect answers the control students gave in the immediate post-tests was used to reveal the extent of cross-association EFL learners experienced when the words were taught in semantic sets. The difference between the pre-test and the immediate post-test results shed light on not only occurrence of cross-association but also achievement in immediate recognition of the words for each group. The outcomes from delayed post-tests were employed to compare the powers of mnemonic and usual vocabulary instructions with regard to the long-term retention of the target words.

In order to compare the experimental group with the control group statistically, the independent samples t-tests were applied to the test scores of the participants in both groups. Firstly, the mean scores and the standard deviations of these tests were calculated separately for each group. Then, p- values of these t-tests were taken into account so as to determine the significance level of the results. In such statistical

analyses, p-value is a number between 0 and 1, and it must be less than 0.05 so that a difference between the mean scores of two groups can be considered as statistically significant. If p-value is less than 0.01, it means that there is a very strong presumption on the significant difference between two groups from a statistical standpoint.

As for the reliability of the tests conducted in the experiments, they were verified statistically by means of Cronbach's Alfa reliability analysis in the SPSS program. All of the experiments in this study had the same research design. Therefore, the test results pertaining to these experiments were displayed in the same tables, and their findings were explained simultaneously in the following chapter.

CHAPTER 4

RESULTS

4.1. PRE-EXPERIMENTAL MEASURES

Table 4.1 below displays the results of the pre-tests conducted before the experiments. As seen in the table, the mean score of experimental group was 0.20 out of 8.00 while it was 0.19 for the control group in Experiment I. In the second experiment, the means were 0.26 and 0.27 for the experimental and the control groups, respectively. The figures were not different in Experiment III; 0.23 for the experimental group and 0.19 for the control group. In view of these results, it can be concluded that the mean scores of both groups were very similar in the pre-test of each experiment. From a statistical viewpoint, p-values were higher than 0.05 in each experiment (p=0.95 in Experiment I; p=0.99 in Experiment II; and p=0.88 in Experiment III). These figures indicated that the differences between the pre-test results of the experimental group and those of the control group were by no means statistically significant. Thus, there is a strong presumption that the participants in both groups had almost the same level of lexical knowledge about the target words prior to the experiments.

Table 4.1: The results from the pre-tests

		Number of participants	Means	Standard Deviations	Degrees of Freedom	t-value	Significance probability (p-value)
		n	M	SD	df	t	p
Experiment I (Family Members)	Experimental Group	30	0,20	1,10	55	0,058	0,954
	Control Group	27	0,19	0,79			
Experiment II (School Equipment)	Experimental Group	30	0,26	0,83	54	-0,009	0,993
	Control Group	26	0,27	1,37			
Experiment III (Clothes)	Experimental Group	31	0,23	1,26	56	0,150	0,882
	Control Group	27	0,19	0,68			

As shown in *Table 4.1 above*, the mean scores of the pre-tests were very low since almost all the participants in both groups had no knowledge of English prior to the current research. The average of mean scores was 0.22 out of 8.00 in the pre-tests of all experiments. In each group, there were only few students who had already known some of the target words, so the pre-test results were mainly used to exclude these subjects instead of checking their previous lexical knowledge.

It was scientifically important that none of the participants should be familiar with all or some of the target words before the experiments. Therefore, on the basis of their scores on the pre-tests, 3 pupils were eliminated from the analyses of the immediate and delayed post-tests in Experiment I. For the same reason, 4 and 3 subjects were also disqualified from the following analyses in Experiment II and III, respectively. As a consequence, the number of the subjects whose data were analysed in the immediate and delayed post-tests was slightly less than those in the pre-tests.

Given the exclusions of the participants knowing only one or all of target words from the analyses of the post-tests, the mean values for both experimental and the control groups on the pre-tests were regarded to be zero. Hence, the initial lexical levels of the subjects in each group were assumed as equal prior to the experiments. Once again, the pre-test measures revealed no group differences between two classes in terms of their initial vocabulary knowledge.

The reliability of the pre-tests was not measured since the number of the participants answering the pre-test items was not considered to be statistically enough to carry out such reliability analyses. Besides, almost all the subjects in both groups chose the option "*I don't know*" except for two or three students who replied some of the questions in each pre-test.

4.2. EXPERIMENTAL MEASURES

The research results showed that the mnemonically instructed students outperformed the control groups on both immediate recall and delayed retention of the target vocabulary items, all of which were taught in semantic sets. From a statistical perspective, there was a significant difference between these two groups in terms of

their immediate vocabulary gain scores and their recall of the target words after a two-week interval. The findings also suggested that third grade EFL learners cross-associated the semantically and orthographically similar words when target vocabulary was presented in semantic sets.

The research findings will be explained in detail hereafter in the light of the research questions:

Research Question 1: To what extent do EFL learners cross-associate between the words similar in form and meaning when L2 vocabulary is taught in semantic sets?

Given the average percentages of the mean scores in three immediate post-tests, a general impression can be obtained about the extent of cross-association in both the experimental and the control group. As illustrated in *Figure 4.1* below, the mnemonic group recognised roughly 96% of the target words correctly as compared to the control group who recalled only 61% of the same lexical items. With this in mind, it can be concluded that the rate of cross-association between semantically related words was nearly 40% for the control subjects. On the other hand, this ratio for mnemonically instructed learners was equal to 4%, which was 10 times less than their control counterparts. In view of these figures, it can be inferred that the use of mnemonic instruction, to a great extent, minimises the probability of cross-association between the similar words when EFL vocabulary is taught in semantic sets.

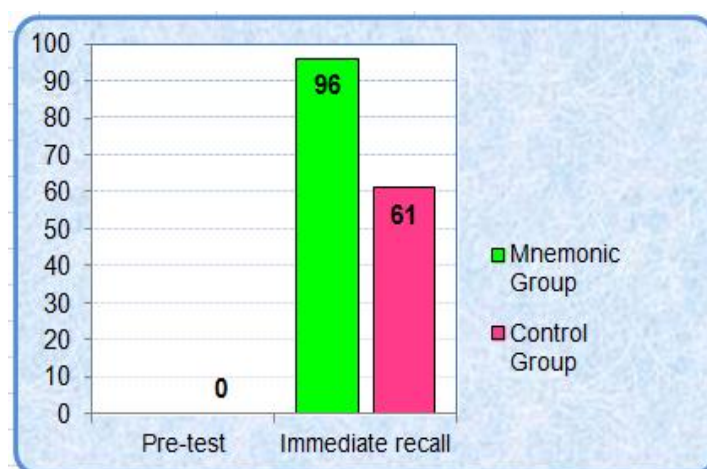


Figure 4.1: The average percentages of the mean scores in immediate post-tests

The participants in the control group were also taught the words having similar semantic features at the same time. Therefore, a comprehensive analysis of the incorrect answers the control students gave in the immediate post-tests would provide us with more detailed information about the mostly cross-associated target words in these experiments. As seen in *Table 4.2 below*, “*grandfather-grandmother*”, “*aunt-uncle*”, “*rubber-ruler*”, “*chalk-chair*”, “*skirt-shirt*” and “*sock-scarf*” were some of the word pairs highly confused by the control subjects who were not given mnemonic instruction.

Table 4.2: Some cross-associated words by the control group in immediate post-tests

	Some Target Words	Cross-associated Words (Number of cross-association)		
Experiment I	uncle	aunt (12)	sister (2)	mom (1)
	grandfather	grandmother (8)	mom (1)	sister (-)
	brother	sister (5)	aunt (3)	mom (1)
Experiment II	rubber	ruler (11)	pencil (2)	pen (1)
	book	notebook (3)	pencil (-)	pen (-)
	chalk	chair (5)	rubber (3)	ruler (1)
	pencil	pen (7)	notebook (2)	book (1)
Experiment III	skirt	shirt (13)	scarf (3)	sock (2)
	scarf	sock (8)	skirt (4)	shirt (3)
	socks	scarfs (8)	skirts (4)	sneakers (2)
	boots	belts (2)	sneakers (1)	socks (-)

All in all, the findings from the immediate-post tests evidently showed that the control subjects cross-associated between the target words considerably more than the mnemonically instructed learners. Naturally, it was difficult for the control subjects to differentiate between these related words, which share some common features not only in meaning but also in phonological or orthographical form.

Research Question 2: Do mnemonic devices help EFL learners / teachers avoid cross-association in learning / teaching words similar in form and / or meaning?

Table 4.3 below illustrates the results of the post-tests conducted immediately after the presentation of the target words. In all three experiments, the treatment groups performed exceedingly better than the control groups on the immediate recognition of the target words. As seen in *Table 4.3 below*, the mean score of the mnemonic group in Experiment I was 7.79 (97%) while it was 4.92 (62%) for the control subjects. The figures were also alike in Experiment II; the mean for the experimental group was 7.52 (94%) as compared to 4.68 (59%) for the control group. With the mean score 7.67 (96%), once again the mnemonically instructed participants left behind their control counterparts, the mean score of whom was 5.04 (63%) in Experiment III. Even though all of 8 target words were taught via mnemonic devices in the third experiment, the results were not different from the preceding two experiments, in which only one of similar word pairs was instructed by means of mnemonic devices. Consequently, the analyses of mean scores suggested that the experimental group surpassed the control group on the immediate recognition of the target words in each experiment.

Table 4.3: The results from the immediate post-tests

		Number of participants	Means	Percentage	Standard Deviations	Degrees of Freedom	t-value	Significance probability (p-value)
		n	M	%	SD	df	t	p
Experiment I (Family Members)	Experimental Group (Mnemonic Instruction)	29	7,79	97	0,82	52	6,448	0,000
	Control Group (Usual Instruction)	25	4,92	62	2,24			
Experiment II (School Equipment)	Experimental Group (Mnemonic Instruction)	27	7,52	94	0,85	50	6,596	0,000
	Control Group (Usual Instruction)	25	4,68	59	2,06			
Experiment III (Clothes)	Experimental Group (Mnemonic Instruction)	30	7,67	96	0,61	53	8,230	0,000
	Control Group (Usual Instruction)	25	5,04	63	1,62			

The statistical analyses also confirmed the superiority of the mnemonic group over the control group on instant learning of the target vocabulary. As shown in *Table 4.3 above*, p-values were equal to 0.00 in all three experiments ($p < 0.01$), which statistically means there is a very strong presumption on the significant difference between these two groups on their immediate recall of the target words.

The reliability analyses of the immediate post-tests were carried out by means of Cronbach's Alpha in SPSS (*see Table 4.4 below*). Accordingly, all the tests yielded a very high reliability with the average score of about 0.80 for 8 valid items in each test ($\alpha > 0.40$). The participants in non-treated control group were also added to these analyses in view of the stability of the reliability tests.

Table 4.4: The reliability statistics for the immediate-post tests

		Number of Subjects (n)	Cronbach's Alpha (α)	Number of items
Experiment I	Immediate Post-test	54	0,844	8
Experiment II	Immediate Post-test	52	0,787	8
Experiment III	Immediate Post-test	55	0,722	8

To sum up, the results of the immediate post-tests pointed out that mnemonically instructed students were consistently superior to the control subjects on instant learning and recall of the target words. The average rate of immediate recall was 96% for the mnemonic group while it was 61% for the control group (*see Figure 4.1 above*). In fact, the achievement rate of 96% in EFL vocabulary teaching was a very satisfying outcome, especially in a real classroom setting. Given these findings from immediate post-tests, it can be concluded that mnemonic vocabulary instruction, to a great extent, helps EFL learners avoid cross-association in learning semantically related words at the same time.

Research Question 3: Is the facilitative role of mnemonic devices for minimising cross-association stable in terms of delayed retention of L2 words?

The findings from the delayed post-tests conducted two weeks after the treatments also verified the superiority of mnemonic instruction over usual vocabulary teaching. *Table 4.5 below* illustrates means, standard deviations and p-values with regard to the delayed post-tests. With the mean score of 7.62 (95%) in the first experiment, the mnemonic group surpassed the control group, the mean score of which was 4.52 (57%). As for the figures in Experiment II, the means were 7.37 (92%) and 3.84 (48%) for the experimental and the control groups, respectively. The statistics from Experiment III were not different from the previous experiments; the mean score of the treatment group was 7.17 (90%) whereas it was 3.92 (49%) for the control group. Hence, receiving mnemonic vocabulary instruction, the experimental groups were also better at delayed retention of the target words as compared to the control groups.

Table 4.5: The results from the delayed post-tests

		Number of participants	Means	Percentage	Standard Deviations	Degrees of Freedom	t-value	Significance probability (p-value)
		n	M	%	SD	df	t	p
Experiment I (Family Members)	Experimental Group (Mnemonic Instruction)	29	7,62	95	0,86	52	6,089	0,000
	Control Group (Usual Instruction)	25	4,52	57	2,58			
Experiment II (School Equipment)	Experimental Group (Mnemonic Instruction)	27	7,37	92	1,15	50	9,833	0,000
	Control Group (Usual Instruction)	25	3,84	48	1,43			
Experiment III (Clothes)	Experimental Group (Mnemonic Instruction)	30	7,17	90	1,18	53	8,174	0,000
	Control Group (Usual Instruction)	25	3,92	49	1,75			

The delayed effect of the mnemonic instruction was also controlled from a statistical standpoint. In parallel with those for immediate post-tests, p-values for all three delayed-post tests were also equal to 0.00 ($p < 0.01$) (see Table 4.5). These figures statistically proved that there was a significant difference between these two groups in terms of their long-term retention of the target words.

As shown in Table 4.6 below, the reliability analyses of the delayed post-tests were run through the standardised scales of Cronbach's Alpha. These tests also produced a very high reliability with the average score of over 0.80 for 8 valid items in each test ($\alpha > 0.40$). So as to provide the stability of these reliability tests, the control subjects were included to these analyses as well.

Table 4.6: The reliability statistics for the delayed-post tests

		Number of Subjects (n)	Cronbach's Alpha (α)	Number of items
Experiment I	Delayed Post-test	54	0,883	8
Experiment II	Delayed Post-test	52	0,775	8
Experiment III	Delayed Post-test	55	0,805	8

The general outcomes of the delayed post-tests were parallel with those of the immediate post-tests. As seen in Figure 4.2 below, the mnemonic group recalled about 92% of the target words correctly as compared to their control subjects who retained only 51% of them after a two-week interval. The delayed post-test results revealed that some forgetting occurred on recall of the target words two weeks later for both groups. Actually, such loss in the retention of the vocabulary was regarded as normal since the target words were not recycled or revised within this period of time. Nevertheless, mnemonically instructed learners forgot less amount of vocabulary than their control counterparts. The average rate of forgetting was only 4% for the mnemonic instruction while it was equal to 10% for the usual vocabulary teaching (see Figure 4.2 below). Based on these findings, the superiority of the mnemonic group over the control group was found to be stable in terms of delayed retention of L2 words.

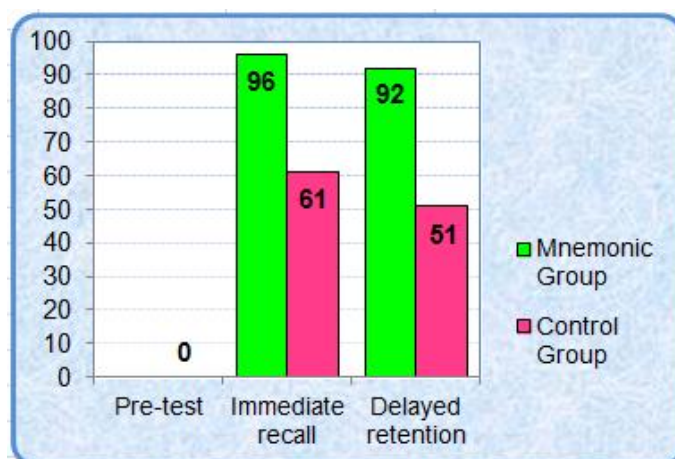


Figure 4.2: The average percentages for the overall mean scores of the experiments

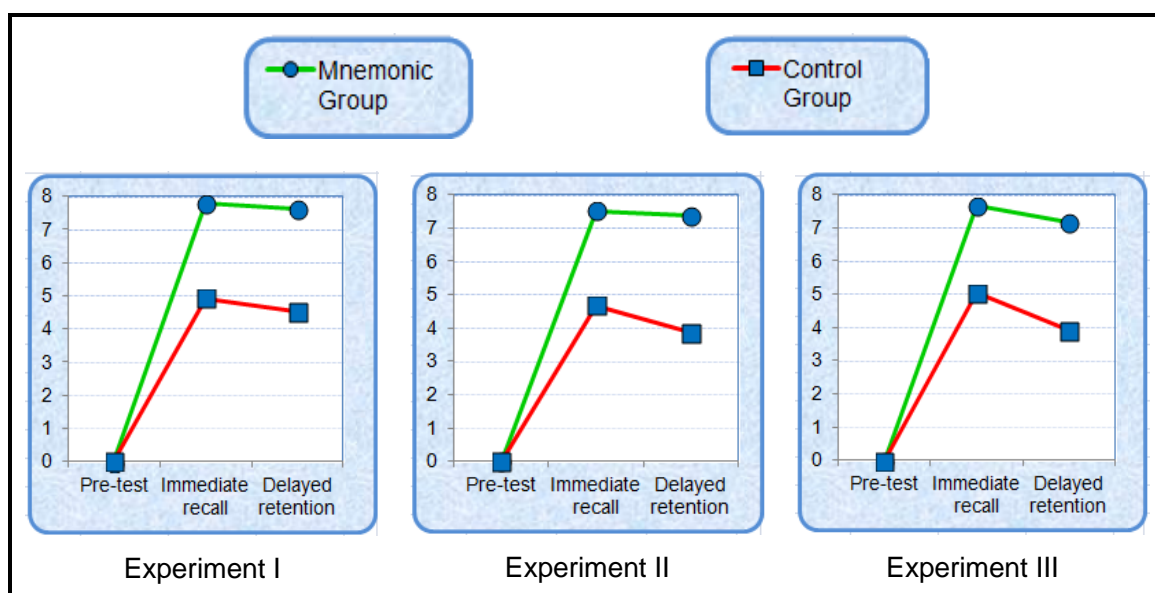


Figure 4.3: The mean scores and mean graphs for the experiments

In conclusion, an overall analysis of the research results indicated that mnemonically instructed students performed significantly better on both the instant learning and the delayed retention of the target vocabulary than their control counterparts (*see Figure 4.3 above*). In other words, these research findings suggested that the use of mnemonic devices in vocabulary teaching helps EFL learners with not only immediate recall but also long-term retention of the words presented in semantic sets, thereby minimising their cross-association between the words similar in form and meaning.

CHAPTER 5

DISCUSSION

This study investigates not only the extent of cross-association when EFL vocabulary is taught in semantic sets but also the potential effect of mnemonic devices on solving this serious problem under natural classroom conditions. The research results show that the mnemonically instructed EFL learners have outperformed their control counterparts on both immediate vocabulary gain scores and long-term retention of these words. Receiving the same lexical instruction except for mnemonic tricks, the control subjects have experienced more cross-association between the semantically related target words than the mnemonic groups. By taking these research findings into account, it can be claimed that an effective mnemonic instruction is likely to keep the probability of cross-association at minimum even when teachers are obliged to present EFL vocabulary in semantically related sets.

Cross-association is one of the prospective problems in EFL vocabulary instruction, especially when learners are to learn two or more semantically related words at the same time. In cross-association, L2 learners are able to learn both forms and meanings of the similar word pairs, but they confuse which form corresponds to which meaning (Öztürk, 2007). Even native speakers of English occasionally confuse the words like “*deductive-inductive*” (Schmitt, 2007). Thus, it is more plausible for young EFL learners to cross-associate between the word pairs such as “*rubber-ruler*” and “*shirt-skirt*” since they are similar in both form and meaning.

Avoiding cross-association is regarded as a key principle in L2 vocabulary teaching. In order to keep their students away from making wrong form-meaning association, L2 teachers are advised to introduce semantically related words at different times (Nation, 1990, 2000; Schmitt, 2000, 2007). Thus, an increasing number of studies are in favour of teaching L2 vocabulary in semantically unrelated sets (Higa, 1963; Tinkham, 1993, 1997; Waring, 1997; Finkbeiner and Nicol, 2003; Erten and Tekin, 2008; Bolger and Zapata, 2011).

Despite these convincing research findings, there is still a conventional tendency to present words in semantic sets. No matter whether they are communicative or structure-based; many L2 teaching methods, EFL curricula and textbooks still adopt semantic grouping to serve new words. Under these circumstances, it is very confusing for EFL teachers whether to comply with the curricula and textbooks or to cope with cross-association by teaching words in unrelated sets. This dilemma brings to mind whether there may be another way to avoid cross-association. In this respect, this study offers mnemonic instruction as an alternative way to handle cross-association especially when EFL teachers are required to introduce words in semantically related sets.

Mnemonic devices help learners arrange new information mentally, keep it effectively in their minds and retrieve it easily when they needed. As an effective vocabulary learning strategy, mnemonics associate either forms or meanings of to-be-learned words with learners' prior knowledge of words or world. That is, mnemonic strategies use learners' previous knowledge in their long-term memory, and this make one of two new confusing items more familiar for L2 learners, which is likely to decrease the possibility of cross-association.

The use of mnemonic strategies to avoid cross-association may be criticised due to some constraints within the nature of the mnemonic devices. First of all, it may be argued that mnemonics such as the keyword method cannot be successfully applied to all foreign language vocabulary items, particularly abstract words. This argument seems to be reasonable. However, this study neither is in favour of presenting EFL words in semantic sets nor supports teaching all the lexical items through mnemonic instruction. Rather, it advises EFL teachers to apply mnemonic devices especially when they are obliged to teach vocabulary in semantic sets and especially for the words mostly confused by their students.

As another weak point, the benefits of mnemonics such as the keyword method can be claimed to decrease with time (Wang and Thomas, 1999; Wang, Thomas and Ouellette, 1992). This claim may also be true, but temporary existence of a mnemonic mediator does not mean that it cannot help EFL learners keep away from making wrong form-meaning association. Cross-association occurs at the initial learning period when students encounter two or more similar words at the same time (Schmitt, 2007). Then, there is no need for a mnemonic mediator to exist forever in their minds provided that it establishes a direct link between form and meaning of a new word at the acquisition

stage. A simple mnemonic trick may fade away in course of time after helping learners avoid cross-associating between similar word pairs. However, this may not be an issue of worry as long as the right connection is established between the form and meaning of a particular word.

In a parallel manner, Hulstijn (1997) suggests a psycholinguistic defence for mnemonic methods. According to him, mnemonic keyword method involves creating a bizarre visual image which make a direct association between the form and meaning of a to-be-learned word via a similar-sounding other word, the keyword. This bizarre and unnatural association is stated to be temporary; that is, the mnemonic mediator may decay in the long run after it has helped learners organise new information mentally. In a series of three experiments, Crutcher (1992) also provides evidence that the keyword mediation declines considerably with time but the keyword mediators still continue to influence the retrieval process covertly. In view of both this relevant research and my personal teaching experiences, it can be argued that the existence of some negative evidence about the long-term retention of the mnemonic tricks does not signify their inefficiency on avoidance of cross-association. Naturally, the complete mastery of a L2 word is a multi-dimensional and incremental process, and a mnemonic method cannot be claimed to facilitate the entire learning process. However, it is evident that mnemonic devices help learners “establish one of the necessary links in the initial phase of this process” (Hulstijn, 1997: 213).

Last but not least, some other criticism can be put forward about mnemonic devices. For instance, they are not well-known, rarely used without explicit strategy training and less effective for productive learning of the words (Sternberg, 1987). However, these limited application possibilities are not sufficient enough to ban such an effective method from L2 classrooms (Hulstijn, 1997). On the whole, mnemonics may be useful for particular teaching conditions and with particular kinds of L2 learners. “Mnemonic strategies may not be for all students all of the time, the research evidence overwhelmingly suggests that they are for many students some of the time” (Levin, 1993:242). With this respect, this study presents rich empirical evidence about the efficiency of mnemonic devices to minimise the probability of cross-association while teaching semantically related words to EFL learners.

CHAPTER 6

CONCLUSION

The current study includes three experiments conducted to find out the effect of mnemonic devices on overcoming the problem of cross-association, which mostly occurs when EFL learners are taught two or more semantically related words together. It has revealed significant outcomes in terms of second language (L2) vocabulary learning and teaching. The overall analysis of the research results indicates that the mnemonically instructed primary school EFL learners have surpassed their control counterparts in both the instant learning and the long-term recall of the target words presented in semantic sets. In view of the research findings, it has been concluded that the use of mnemonic vocabulary instruction significantly minimises the probability of cross-association when EFL words are taught in semantically related sets. This research has also made evident that the facilitative role of mnemonic devices on avoiding cross-association is long-lasting with regard to the delayed retention of the target words.

Cross-association of related vocabulary items is regarded as a serious trap for EFL learners. When two to-be-learned words share too many common semantic, phonetic and structural features, it will be more difficult for students to learn the given items due to the interfering effects of these commonalities (Higa, 1963; Thinkham, 1993, 1997; Waring, 1997). So as to avoid this interfering effect, Nation (2000) advises EFL teachers to increase the differences between those related lexical items by teaching them at different times and using them in widely differing context. However, most of the time presenting words in unrelated sets is unlikely for many EFL teachers - especially those in Turkey- owing to the limitations imposed by several factors: the centrally-issued national curricula, EFL coursebooks based on it, and most importantly nationwide exams. In these circumstances, the present study suggests that EFL teachers can apply mnemonic devices as an alternative solution to cope with learners' cross-association between the related vocabulary items.

All in all, the findings of this particular research have made a significant contribution to the lexical research in L2 learning and teaching. On the one hand, there

has been almost no empirical research to investigate the extent of cross-association in such detail. On the other hand, this appears to be the first experimental study which strongly suggests applying mnemonic techniques to overcome the problem of cross-association, especially when EFL vocabulary is taught in semantic sets. Hence, the results of the current study will be of great value to researchers, course designers, teachers and students in EFL context.

6.1. IMPLICATIONS

The current research has also revealed some significant implications in terms of L2 vocabulary learning and teaching process. First, mnemonic strategies deserve a role in a natural classroom setting, particularly with EFL primary school students. Now that they prompt better learning and higher retention of vocabulary items, mnemonics can be integrated into some necessary learning situations in EFL classrooms. In this regard, EFL learners should be enlightened about the use of mnemonic techniques in learning L2 vocabulary. Second, EFL teachers can make use of mnemonic devices as an alternative way to help their learners avoid cross-associating between similar words, especially when they are required to present L2 vocabulary items in semantic sets. Even a simple mnemonic trick can help EFL learners differentiate between mostly confused word pairs which share common semantic, phonological and orthographical features. Third, mnemonic techniques in vocabulary teaching should also take part in pre-service and in-service teacher training programs. Teachers and teacher candidates should also be informed about the potential power of mnemonic devices to minimise the cross-association especially when they are required to teach EFL vocabulary in semantic sets. All in all, while presenting L2 vocabulary to their students, EFL teachers should derive benefit from a variety of effective methods, one of which is the mnemonic technique.

6.2. LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Taking the limitations of the present study into account, some recommendations can be made for further research. To start with, this research has been the first attempt to investigate the extent of cross-association and the potential effect of mnemonic devices to avoid this problem in L2 vocabulary acquisition. With this in mind, these

research findings need to be verified through similar kinds of empirical studies. Second, the scope of the current study is limited in both the size of the participants and the number of target words. Therefore, conducting further studies with larger sample size and more vocabulary items will reveal greater certainty on the research evidence. Third, this study has tried to find a solution to the problem of cross-association only within the mnemonically instructed third grade EFL learners, so these research findings need to be verified with different types of learners with different age groups. Finally, all the target words used in the study were concrete nouns, and the participants have been measured only in terms of their receptive knowledge of those nouns. For this reason, further research may investigate either some other parts of speech or learners' use of such vocabulary items in real life situations.

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APPENDICES

APPENDIX A: THE SCHEDULE OF THE COURSE AND THE EXPERIMENTS

Week	Hours	Language Functions	Language Contents / Vocabulary	Materials
1 st Week	2	* Students can greet people. * Students can introduce themselves. * Students can ask someone's name.	* Hello!, Hi!, Good morning!, Good afternoon!, Good evening!, Good night!, Good bye!, Bye! * I'm _____. , & My name is _____. * What's your name?	* Flashcards * Songs & Games * Puppets * Worksheet * Cartoons
2 nd Week 3 rd Week	4	* Students can introduce other people, animals or things.	* Subject Pronouns (I, you, he, she, it ...) * Verb "to be" (am, is, are) * Some words that are common to both Turkish and English	* Flashcards * Games * Worksheet
4 th Week	2	* Students can identify classroom language in English.	* Classroom Instructions (Sit down!, Stand up!, Be quiet!, Listen!, Read!, Write!, Sing the song!, Come! ...)	* Flashcards * Games * Worksheet
5 th Week	2	* Students can identify numbers in English.	* Numbers (1-12)	* Songs & Games * Worksheet
6 th Week	2	* Students can express their possessions.	* have got / has got * Some common to both Turkish and English	* Flashcards * Worksheet
7 th Week	2	* Students can identify family members.	* Experiment I: Family Members * mom, dad, brother, sister, uncle, aunt, grandmother, grandfather * (Pre-test, Training, Immediate post-test)	* Flashcards * Worksheet
8 th Week	2	* Students can identify the colours in English.	* Colours (red, yellow, green, blue, white, black, orange, brown, pink, purple)	* Flashcards * Songs & Games * Worksheet
9 th Week	2	* Students can identify the days of the week.	* The Days of the Week * (Delayed post-test of Experiment I)	* Songs & Games * Worksheet
10 th Week	2	* Students can identify school equipment.	* Experiment II: School Equipment * book, notebook, pencil, pen, rubber, ruler, chair, chalk * (Pre-test, Training, Immediate post-test)	* Flashcards * Worksheet
11 th Week	2	* Students can identify the months of the year.	* The Months of the Year	* Songs & Games * Worksheet
12 th Week	2	* Students can identify their body parts.	* Body parts (head, shoulders, knee, toe, eye, ears, mouth, nose, foot, hand ...) * (Delayed post-test of Experiment II)	* Flashcards * Songs & Games * Videos * Worksheet
13 th Week	2	* Students can identify clothing items.	* Experiment III: Clothes * shirt, T-shirt, skirt, boots, cap, boots, belt, socks, sneakers * (Pre-test, Training, Immediate post-test)	* Flashcards * Worksheet
14 th Week	2	* Students can identify some animals (pets).	* Animals (Pets) (dog, cat, fish, bird, turtle, parrot)	* Flashcards * Songs & Games
15 th Week	2	* General Review & Evaluation & Interview	* General Review & Interview * (Delayed post-test of Experiment III)	* Videos/Cartoons * Worksheet

APPENDIX B: THE TARGET WORDS USED IN THE EXPERIMENTS**Experiment I: Family Members**

mom	dad	sister	brother
grandmother	grandfather	aunt	uncle

Experiment II: School Equipment

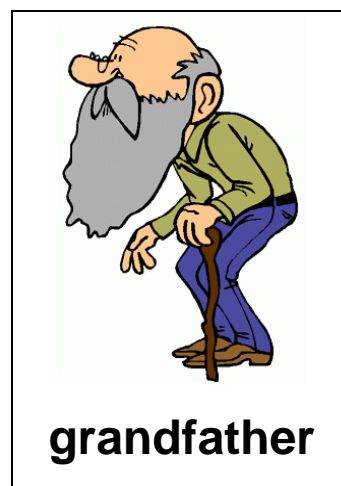
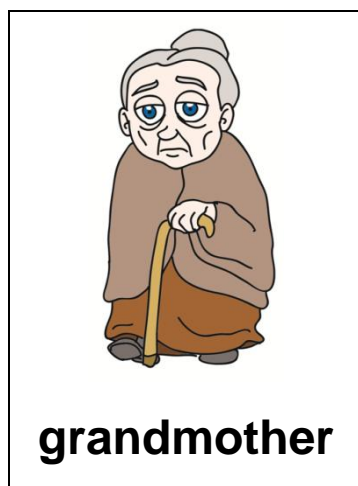
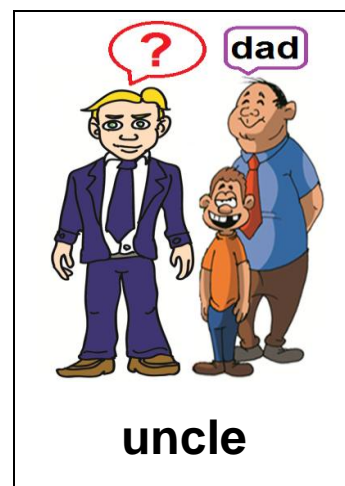
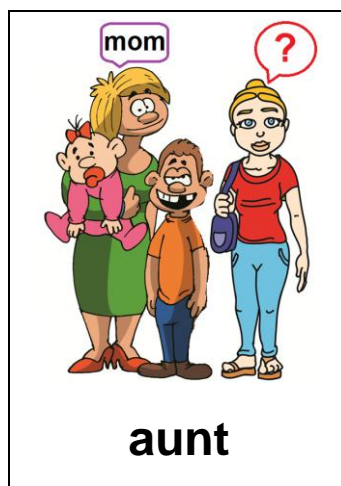
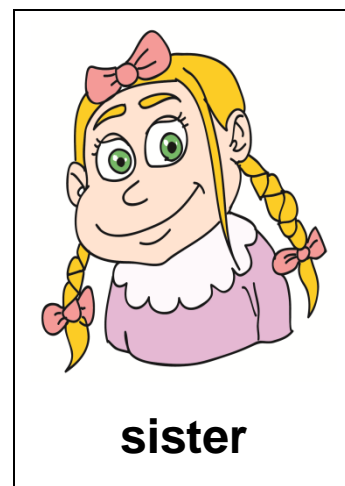
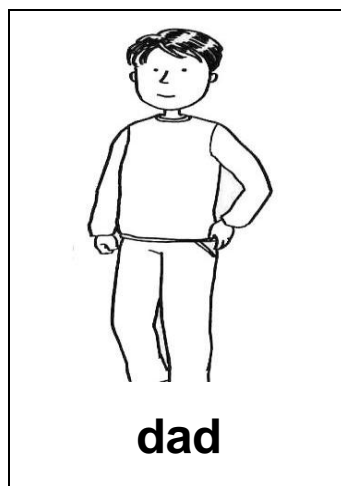
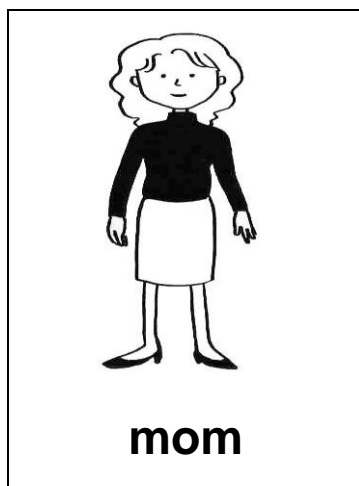
book	notebook	pencil	pen
rubber	ruler	chalk	chair

Experiment III: Clothes

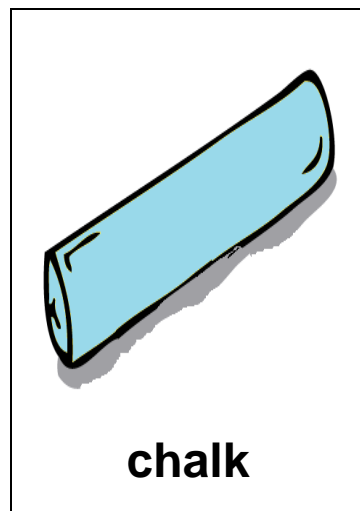
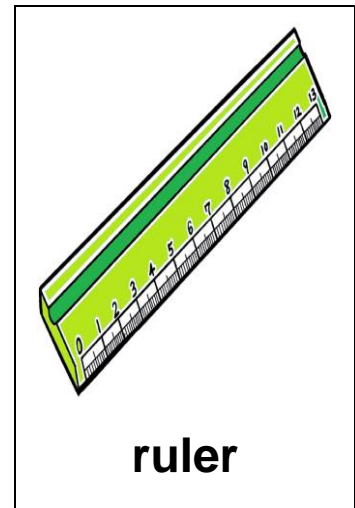
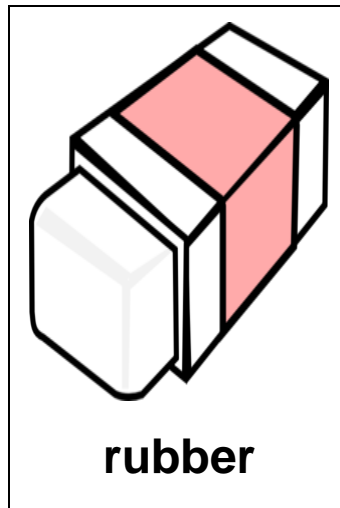
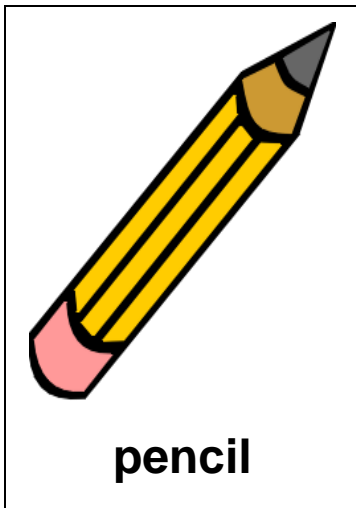
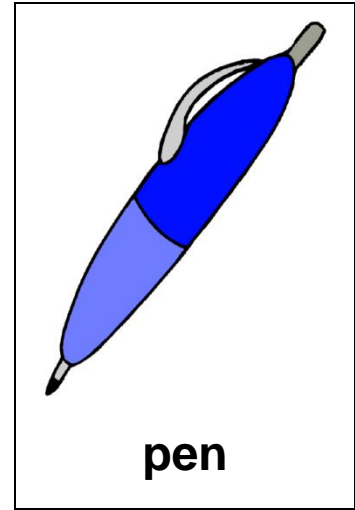
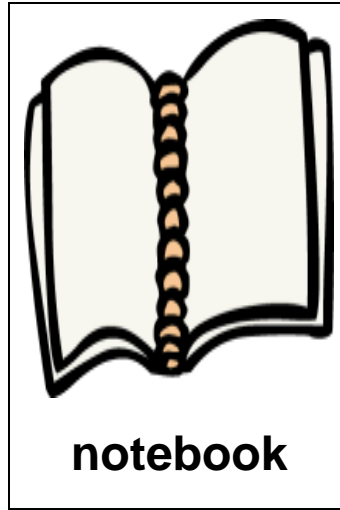
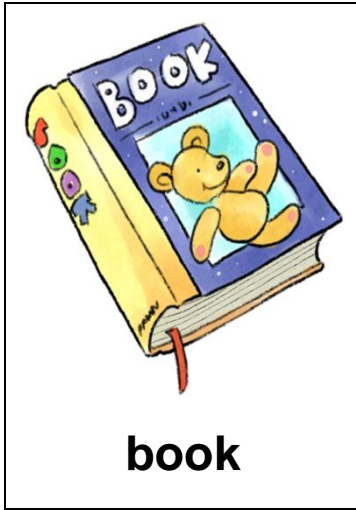
skirt	shirt	socks	scarf
boots	sneakers	cap	belt

APPENDIX C: PICTURE FLASHCARDS

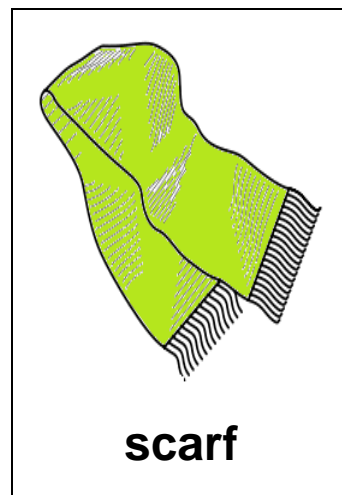
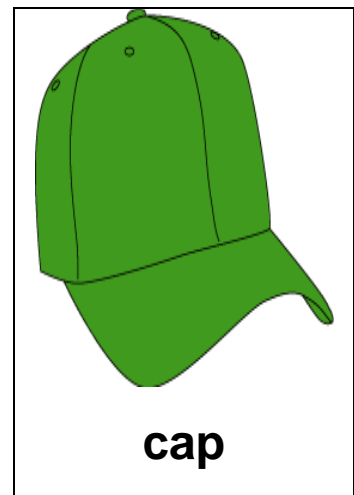
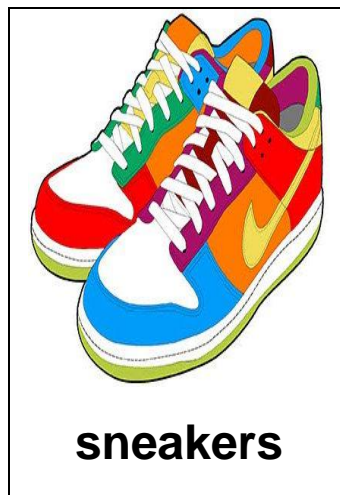
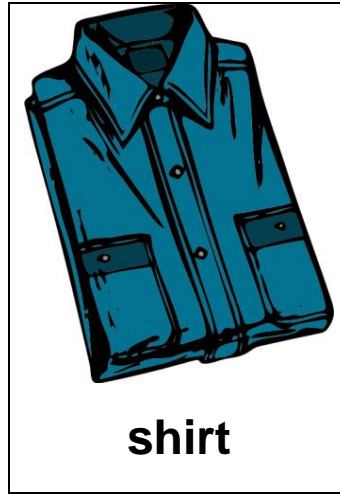
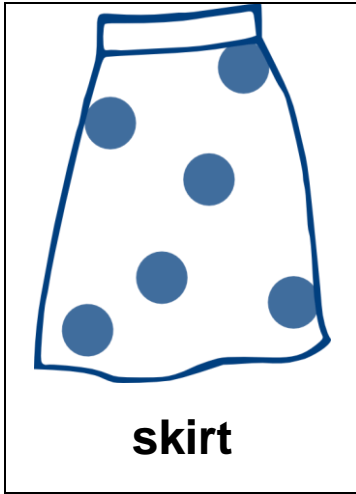
Experiment I: Family Members



Experiment II: School Equipment







Experiment III: Clothes









APPENDIX D: VISUAL FIGURES PREPARED THROUGH MNEMONIC DEVICES

Experiment I: Family Members

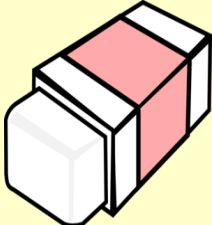
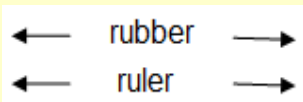
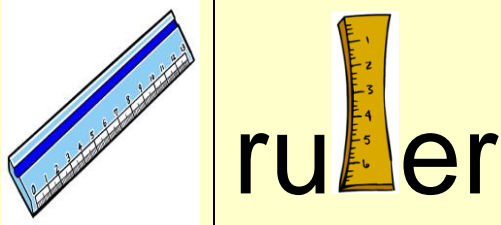
L2 word	The keyword in L1	Mental picture
 mom	 “mama” (baby food)	 A mom gives us “baby food” (mama).




L2 word	The keyword in L1	Mental picture
 uncle (pronounced as “Ληkəl”)	 “kıl” (body hair) (pronounced as “kəl”)	 Being adult males, uncles have got “hairy” bodies.



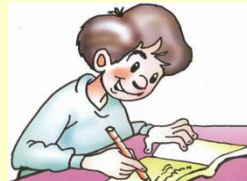
L2 word	The keyword in L1	Mental picture
 brother	 “birader” (brother) (similar pronunciation)	 “brother” in English has similar meaning and pronunciation with “birader” in Turkish.




L2 word	The keyword in L2	Mental picture
 grand mo ther	 mom (similar spelling)	 “grand mo ther” includes “ mo ”, but not “grandfather”.

Experiment II: School Equipment

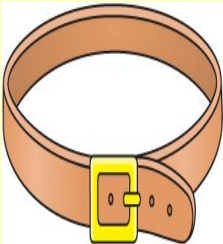


Cross-associated Words		Mnemonic Device
		




L2 word	The keyword in L1	Mental picture
 <p>pencil (pronounced as "pensl")</p>	 <p>"sil" (erase)</p>	 <p>Pencil lines can be erased (sil).</p>



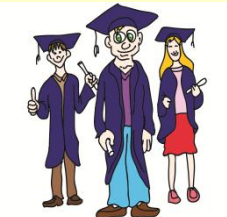
L2 word	The keyword in L1	Mental picture
 <p>notebook</p>	 <p>"not olmak" (take note)</p>	 <p>We take notes (not almak) on a notebook.</p>




L2 word	The keyword in L1	Mental picture
 <p>chair</p>	 <p>"çayır" (grassland) (similar pronunciation)</p>	 <p>We sit on chairs at home, but we sit on grassland (çayır) at picnic.</p>




Experiment III: Clothes




L2 word	The keyword in L1	Mental picture
 <p>belt</p>	 <p>“bel” (waist)</p>	 <p>Belts are worn around the “waist” (bel).</p>

L2 word	The keyword in L1	Mental picture
 <p>boot</p>	 <p>“bot” (boot)</p>	 <p>“boot” in English has similar meaning and pronunciation with “bot” in Turkish.</p>


L2 word	The keyword in L1	Mental picture
 <p>cap (pronounced as “kep”)</p>	 <p>“kep” (academic hat)</p>	 <p>Students wear “academic hats” when they graduate (kep).</p>

L2 word	The keyword in L1	Mental picture
 <p>scarf</p>	 <p>“sıkar” (hold forcefully) (similar pronunciation)</p>	 <p>Scarves sometimes “hold our throats forcefully” (sıkar).</p>

L2 word	The keyword in L1	Mental picture
 <p>sock (pronounced as "sak")</p>	 <p>"sarımsak" (a garlic) (similar pronunciation)</p>	 <p>Socks sometimes smell as bad as "garlics" (sarımsak).</p>

L2 word	The keyword in L1	Mental picture
 <p>sneakers</p>	 <p>"sinek" (a fly) (similar pronunciation)</p>	 <p>Wearing our sneakers, we can run and jump easily like "a fly" (sinek).</p>

L2 word	Mnemonic Figure
 <p>skirt</p>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid blue; padding: 5px; margin-right: 10px;"> S k i r t </div> <div style="color: red; font-size: 1.2em;"> kızlar giyer. </div> </div> <p>(Girls wear it.)</p> <ul style="list-style-type: none"> * There is the letter "k" in the spelling of "skirt". * It is also the initial letter of "kız" (girls) in Turkish.


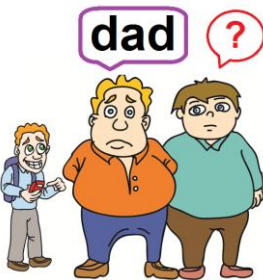


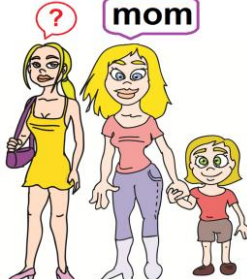




L2 word	Mnemonic Figure
 <p>shirt</p>	<div style="display: flex; align-items: center;"> <div style="border: 1px solid blue; padding: 5px; margin-right: 10px;"> S h i r t </div> <div style="color: red; font-size: 1.2em;"> hem kız hem de erkekler giyer. </div> </div> <p>(Both girls and boys wear it.)</p> <ul style="list-style-type: none"> * There is the letter "h" in the spelling of "shirt". * It is also the initial letter of "hem" (both) in Turkish.

APPENDIX E: THE PRE-TESTS

Experiment I: Family Members

PRE-TEST: FAMILY MEMBERS

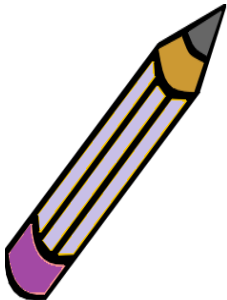
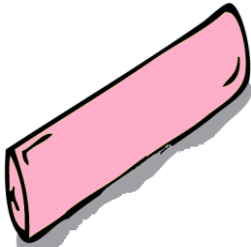
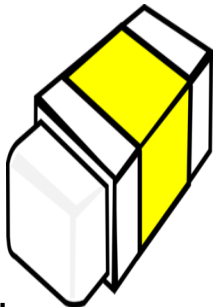

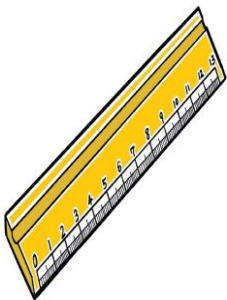
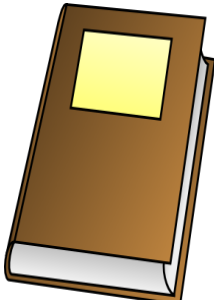



Look at the pictures, and circle the correct options. Put a tick in the box if you don't know.

<p>1. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) dad B) grandfather C) brother D) grandmother</p>	<p>2. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) uncle B) aunt C) mom D) sister</p>	<p>3. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) brother B) uncle C) dad D) sister</p>
<p>4. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) mom B) dad C) sister D) aunt</p>	<p>5. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) uncle B) aunt C) dad D) brother</p>	<p>6. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) sister B) mom C) brother D) aunt</p>
<p>7. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) dad B) brother C) mom D) uncle</p>	<p>8. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) grandmother B) sister C) grandfather D) mom</p>	<p></p> <p>Thank you!</p>

Experiment II: School Equipment

PRE-TEST: SCHOOL EQUIPMENT







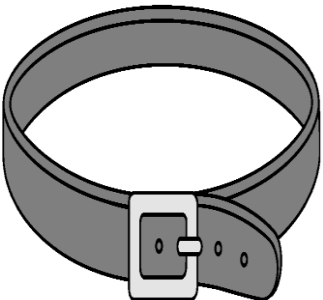


Look at the pictures, and circle the correct options. Put a tick in the box if you don't know.

<p>1. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) book B) notebook C) pen D) pencil</p>	<p>2. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) ruler B) chalk C) rubber D) chair</p>	<p>3. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) pen B) rubber C) pencil D) ruler</p>
<p>4. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) notebook B) pen C) pencil D) book</p>	<p>5. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) rubber B) ruler C) pencil D) pen</p>	<p>6. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) pen B) pencil C) notebook D) book</p>
<p>7. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) pencil B) book C) pen D) notebook</p>	<p>8. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) rubber B) chair C) chalk D) ruler</p>	<p></p> <p>Thank you!</p>

Experiment III: Clothes

PRE-TEST: CLOTHES

Look at the pictures, and circle the correct options. Put a tick in the box if you don't know.










<p>1. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) boots B) sneakers C) belts D) socks</p>	<p>2. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) sock B) skirt C) shirt D) scarf</p>	<p>3. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) belt B) scarf C) boot D) cap</p>
<p>4. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) socks B) sneakers C) scarf D) boots</p>	<p>5. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) shirt B) T-shirt C) scarf D) skirt</p>	<p>6. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) scarfs B) sneakers C) skirts D) socks</p>
<p>7. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) scarf B) boot C) skirt D) belt</p>	<p>8. </p> <p><input type="checkbox"/> I don't know.</p> <p>A) sock B) skirt C) scarf D) shirt</p>	<p></p> <p>Thank you!</p>

APPENDIX F: THE IMMEDIATE POST-TESTS

Experiment I: Family Members

IMMEDIATE POST-TEST: FAMILY MEMBERS

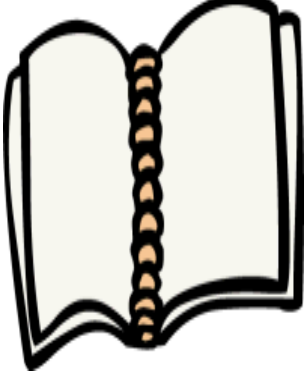
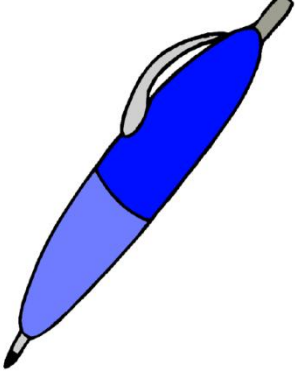
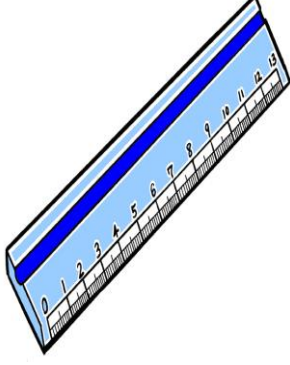


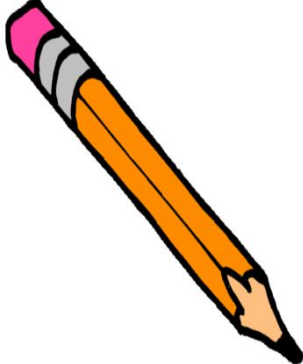
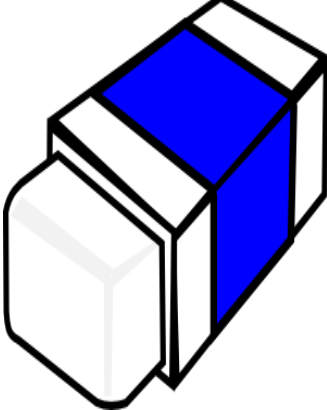
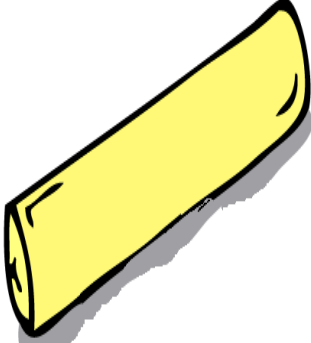

Look at the pictures, and circle the correct options.

<p>1. </p> <p>A) sister B) aunt C) mom D) uncle</p>	<p>2. </p> <p>A) brother B) uncle C) sister D) dad</p>	<p>3. </p> <p>A) grandmother B) sister C) grandfather D) mom</p>
<p>4. </p> <p>A) mom B) dad C) sister D) aunt</p>	<p>5. </p> <p>A) uncle B) dad C) brother D) aunt</p>	<p>6. </p> <p>A) mom B) dad C) brother D) uncle</p>
<p>7. </p> <p>A) sister B) mom C) brother D) aunt</p>	<p>8. </p> <p>A) dad B) grandfather C) brother D) grandmother</p>	<p></p> <p>Thank you!</p>

Experiment II: School Equipment

IMMEDIATE POST-TEST: SCHOOL EQUIPMENT

Look at the pictures, and circle the correct options.

<p>1. </p> <p>A) book B) notebook C) pen D) pencil</p>	<p>2. </p> <p>A) pen B) book C) notebook D) pencil</p>	<p>3. </p> <p>A) pen B) rubber C) pencil D) ruler</p>
<p>4. </p> <p>A) chalk B) rubber C) chair D) ruler</p>	<p>5. </p> <p>A) pen B) notebook C) pencil D) book</p>	<p>6. </p> <p>A) book B) notebook C) pen D) pencil</p>
<p>7. </p> <p>A) pen B) pencil C) ruler D) rubber</p>	<p>8. </p> <p>A) ruler B) rubber C) chair D) chalk</p>	<p></p> <p>Thank you!</p>

Experiment III: Clothes

IMMEDIATE POST-TEST: CLOTHES

Look at the pictures, and circle the correct options.










<p>1. </p> <p>A) shirt B) sock C) skirt D) scarf</p>	<p>2. </p> <p>A) socks B) boots C) belts D) sneakers</p>	<p>3. </p> <p>A) scarf B) boot C) skirt D) belt</p>
<p>4. </p> <p>A) socks B) sneakers C) scarfs D) skirts</p>	<p>5. </p> <p>A) skirt B) T-shirt C) shirt D) scarf</p>	<p>6. </p> <p>A) sock B) skirt C) shirt D) scarf</p>
<p>7. </p> <p>A) boot B) scarf C) cap D) belt</p>	<p>8. </p> <p>A) socks B) sneakers C) scarf D) boots</p>	<p></p> <p>Thank you!</p>

APPENDIX G: THE DELAYED POST-TESTS

Experiment I: Family Members

DELAYED POST-TEST: FAMILY MEMBERS


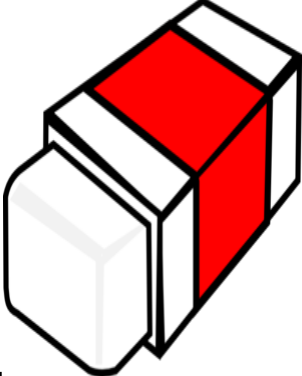


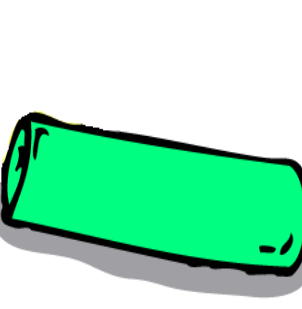
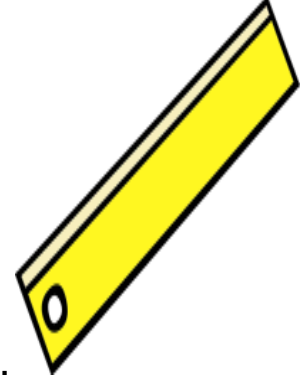



Look at the pictures, and circle the correct options.

<p>1. </p> <p>A) dad B) brother C) mom D) uncle</p>	<p>2. </p> <p>A) grandmother B) mom C) grandfather D) sister</p>	<p>3. </p> <p>A) brother B) dad C) uncle D) sister</p>
<p>4. </p> <p>A) sister B) mom C) uncle D) aunt</p>	<p>5. </p> <p>A) brother B) sister C) mom D) aunt</p>	<p>6. </p> <p>A) dad B) grandfather C) brother D) grandmother</p>
<p>7. </p> <p>A) dad B) mom C) sister D) aunt</p>	<p>8. </p> <p>A) uncle B) dad C) brother D) aunt</p>	<p></p> <p>Thank you!</p>

Experiment II: School Equipment

DELAYED POST-TEST: SCHOOL EQUIPMENT










Look at the pictures, and circle the correct options.

<p>1. </p> <p>A) rubber B) chalk C) chair D) ruler</p>	<p>2. </p> <p>A) pen B) ruler C) pencil D) rubber</p>	<p>3. </p> <p>A) pen B) book C) pencil D) notebook</p>
<p>4. </p> <p>A) pen B) book C) pencil D) notebook</p>	<p>5. </p> <p>A) ruler B) rubber C) chalk D) chair</p>	<p>6. </p> <p>A) pen B) ruler C) pencil D) rubber</p>
<p>7. </p> <p>A) book B) pencil C) pen D) notebook</p>	<p>8. </p> <p>A) book B) notebook C) pencil D) pen</p>	<p></p> <p>Thank you!</p>

Experiment III: Clothes

DELAYED POST-TEST: CLOTHES

Look at the pictures, and circle the correct options.

<p>1.</p>  <p>A) scarfs B) sneakers C) socks D) skirts</p>	<p>2.</p>  <p>A) socks B) boots C) scarf D) sneakers</p>	<p>3.</p>  <p>A) socks B) sneakers C) belts D) boots</p>
<p>4.</p>  <p>A) cap B) scarf C) boot D) belt</p>	<p>5.</p>  <p>A) scarf B) belt C) skirt D) boot</p>	<p>6.</p>  <p>A) skirt B) T-shirt C) scarf D) shirt</p>
<p>7.</p>  <p>A) sock B) scarf C) shirt D) skirt</p>	<p>8.</p>  <p>A) sock B) shirt C) scarf D) skirt</p>	 <p>Thank you!</p>

CURRICULUM VITAE

Personal Details

Name, Surname : Mustafa SARIOĞLU

Place of Birth : Gönen (Balıkesir)

Date of Birth : 06th September, 1982

Sex : Male

Marital Status : Married

Education

1996-2000 High School, A. H. G. Anatolian Teacher Training High School, BURSA

2000-2005 BA, Hacettepe University, Faculty of Education, Department of English Language Teaching, ANKARA

2000-2005 MA, Uludağ University, Institute of Educational Sciences, Department of English Language Teaching, BURSA

Foreign Language Skills

- An advanced level of English
- A beginner level of German

Professional Experience

2010 – Teacher of English Language, Şehit Komando Er Samet Saraç Anatolian High School, BURSA

2007 – 2010 Teacher of English Language, İbni Sina Primary School, BURSA

2006 – 2007 Translator and Interpreter, military service at Turkish Army Education and Doctrine Command, ANKARA

2005 – 2006 Teacher of English Language, Kazım Karabekir Primary School, ANKARA

Scholarships

2000-2005 Ministry of National Education Scholarship

2000-2005 Scholarship of Prime Ministry

Achievements and Awards

- 2005 - Hacettepe University, Faculty of Education, graduated from Department of English Language Teaching with **the highest level of university degree** - getting a **first in ELT** (3.82 out of 4.00)
- 2005 - Hacettepe University İhsan Doğramacı High Achievement Award
- 2005 - Hacettepe University Student Achievement Award
- 2007 - Turkish Army Education and Doctrine Command, Certificate of Merit
- 2013 - Ministry of National Education, Certificate of Achievement

ÖZ GEÇMİŞ

Kişisel Bilgiler

Adı Soyadı : Mustafa SARIOĞLU
 Doğum Yeri : Gönen / BALIKESİR
 Doğum Yılı : 06.09.1982
 Cinsiyeti : Erkek
 Medeni Hali : Evli

Öğrenim Gördüğü Kurumlar

	Başlama Yılı	Bitirme Yılı	Kurum Adı
Lise	1996	2000	Bursa A.H.G. Anadolu Öğretmen Lisesi
Lisans	2000	2005	Hacettepe Üniversitesi
Yüksek Lisans	2010	2014	Uludağ Üniversitesi

Bildiği Yabancı Diller ve Düzeyi

- İngilizce - İleri
- Almanca – Başlangıç Düzeyi

Çalıştığı Kurumlar

Başlama Yılı	Bitirme Yılı	Kurum Adı	Görevi
2010	Şehit Komando Er Samet Saraç Anadolu Lisesi / Bursa	İngilizce Öğretmeni
2007	2010	İbni Sina İlköğretim Okulu / Bursa	İngilizce Öğretmeni
2006	2007	Kara Kuvvetleri Eğitim ve Doktrin Komutanlığı / Ankara	Mütercim-Tercüman
2005	2006	Kazım Karabekir İlköğretim Okulu / Ankara	İngilizce Öğretmeni

Kullandığı Burslar

2000-2005 Milli Eğitim Bakanlığı Bursu

2000-2005 Başbakanlık Bursu

Aldığı Ödüller

- 2005 - Hacettepe Üniversitesi Eğitim Fakültesi İngiliz Dili Eğitimi Bölüm Birinciliği
- 2005 - Hacettepe Üniversitesi Eğitim Fakültesi İkinciliği
- 2005 - Hacettepe Üniversitesi İhsan Doğramacı Üstün Başarı Ödülü
- 2005 - Hacettepe Üniversitesi Öğrenci Başarı Ödülü
- 2007 - Kara Kuvvetleri Eğitim ve Doktrin Komutanlığı Takdir Belgesi
- 2013 - Milli Eğitim Bakanlığı Başarı Belgesi

ULUDAĞ ÜNİVERSİTESİ
TEZ ÇOĞALTMA VE ELEKTRONİK YAYIMLAMA İZİN FORMU

Yazar Adı Soyadı	Mustafa SARIOĞLU
Tez Adı	The Use of Mnemonic Devices for Minimizing Cross-association in Teaching Vocabulary to Primary School EFL Learners
Enstitü	Eğitim Bilimleri Enstitüsü
Anabilim Dalı	Yabancı Diller Eğitimi Anabilim Dalı
Bilim Dalı	İngiliz Dili Eğitimi
Tez Türü	Yüksek Lisans
Tez Danışmanı	Yrd. Doç. Dr. Çiğdem KARATEPE
Çoğaltma (Fotokopi Çekim) İzni	<input type="checkbox"/> Tezinden fotokopi çekilmesine izin veriyorum. <input checked="" type="checkbox"/> Tezimin sadece içindekiler, özet, kaynakça ve içeriğinin % 10 bölümünün fotokopi çekilmesine izin veriyorum. <input type="checkbox"/> Tezinden fotokopi çekilmesine izin vermiyorum.
Yayımlama İzni	<input type="checkbox"/> Tezimin elektronik ortamda yayımlanmasına izin veriyorum. <input type="checkbox"/> Tezimin elektronik ortamda yayımlanmasının ertelenmesini istiyorum. 1 yıl <input type="checkbox"/> 2 yıl <input type="checkbox"/> 3 yıl <input type="checkbox"/> <input checked="" type="checkbox"/> Tezimin elektronik ortamda yayımlanmasına izin vermiyorum.

Hazırlamış olduğum tezimin yukarıda belirttiğim hususlar dikkate alınarak, fikri mülkiyet haklarım saklı kalmak üzere Uludağ Üniversitesi Kütüphane ve Dokümantasyon Daire Başkanlığı tarafından hizmete sunulmasına izin verdiğimi beyan ederim.

Tarih: 02.07.2014

İmza: