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SECOND LANGUAGE WORD ASSOCIATIONS OF TURKISH ADULT LEARNERS OF ENGLISH

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ÖZET

YETİŞKİN TÜRK ÖĞRENCİLERİNİN İKİNCİ DİLDEKİ KELİME ÇAĞRIŞIMLARI

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Bu çalışma yetişkin Türk öğrencilerinin kelime çağrışımlarını sözcük bağlantıları ve sözcük türleri açısından araştırmaktadır. Diğer bir deyişle, bu araştırma ikinci dil öğrenenlerin kelime çağrışımlarının yapılarını ve anlamlarını temel almaktadır. Bu doğrultuda Jung'ın kelime çağrışım testi kelimeler dikkatle gözden geçirilerek Çağ Üniversitesi İngilizce Öğretmenliği 4. sınıf öğrencilerine uygulanmıştır. Testin sonuçları kelime anlamlarına göre 4, kelime türlerine göre 3 kategoride sınıflandırılmıştır. Sonuçlar 2. dildeki kelime dağarcığında isimlerin baskın olduğunu, fiiller için dizimsel bağıntıların, isimler için dizisel bağıntıların en yüksek orana sahip olduğunu göstermiştir. Bu sonuçlar doğrultusunda kelime öğrenimi ve öğretimini geliştirmesi amacıyla sınıf ortamında ve dışında kelime çağrışımlarından faydalanmak adına tavsiyelerde bulunulmuştur.

Anahtar Kelimeler: Kelime Çağrışım Testleri, Kelime Çağrışımları, Anlambilim, Sözlüksel Bağlantılar ve Kelime Türleri, Zihindeki Kelime Dağarcığı

ABSTRACT

SECOND LANGUAGE WORD ASSOCIATIONS OF TURKISH ADULT LEARNERS OF ENGLISH

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This study investigates L2 word associations of Turkish adult learners in terms of lexical relations and word class selections. Namely, the research is based on the forms and meanings of word associations of L2 learners. To this effect, Jung's Word Association Test (WAT) was conducted with careful consideration of prompt words to 26 ELT students who are studying at the 4th class at Çağ University. The results of WAT were classified into 4 categories in terms of lexical relations and divided into 3 categories in terms of word classes. The results indicated that nouns were dominant in L2 learners' mental lexicon and for verbs syntagmatic and for nouns paradigmatic associations had the highest rate. In view of these results, further suggestions for making use of word associations in and out of classroom setting are made in the hope that vocabulary learning and teaching can be improved.

Key Words: Word Association Tests, Word Associations, Semantics, Lexical Relations and Word Classes, Mental Lexicon

ABBREVIATIONS

ADJ : Adjective

ELT : English Language Teaching

L1 : First Language

L2 : Second Language

LA : Lexical Approach

N : Noun

V : Verb

WA : Word Association

WAT : Word Association Test

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CHAPTER 1

1. INTRODUCTION

Vocabulary has been accepted as one of the most important components of language proficiency in both first language (L1) and second language (L2) acquisition. Lexical knowledge in L2 acquisition has aroused L2 researchers' interest in studying various aspects of word knowledge and their connection to language proficiency. Lexical researchers used to concern with only one perspective of lexical knowledge, vocabulary size and *breadth or depth* of vocabulary knowledge, paying little attention to the other aspects. Recent evidence suggests that only the measure of vocabulary size can no longer provide a satisfactory description of L2 lexical knowledge (Schmitt, 1999; Wolter, 2001; Meara, 1978; Meara, 1996; Nation, 1993; Read, 1993) because of the fact that vocabulary knowledge is multidimensional either lexical items are tested in context or in isolation. Being aware of this fact L2 lexical researchers started to put forth a great amount of effort to improve the potential of using vocabulary tests to predict the proficiency of language learners.

It is becoming increasingly difficult to ignore that vocabulary is one of the most necessary and crucial part of learning a foreign language. However, vocabulary is not explicitly taught in many language classes and learners are expected to memorize vocabulary as a list of unknown words without any guidance. On the contrary, vocabulary is learned in meaningful contexts more effectively and permanently. According to Meara (1983), it is not easy to identify success in vocabulary acquisition as it is a gradual process and learning vocabulary more often than not depends on the learners' learning styles. In this aspect, using word association (WA) tasks is a way of learning vocabulary items permanently. Also, psycholinguistic studies have shown that words are not stored in our mental lexicon as single items, but forming clusters with related concepts. In this regard, Aitchison (1994, cited in Jullian, 2002) states that "those lexical units which belong to the same field are arranged in complex and tangled networks, in which every single concept has numerous links attaching it to other connected notions" (p. 519). Namely, our mental lexicon is a kind of spider web and each part of it is connected and related with one another. Similarly, Ullman (2001) points out that for learning, representation, and use of information about facts and events ``episodic knowledge'' and ``semantic knowledge'' are quite important, namely,

for learning the associative/contextual binding of knowledge. If knowledge of a specific concept or object is distributed across multiple sensory, motor and verbal domains as a function of experience, one would expect the different representational profiles that characterize objects or concepts to be reflected in performance on tasks assessing the nature of semantic representations. (Saffran et al., 2003, p. 1541).

Consequently, it is important to keep in mind that knowing how L2 learners keep the words in their mind during acquisition and how acquired words are stored and organized in the mental lexicon is helpful in terms of vocabulary teaching and learning techniques. Cremer et al., (2010) contend that "understanding relations between words means having a rich and a densely interconnected mental lexicon, which is considered an important feature of developing language proficiency" (p. 187). That is to say, being aware of the words' connections and relations provide improving language skills of L2 learners. With this regard, Singleton (2000) informs that

> lexical meaning is no different from other aspects of language in being in part a function of the network of interrelations between linguistic units. It is also clear that such relations hold not only between words, but also between words and multi-word lexical expressions and within pairs and groups of multi-word expressions (p. 80).

1.1. Background to the study

Early research on second language acquisition, heavily influenced by theoretical linguistics, concentrated on different aspects such as phonology, morphology and syntax (Meara, 1984). Likewise, research on vocabulary acquisition has gained a growing interest and this interest has increased a concern for the study of the mental lexicon. The study of vocabulary acquisition attracted researchers to the creation and application of instruments to evaluate and find out the complex aspects of vocabulary knowledge. By the same token, there have been a great variety of descriptions about what vocabulary knowledge is. For instance, Richards (1976) describes vocabulary knowledge with various aspects:

> 1. The native speaker of a language continues to expand his vocabulary in adulthood, whereas there is comparatively little development of syntax in adult life.

2. Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words we also know the sort of words most likely to be found associated with the word.
3. Knowing a word implies knowing the limitations on the use of the word according to variations of function and situation.
4. Knowing a word means knowing the syntactic behavior associated with the word.
5. Knowing a word entails knowledge of the underlying form of a word and the derivations that can be made from it.
6. Knowing a word entails knowledge of the network of associations between that word and other words in the language.
7. Knowing a word means knowing a semantic value of a word.
8. Knowing a word means knowing the different meanings associated with a word (p. 83).

Accordingly, Nation (1990) informs that knowing a word is also knowing its spelling, pronunciation, collocations (i.e. words it co-occurs with), and appropriateness. Moreover, words which co-occur differ from culture to culture such as in English *fish* and *chips* is collocation although in Turkish *fish* and *bread* (balık-ekmek) is a collocation. That is to say, there are differences in L1 and L2 in terms of word associations and collocations. Besides, knowledge of word meaning encompasses knowledge of concepts and knowledge of associations. Nation (1999) further adds "knowing a range of associations for a word helps understand the full meaning of the word and also facilitates recall of the word form or its meaning in appropriate contexts" (p. 68).

Jullian (2002) comments on L2 vocabulary acquisition as;

every new word the learner acquires, creates some links with other related terms; very few ones at the beginning, but more and more links develop as the speaker comes it across. In fact words keep on developing such links along one's life. The more links a word develops, the deeper and more long-lasting its learning and the easier their retrieval will be. Such variety of links in a way represents the

depth of its knowledge and therefore its availability for actual production (p. 521).

Likewise, Schmitt (2000) explains the complex nature of vocabulary as "being able to understand a word is known as *receptive knowledge* and is normally connected with listening and reading. If we are able to produce a word of our own accord when speaking or writing, then that is considered *productive knowledge* (*passive/active* are alternative terms). The assumption is that people learn words receptively first and later achieve productive knowledge" (p. 4). That is to say, the notion of language acquisiton begins with listening until the learners are ready and mature enough to produce the acquired knowledge on their own. This process starts from the begining of birth date and goes on until life ends in both L1 and in L2. Shortly, it can be assumed that receptive knowledge process turn into productive knowledge process in time which the learners first have a passive then an active role in vocabulary learning.

Most of the word tests have been constructed to explore the mental lexicon and they were intended to reveal the structure of the mental lexicon and to assess the type of lexical knowledge. The Word Association Task (WAT) is one of the most well known (Meara 1978, Wolter 2001). In this kind of test, participants are asked to respond to a list of prompt words under time constraints. Responses are classified according to response types such as syntagmatic, phonological or paradigmatic associations.

According to Sinopalnikova (2003), the term association is used in psycholinguistics to refer to the connection or relation between ideas, concepts, or words, which exist in the human mind and is manifested in the following way: an appearance of one entity entails the appearance of the other in the mind. Meaning association is a key aspect to Semantics and the term word association is used in a very particular sense in the psycholinguistic literature. Crookal and Oxford (1990) explain word association as making associations between the new word or concept and the words or concepts take part in the learner's memory, therefore word association task creates some context for the learner and as long as these associations are meaningful to the learner, they will strengthen the learner's existing schemata and at the same time they make the new vocabulary more attainable. Church & Hanks (1990) give example the term as "subjects respond quicker than normal to the word nurse if it follows a highly associated word such as doctor" (p. 23).

Many researchers suggest that words in the mental lexicon are stored in a semantic network. Words in the same semantic field tend to be stored together, while words in different semantic fields are loosely related (Aitchison, 2003). In this direction, this view has been widely proved through word association experiments by researchers. They have found that most of the responses in word association tests have semantic relations with the stimulus words.

Researchers have some assumptions underlying previous research such as:

- Non native speaker word association patterns differ consistently and systematically from those of native speakers, specifically:
- Native speakers produce more "paradigmatic" responses
- Non native speakers produce more "clang" responses
- We can use this difference to make judgments about the developing lexicon of an individual L2 learner (Riegel 1968, Politzer 1978, Sökmen 1993, Söderman 1993, Schmitt 1998, cited in Fitzpatrick, 2009)

The word association test was invented by a British scientist Francis Galton and used as a psychological tool to study the subconscious mind. This provided an inspiration for other researchers and it was commonly used by psychologists such as Jung, Kent and Rosanoff in their researches in the late 1880s. The first large-scale WA test was performed by Kent and Romanoff (1910), who read aloud a list of 100 English words one at a time to test-takers who were instructed to give the first word that occurred to them other than the stimulus word itself (Zhang, 2004). By tradition, three categories of word associations have been identified: paradigmatic, syntagmatic, and phonological or 'clang' responses (Wolter, 2001). *Paradigmatic* responses have the same grammatical function as the prompt word and can be of four types: coordinates, superordinates, subordinates, and synonyms. *Syntagmatic* responses have a collocational or sequential relationship with the prompt word, and are not from the same word class. *Phonological* or '*clang*' associations are semantically unrelated but similar-sounding words. Read (1993) added a fourth category: *analytic* responses, which could be a definition of characteristics, as if explained in a dictionary.

In relation with the vocabulary teaching, there are a number of techniques used by teachers in vocabulary instruction and these techniques are classified into four

groups: decontextualizing, semi-contextualizing, fully contextualizing, and adaptable. Crookal and Oxford (1990) define semi-contextualizing techniques for learning L2 vocabulary as words grouping, word or concept association, visual imagery, aural imagery, keyword, physical response, physical sensation, and semantic mapping. Word association tasks, in which the teacher asks the students to make new associations, can be used for diagnosis of what students already know and what they need to learn (Mohammadi, et al., 2012, p. 497).

Foreign language learners may use various strategies to acquire the target language word knowledge. Taking this into consideration, second and foreign language researchers have made various attempts to classify vocabulary learning strategies employed by foreign and second language learners. Instances of such classifications are the taxonomies proposed by Schmitt (1997) and Nation (2001). Moreover, Schmitt (1997) defines "the strategies which learners use to determine the meaning of new words when they first encounter them from the ones they use to consolidate meanings when they encounter the words again. The former includes determination and social strategies, and the latter includes social, memory, cognitive, and metacognitive strategies. The social strategies are included in the two categories because they can be used for both purposes" (Kudo, 1999, p. 6).

1.2. Statement of the Problem

Second language learners' lexicon development is different from the first language as they already have a first language. As Thurnburry (2002) explains they both possess the words of their mother tongue and the conceptual system which these words encode. The assumption underlying this situation is that learning a new language means not only learning a new conceptual system but also constructing a new vocabulary network. By the same token, Meara (2009) emphasizes that "there is clearly a need, among teachers, learners and researchers, for an effective battery of test tools which can be used to gain an insight into the lexicons of individuals as well as shedding some light on the general behavior of the L2 lexicon" (p. 58). There must be a starting point for L2 learners who search language for useful generalizations and as teachers we are to help learners organize their language learning by providing reference points for that organization. As Harvey (1983) claims language teachers should utilize different kinds of vocabulary teaching activities;

- to get away from the concept of the vocabulary list
- to enable students to play a more active part in thinking about possible ways of classifying English lexical items
- to provide a classroom exploitation and student-centered elicitation
- to analyze about the students learning style. Relying chiefly on the notion of L2 vocabulary knowledge, how Turkish learners keep words in their mental lexicon will give supplementary data for EFL learners and teachers.

1.3. Aim of the Study

Meaningful association is a key aspect of semantics and I based my study on how to make use of word associations in English Language Teaching for the sake of recalling, vocabulary expansion, and it was also aimed to raise awareness among the students how lexical items are stored; the kind of relations words keep with each other, and the grounds for such associations. I explored the learner's mental lexicon to find out the way they store and process L2 lexical information; related with meaning or form of the words and what kind of meaning relations learners make in (L2) and relate them to their associations in English. To put it another words, this study employed a kind of both psycholinguistic and semantic research in an attempt to better comprehend the mental lexicons of a group of English language learners.

1.4. Research Questions

The following research questions constitute the basis for the study:

1. What types of word associations are commonly used by Turkish ELT students?
2. What types of word associations have the highest frequency of occurrence in terms of word class: verb, adjective, noun?
3. What lexical relations are identified within word associations?
4. What types of word associations have the highest frequency of occurrence in terms of lexical relations?

1.5. Operational Definitions

L2: L2 refers to the foreign language being acquired by a learner. A second language is a language studied in a setting where that language is the main vehicle of everyday communication and where abundant input exists in that language (Oxford, 2003, p.1).

Word Association: In a word association task, a participant is given a word or a phrase and he is asked to list all words or phrases that come to his mind when thinking about the word. Nielson and Ingwersen (1999) define word association test as a common method within psychology which has been used to reveal the private world of an individual and a series of disconnected words (stimulus words) are projected orally or in writing to the respondents who must respond with the first word which comes to mind (response words).

For example, if the participant is presented with the word – *Sea* – his list might include: sand, sun, swim, summer, hot, blue, the SeaWorld, etc. As this example list indicates, the items in a word association list can include nouns, adjectives, phrases, proper names and can even include verbs and adverbs. In a word association task, it is given two minutes to write down all words or phrases that come to participants mind when thinking of a term.

Mental Lexicon: The mental lexicon is described as "a person's mental store of words, their meaning and associations" (Richards and Schmidt, 2002, p. 327). McCarthy (1990) explains the term by giving the following examples "the mental lexicon is like a dictionary, a thesaurus, an encyclopedia, a library, a computer and a net" (p. 34).

Lexical Approach: The term Lexical Approach, coined by Michael Lewis, concentrates on developing learners' proficiency with lexis, or words and word combinations (Lewis, 1993). The origin of the Lexical Approach (LA) is dated to 1990s and is connected with Michael Lewis. He believed that "the building blocks of language learning and communication are not grammar, functions, notions, or some other unit of planning and teaching but lexis, that is, words and word combinations" (Richards & Rodgers, 2001, p. 132).

1.6. Limitations of the Study

As regards generalization, the study was limited under two remarkable aspects. Firstly, it cannot be excluded that Çağ University English Language Teaching class students in the study have different background knowledge and may give different type of responses in terms of their proficiency in L2. Therefore, to analyze the words or phrases in the given word associations restrict the generalization. Secondly, the limited number of participants is another factor that restricted generalization. Another restriction is that the stimulus words are presented in text, so the participants may go back and change the words that come to their minds. Notwithstanding, despite the limitations of the research , it is expected that the total result of the study could be a attainable point for more profound investigations on teaching vocabulary through word associations in EFL classes.

CHAPTER 2

2. LITERATURE REVIEW

Clear and precise definitions of the concepts related to vocabulary knowledge and word association are necessary to set up a theoretical basis for research on vocabulary. In this part, the most important perspectives related to knowing a word, mental lexicon, word associations and lexical relations will be explained.

2.1. Knowing a Word

There is a great deal of definitions and researches about what knowing a word means and involves. At the most basic level, Thornbury (2002) explains that knowing a word involves knowing its form and meaning and "knowing the meaning of a word is not just knowing its dictionary meaning (or meanings), it also refers to knowing the words commonly associated with it (its collocations) as well as it connotations, including its register and its cultural accretions" (p. 15).

Likewise, Nation (1990) proposes the following list of the different kinds of knowledge that a person must master in order to know a word (p. 31).

- the meaning(s) of the word
- the written form of the word
- the spoken form of the word
- the grammatical behavior of the word
- the collocations of the word
- the register of the word
- the associations of the word
- the frequency of the word

Crossley and Salsbury (2010) highlight the point that word meaning information involves meaning-form connections, the concepts and referents of the word, and word associations of that word. Besides, knowledge of word use shows an understanding of word's grammatical functions, its production constraints, frequency and collocations of the word.

Field (2003) informs that each language user has an individual vocabulary store or lexicon which consists of a large set of lexical entries and there are two kinds of

items in the mental store which are content words and function words. Hulstijn (1997) proposes that words in the mental lexicon should be stored on a wide variety of ways which include phonological structures, syntactic characteristics, pronunciation, morphological structure and different kinds of semantic knowledge.

There have been many studies about word knowledge properties and learnability of vocabulary items in second language. To provide evidence for their claims about word learning Ellis and Beaton (1993) make an analysis and find out the following:

1. Longer words are more difficult to learn.
2. Nouns are easier than verbs to learn.
3. Pronouncability has a noticeable effect on vocabulary learning and sound likeness is more crucial than orthographic likeness.
4. While translating from L1 to L2 and compared to the verb learning, word imagability is quite important for noun learning.
5. Verbs which have been learnt are more frequent than learnt nouns.

The left diagram in Figure 2.1. shows breadth of lexical knowledge and depth of vocabulary knowledge. There is no connection between the two shapes. On the other hand, the diagram on the right represents a more complex connection with the words and they are illustrated with connected little squares. Since the number of connections between the squares increase, the depth of vocabulary knowledge increases too.

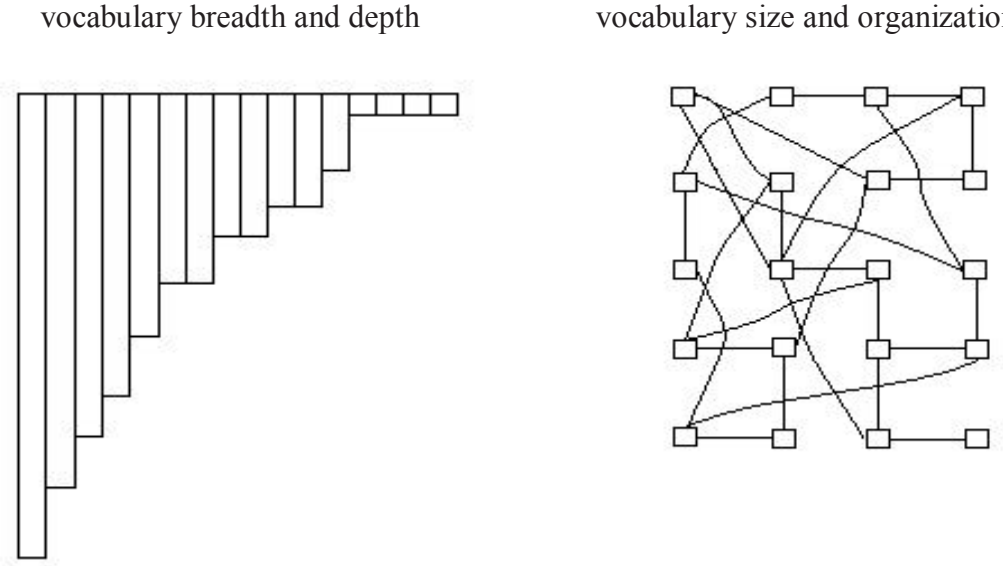


Figure 2.1: Two Ways of Looking at a Vocabulary Depth vs Breadth and Size vs Complexity (Meara, 2009, p.76).

Crossley and Salsbury (2010) inform that depth of vocabulary knowledge measures is concerned with to what extend a learner knows a word whereas breadth of vocabulary knowledge measures is pertinent to how many words a learner knows. Simply put, as shown in Figure 2.1 depth of knowledge measures includes the word knowledge elements such as sense relations, conceptual elements, imagability, word concreteness, acceptable collocations and word associations. On the other hand, Vermeer (2001) claims that there is no conceptual distinction between breadth and depth of word knowledge; therefore, there must be a strong connection between breadth and depth measures. In other words, both are strongly related since vocabulary growth demonstrates a strong developmental stability, as it is related to frequency of input.

Figure 2.2. shows Wolters' Depth of Word Knowledge Model of the Mental Lexicon. According to Wolter (2001), several layers of peripheral vocabulary consisting of words that are known to varying degrees, and in this model, the strength of connections are formed between a particular word in the mental lexicon and other words has been seen as being conditioned by how well that particular word is known. That is to say, in the core of the mental lexicon, well known words take place and the circle enlarges from the well known to unknown words. Because of that Wolter (2001) assumes that in the center circles paradigmatically related responses are formed between words, syntagmatic relations between words take place further out, and phonological associations between words are on the periphery. On the other hand, it doesn't mean that those words which are in the core have solely paradigmatic connections or the paradigmatic connections are stronger than the syntagmatic or phonological connections and for moderately well known words, phonological links are weaker than syntagmatic links.

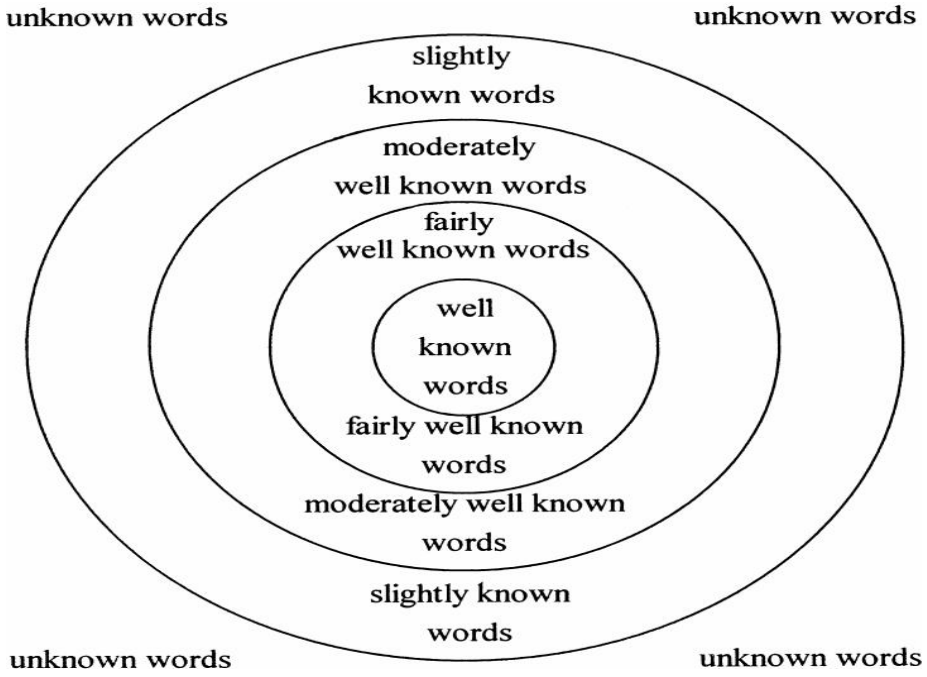


Figure 2.2: Depth of Word Knowledge Model of the Mental Lexicon (Wolter, 2001, p. 48).

In figure 2.3 Namei's (2004) distinction of words' paradigmatic and sytagmatic relations are shown upon a sentence. As can be seen, verb *write* is related with verb *read* which means they take part in the same word class and in terms of meaning they are also related with each other. Paradigmatic relations have been shown with words *letter* and *book* which are both nouns and a semantic connection.

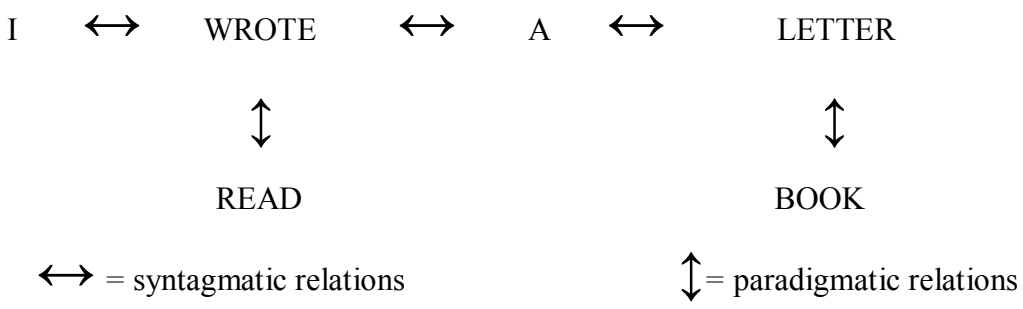


Figure 2.3: Syntagmatic and Paradigmatic Relations (Namei 2004, p. 371).

In Figure 2.4 Nation's (2001) model of the distinction between receptive and productive word knowledge is shown, and how these two types of knowledge together configure what knowing a word is. Three main aspects are taken into account: form, meaning and use of the word, and thus it involves formal, associative and grammatical considerations that arise when dealing with a word. In this model, Nation (2001) emphasizes the importance of the parts or aspects involved in knowing a word. Besides, he points out that it is possible to draw a process model that shows the relations between these parts.

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 parts are needed to express the meaning?
	Concept and referents	R What is included in the concept? P What items can the concept refer to?
	Associations	R What other words 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 of use (register, frequency…)	R Where, when, and how often would we expect to meet this word? P Where, when, and how often can we use this word?

.

Note: R= receptive knowledge, P = productive knowledge.

Figure 2.4: What is involved in knowing a word (Nation, 2001, cited in Nation 2004, p.22).

Vocabulary knowledge is the basic element of learning a second language and the broader learners' size of word knowledge, the more competent they become in L2. In addition, expanding word knowledge is a longitudinal and an ongoing process, so it takes time. Besides, vocabulary learning and teaching techniques are crucial in terms of both teachers and learners since being aware of what type of words are commonly stored in the mental lexicon and how they are associated give a clue for the development of vocabulary knowledge. Meara (1980) informs that language learners accept that they encounter considerable difficulty with vocabulary from the initial stage of learning a second language to a more advanced level and most of them defines L2 vocabulary acquisition as their greatest problem. In this regard, Schmitt (1997) emphasizes that "learners can see value in strategies which they do not currently use" and "may be willing to try new strategies if they are introduced to and instructed in them" (p. 221). Similarly, (Nation (2001) offers that learners can benefit from training on strategy choice and which strategy to use.

However , Rivers (1983) argues that

> vocabulary cannot be taught. It can be presented, explained, included in all kinds of activities, and experienced in all manner of associations…but ultimately it is learned by the individual. As language teachers, we must arouse interest in words and a certain excitement in personal development in this area… we can help our students by giving them ideas on how to learn, but each will finally learn a very personal selection of items, organized into relationships in an individual way (from *Communicating Naturally in a Second Language*, CUP, cited in Thornbury, 2002, p. 144).

2.1.1. Word Classes

Thornbury (2002) defines word classes and gives examples as

nouns	bits, pieces, record, player
pronouns	I, them
verbs	like, looking, doing, to look
adjectives	old, second-hand, new
adverb	up
prepositions	for, like
conjunction	and
determiner	a, the, this (p. 3).

Additionally, he points out words like *for*, *and*, *them* which generally contribute to the grammatical structure of a sentence are called grammatical or function words while words that carry a high information load are named as content words.

Field (2003) defines words as content and function words.

a) Content words (nouns, verbs, adjectives and adverbs) which carry the kind of meaning that we can look up in a dictionary. They are also referred to as lexical words.
b) Function words are kinds of words which do not have a clear meaning but contribute to the syntactic structure of the text. Examples: *the*, *of*, the auxiliary *do*. These are also termed grammatical word (p. 10).

Aitchison (1987) reports findings of various word association tests on native speakers, shows that people respond by using words in the same semantic field (needle->sew), words in the same word class (n->n, adj->adj), and the partner in a pair (man->woman). Browman (1978) writes that nouns and verbs strongly associate within their own part of speech (90%) and adjectives do so with less frequency (60%). Deese's (1965, cited in Sökmen, 1993, p. 136-137) reveals that nouns will elicit nouns (80%), whereas verbs and adjectives will elicit their own part of speech less often (50%).

2.2. Mental Lexicon

The study of the mental lexicon may be dated back to the late 1960s. Treisman (1960) was the first researcher who proposed the concept of mental lexicon. According to the author, a mental lexicon is generally described as a repository of all the knowledge a reader or listener has attained about the words of his language and "the mental storehouse of information about words and morphemes" is called lexicon (Fromkin & Rodman, 1993, p.124). She suggested that in every speaker's mind there is a well organized system of lexical representation, where each word's spelling (orthography), sound (phonology) and meaning (semantics) are assumed to be stored as unique entities. As Field (2003) declares, in the mind words are not stored independently and each content word seems to have close connections to the other words. Therefore, connections between words in the L2 lexicon should be considered for L2 language development.

Aitchison (2003) lists four main methods for researching the mental lexicon: 1) word searches (tip-of-the-tongue or TOT states) and slips of the tongue, 2) linguistics

and linguistic corpora, 3) speech disorders and brain scans and 4) psycholinguistic experiments. Additionally, he believes that collocation, coordination, superordination and synonymy are the four most important word association groups, which she bases on replies from word association tests (p. 86).

As shown in Figure 2.5. according to Fodor (ibid) the lexicon is like a connective graph, with lexical items and nodes with paths from item to item. Similarly, Thornbury (2002) highlights the notion of those new words should be integrated into learners' existing knowledge in mental lexicon, namely, their existing network of word associations. As Sökmen (1993) concludes, "although teachers cannot teach all the links in the mental lexicon, they could strive for the most common types in their presentations of vocabulary and the question is, which associations are most useful to teach?" (p. 138).

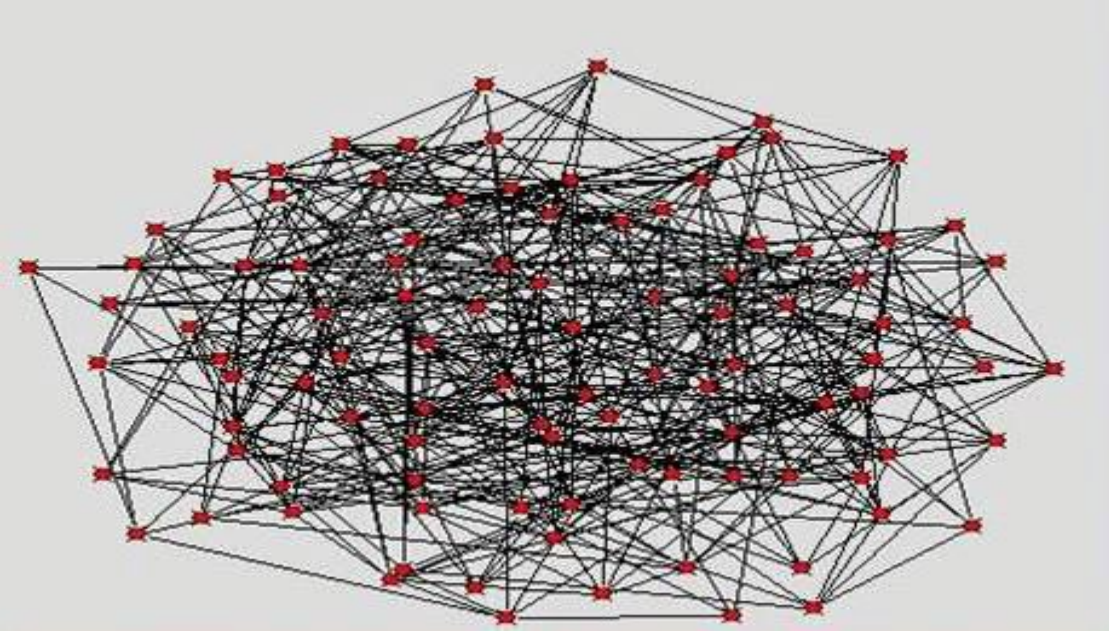


Figure 2.5: The Mental Lexicon [as] a Sort of Connected Graph, with Lexical Items at the Nodes with Paths from Each Item to the Other" (Fodor 1983, cited in Fitzpatrick, 2011, p 2)

2.3. Word Association

Word association test (WAT) has a long history in psychological research. It is widely used within psychology which has been generally used to reveal people's private world which includes their emotional conditions, thoughts etc. In a WAT, stimulus words are presented orally or in written forms to the subjects and they are supposed to respond with the first word which comes to their minds and psychologists examine the feature of the response words, and some of them (e.g. Jung) check the reaction time of the subjects.

WAT was invented by F. Galton and widely used by psychologists such as Jung, Kent and Rosanoff in their researches. Kent and Rosanoff were the first people who applied WAT in the study of English language in 1910 (He, 2009, cited in Wang et al., 2010). Kent and Rosanoff's study was the first large scale research based on WAT which was applied English 1,000 participants and they used 100 stimulus words and read one word at a time to the subject who was asked to give the first word that came into his/her mind (İlknur, 2010). The use of WAT in research flourished in the 1950s and 1960s, but mainly in psychological fields. Meara did many influential studies with WAT in linguistic and psycholinguistic. Besides, he wrote a book called as 'Connected words: Word associations and second language acquisition' which includes many influential studies and knowledge about associations.

Sökmen (1993) mentions about the analysis of word association test results and informs that the analysis is generally done by word class: supra/subordinate classifications (words that show category relationships upordown; e.g., fruit->apple, bread->food, mountain->Fuji); synonyms (words with similar meanings, e.g., ocean->sea, boy->guy, hard->difficult); coordinates (words equal in rank and importance, e.g., bath-> shower, salt->sugar, green->blue); contrasts (words that show opposite meanings, e.g., doctor->patient, slow->quick, baby->adult); and collocations (words that commonly go together, e.g., cold->weather, eating->lunch, dark->night). Sökmen (1993) also draws our attention to another kind of association which is part of speech: noun, verb, adjective, adverb and informs that researchers have also ranked responses according to their popularity: primary (most popular), secondary, tertiary, and so forth. This ranking is known as an associative response hierarchy (p. 136).

According to Kess (1992), an association theory looks for latent relationships, the covert links that words have with other words, images and thoughts. For Kess (1992,

cited in İlknur, 2010, p. 361) word association system is like a spiderweb in which words in the mental network are related to other words.

Another point is that it should be kept in mind that WAT has some advantages as a means of assessing proficiency in a foreign language. Wolter (2002) claims that while developing a WAT, it should be remembered that WAT;

1) would be relatively quick and easy both to administer and to score,
2) be a nice complement to other methods of assessing learner performance,
3) tend to suggest that there may be something of a connection between psycholinguistic knowledge and more general proficiency in a foreign language.

In respect to this last point, Wolter (2002) states that the underlying argument is that we would expect learners of higher proficiency to have more highly developed semantic networks in the L2 mental lexicon (p. 316). Likewise, Schmitt (1998) claims that the elicitation of word associations is quite a simple procedure and this is one of its attractions. Participants are given stimulus words and supposed to utter the first responses which comes to their mind**.**

In a classroom setting how as L2 learners and EFL teachers we can make use of the word association which is best described in Figure 2.6:

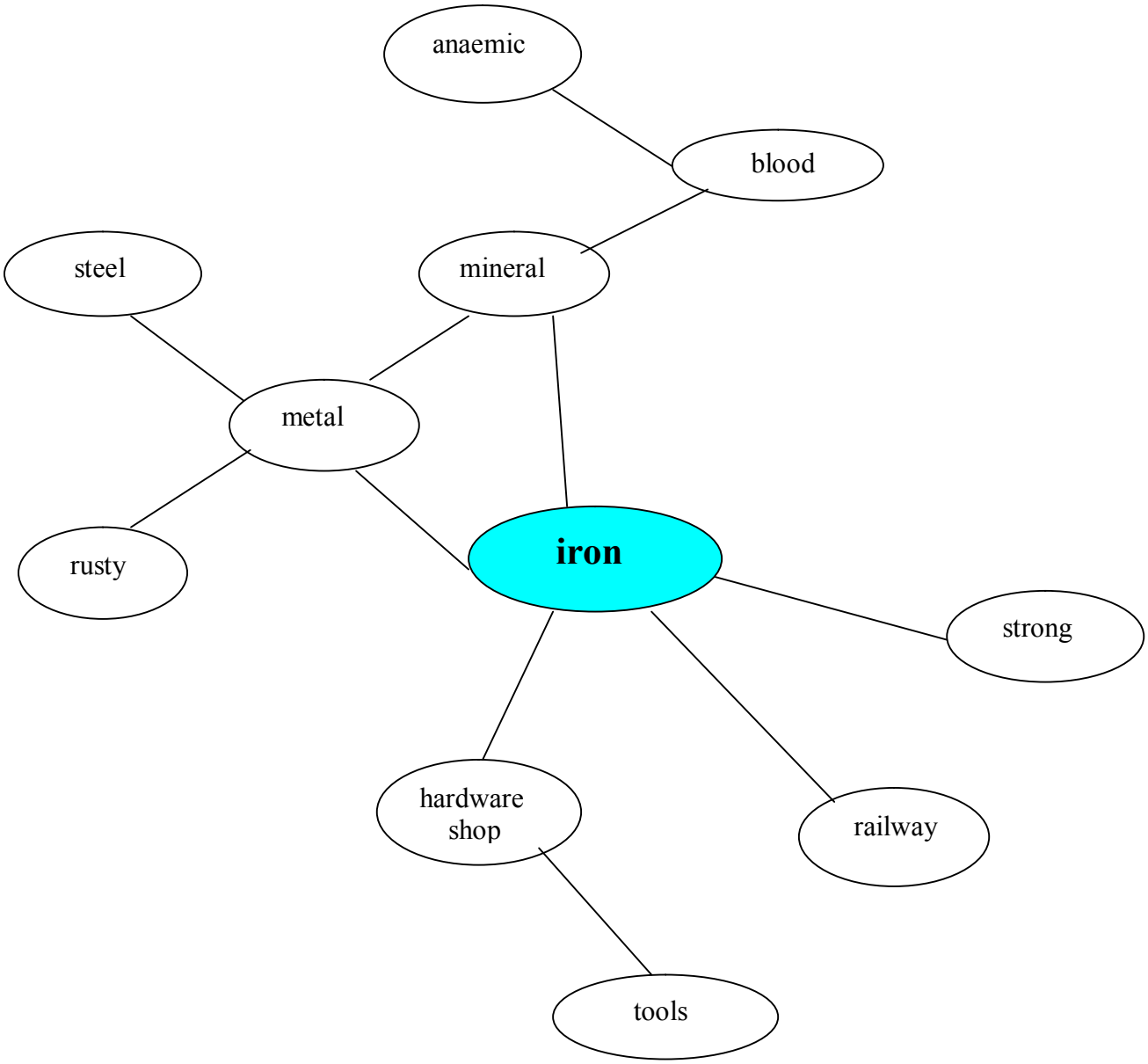


Figure 2.6: The Association Network for the Word 'iron' Produced by a Student (Thornbury, 2002, p. 89).

The author advises that asking learners to connect the word the other words which they associate with it by drawing a diagram. Then they compare their networks with others by asking questions and explaining their associations.

In essence, Zareva (2007) accordingly explains why and how WA tests should be used in L2 research as:

- from a socio-cultural perspective;
- from the point of view of language proficiency and its effects on associative behaviour;
- as an indicator of "depth" (or quality) of vocabulary knowledge
- as an indicator of the organization of the L2 mental lexicon.

Zareva (2007) also points out that "each of these lines makes a valuable contribution to our understanding of the relationship between associative behaviour (as revealing of the way L2 users organize their meaning connections) and the factors that influence this organization" (p. 127).

2.4. Paradigmatic and Syntagmatic Relations

The organization of the word association (WA) domain has been traditionally described in L1 research by means of quantitative and qualitative measures. Quantitative measures, such as the strength of the primary response, response commonality, response heterogeneity, response idiosyncrasy, availability of responses, number of responses, etc. have mostly been used as indicators of the quantitative characteristics of the organization of the associative domain and have been measured in terms of number of associations that point to these features. The qualitative measures – such as the form classification of the responses (paradigmatic and syntagmatic), the semantic classification (e.g. synonyms, antonyms, meronyms, etc.) of the associations, etc. – have been applied to describe the qualitative characteristics of language users' WA domains and have been traditionally reported in terms of proportions (Zareva, 2007, p. 125). On the other hand, the great amount of word association literature focuses on the three main organizing principles of language: *syntagmatic* (chain), *paradigmatic* (choice) relations, and clang associations. Rapp (2002) explains the notion of paradigmatic and syntagmatic relations as although words with a syntagmatic relation may but don't have to be the same part of speech, words with a paradigmatic relation are the same part of speech.

2.4.1. Syntagmatic Relations

Pigott (2006) defines syntagmatic response as the relation that is related continuously to the stimulus word and it can come either before or after it in context.

For instance, the relation of *tail* and *lazy* to *dog* is syntagmatic. Similarly, Wolter (2006) claims that syntagmatic connections exist in collocations and other types of connections which are typically from another word class, and commonly co-occur with a certain word (*dog → bite, bark, furry, etc.*). According to Rapp (2002), if two words are used in spoken or written language more often than expected from chance and if the words get distinct grammatical roles in the sentences in which they occur, there exists a syntagmatic relation between two words. Typical examples are the word pairs *coffee – drink*, *sun –hot*, or *teacher – school*. Shortly, in a WAT syntagmatic responses are those which are in a different lexical class than the stimulus word. Collocations, that is, syntagmatic relations between lexical items that have acquired such a high degree of idiomaticity that the relationship does not follow from the meanings of the said items (e.g., *school-a school of fish*). Moudraia (2001) informs that collocations aren't determined by logic or frequency that is, they are arbitrary and decided only by linguistic convention and the same author adds that some collocations are completely fixed, such as "to catch a cold", "rancid butter", and "drug addict", while others are more or less fixed and may be completed in a quite small number of ways, as in the following examples:

- blood/close/distant/near(est) relative
- learn by doing/by heart/by observation/by rote/from experience
- badly/bitterly/deeply/seriously/severely hurt

Meara (2009) states that "syntagmatic associations are associations that complete a phrase (sytagm)" and gives some typical responses (p. 6):

BRUSH	teeth
HOLD	hands
BLACK	mark
BANK	robber

2.4.2. Paradigmatic Relations

Pigott (2006) claims that *paradigmatic* relations are more specific in nature and a paradigmatic response is drawn from the paradigm of alternative choices for a word at a point in time. For instance , the stimulus word *cat*, possible paradigmatic responses could be *feline*, *pet*, or *animal*. Accordingly, Wolter (2006) informs that paradigmatically related words consist of a hierarchical connection to each other, and they can generally fill the same syntactic slot in a sentence. For instance, superordinates (*dog → animal*), subordinates (*dog → terrier*), hyponyms (*dog → cat*), and so forth. Rapp (2002) identifies the

paradigmatic relation as: two words relation is paradigmatic if they can substitute for each other without affecting the grammaticality or acceptability of the sentence and typical examples are synonyms or antonyms like *quick – fast*, or *eat – drink*. In essence, Murphy (2003) informs that to some extent paradigmatically related words are grammatically substitutable for each other such as black and blue or any other color paradigm may take place in a phase a _____ table grammatically and logically.

To sum up, in a WAT paradigmatic responses are those which have the same word class as the stimulus word and they show a clear semantic connection. Namely, as Meara (2009) points out, when the stimulus word and the response which is given to it share the same part of speech, nouns evoke nouns, adjectives evoke adjectives, etc., it means that the responses have paradigmatic associations.

2.4.3. Clang Relations

According to Meara (2009), clang associates are related to certain phonological features of the stimulus word but there is no semantic relationship between the words. Also, children have a tendency to produce mainly these types of associates such as rhyming responses or responses with the same initial sounds, etc. Wharton (2010), similarly, informs that clang associations have been considered to have any clear meaningful link, and are generally based on similarities in phonology or orthography. *Phone* /*foam*, *knife*/*knight*, *acquire*/*choir* are common examples of clang relations.

2.5. Lexical Approach and Lexical Relations

Lewis (1993) who has coined the term defines that the lexical approach concentrates on developing learners' proficiency with lexis, or words and word combinations. It is based on the idea that an important part of language acquisition is the ability to comprehend and produce lexical phrases as unanalyzed wholes, or "chunks," and that these chunks become the raw data by which learners perceive patterns of language traditionally thought of as grammar (p. 95). Accordingly, Thornbury (2002) states that a lexical approach to language teaching highlights vocabulary learning not only in the form of individual, frequently used words but also in the word combination forms or chunks. The impetus for a lexical approach to language teaching derives from the following principles:

- A syllabus should be organized around meaning
- The most frequent words encode the most frequent meanings and

- Words typically co-occur with other words
- These co-occurrences (or chunks) are an aid to fluency (Thornbury, 2002, p. 112).

Another issue that should be considered is that lexis is the basis of language in the LA and collocations have a very important role. Lewis (1993) points out the following statements about lexis:

• Lexis is the basis of language.

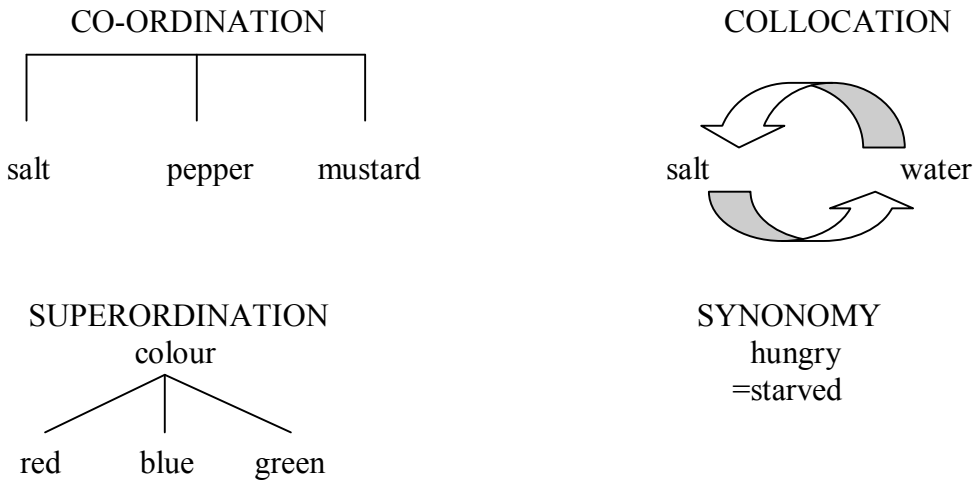
• Lexis is misunderstood in language teaching because of the assumption that grammar is the basis of language and that mastery of the grammatical system is a prerequisite for effective communication.

• The key principle of a lexical approach is that "language consists of grammaticalized lexis, not lexicalized grammar."

• One of the central organizing principles of any meaning-centered syllabus should be lexis.

2.5.1. The Types of Lexical Relations

As illustrated in the figure 2.7., type of word associations include collocates, or words that are likely to appear together e.g. *salt* and *water*; co-ordinates or words of the same level of detail, including opposites, e.g. *salt, pepper* and *mustard*; synonyms, or words with similar meanings e.g. *hungry* and *starved*; and super-ordinates, or words whose meanings subsume the meanings of other words e.g. *colour* for *red*, *blue* and *green*.



Types of link in the word-web

***Figure 2.7: Types of Links in the Word Web: Aitchison's Semantic Model of Word Association* (Aitchison, 1994, p. 84).**

2.5.1.1. Synonymy

Saeed (2009) defines synonyms as different phonological words which have the same or very similar meanings such as couch/ sofa, lawyer/ attorney, toilet/lavatory (p. 65). Similarly, Yule (1996) identifies that "synonyms are two or more forms with very closely related meanings, which are often, but not always, intersubstitutable in sentences. Examples of the synonyms are the pairs broad-wide, hide-conceal, almost-nearly, cab-taxi, liberty-freedom, answer-reply " (p. 118).

2.5.1.2. Antonymy

Thornbury (2002) explains antonym as words which have opposite meanings like *old* and *new* and he adds that antonyms have a beneficial function as a suitable teaching resource. Likewise, Löbner (2002) defines " two expressions are called antonyms if they denote two opposite extremes out of a range of possibilities and two prototypical examples are pair of adjectives such as big/small, thick/thin, good/bad, light/dark, difficult/easy..." (p. 88-89). In addition, Hurford et al. (2007) mentions about binary antonyms which come in pairs and if a word is a binary antonym of another, it entails the negative of the other and gradable antonyms which are at a continuous scale of values. For instance, *true* and *false*: if something is true than it can not be false (binary antonyms), *hot* and *cold* are gradable antonyms.

2.5.1.3. Hyponymy

Hurford et al. (2007) states that hyponymy is a sense relation between words such that the meaning of one word includes the meaning of another word. For instance, the meaning of *scarlet* includes the meaning of *red*. Yule (1996) gives examples as *daffodil-flower*, *dog-animal*, *carrot-vegetable*. Namely, the meaning of *flower* is included in *daffodil*, the meaning of *animal* includes *dog* and *carrot* is a hyponym of *vegetable*. As Post (2007) informs "lexical relations of inclusion within hyponymy include superordinate terms and subordinate terms" (p. 8).

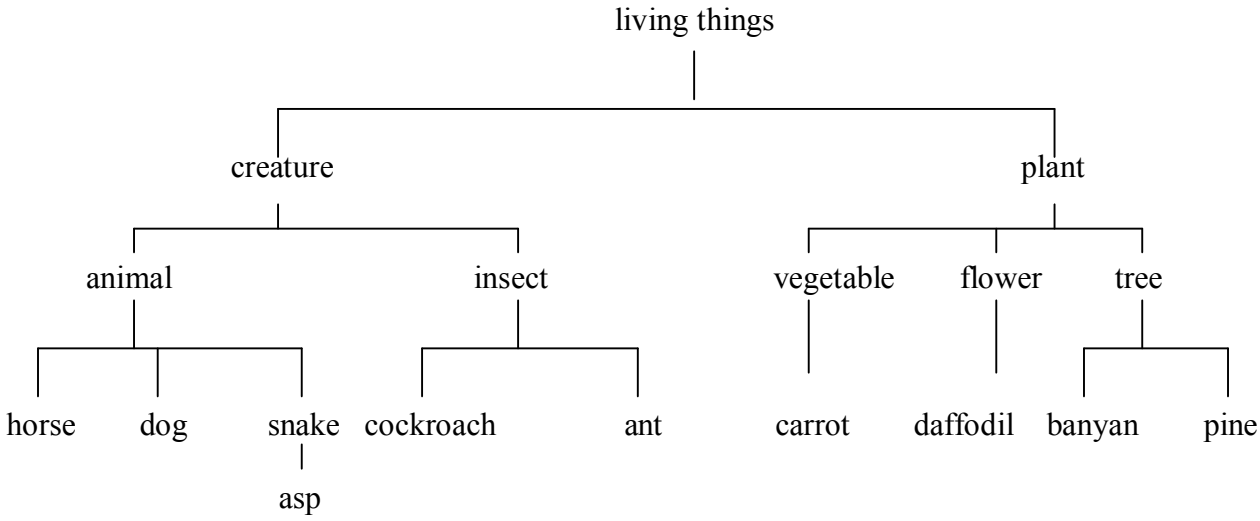


Figure 2.8: The Hyponomous Relationship (Yule, 2006, p. 119).

In the diagram, shown in figure 2.8., *dog* is hyponym of *animal* or *cockroach* is a hyponym of *insect* and *animal* and *insect* are superordinate terms. Moreover, *horse* and *dog* are co-hyponyms as they share the same superordinate term. As for *carrot* it is the subordinate term of *vegetable*.

2.5.1.4. Homonomy

"Words which share all distinctive features such as grammatical category, grammatical properties, the set of grammatical forms , sound form and spelling but have unrelated and different meanings are called homonomy". (Löbner, 2002, p. 43). For

example, bank (of a river) and bank (an official institution) or race (contest of speed) and race (ethic group).

2.5.1.5. Homophony

If two or more different written forms of words share the same pronunciation, they are called as homophones as in the examples of flour / flower, pail / pale, sew / so, bare / bear, meat / meet, etc. (Yule, 2006, p. 120-121).

2.5.1.6. Polysemy

Crossley and Salsbury (2010) define polysemous words as those which include more than one related sense and give the word *class* as an example. *Class* has minimum five related meaning which are:

- a group of pupils or students who are taught together
- a course of teaching in a particular subject
- the division of people in a society according to their social status
- a group with similar characteristics
- excellence or elegance, especially in dress, design, or behavior

(Collins Cobuild Student's Dictionary, 1997, p. 105).

2.5.1.7. Meronymy

The term is used to describe a part-whole relationship between lexical items (Saeed, 2009, p. 70). Therefore, *cover* and *page* are meronyms of book.

In the poem by William Carlos Williams this kind of relationship is used between words underlined as they are parts of trees. Moreover, *red*, *yellow* and *green* are co-hyponyms.

Under a low sky
this quiet morning
of *red* and
yellow <u>leaves</u>
A bird disturbs
no more than one <u>twig</u>
of the *green* leaved
peach tree (cited in Thornbury, 2002, p. 10).

2.5.1.8. Collocation

The term collocation was first introduced by the British linguist Firth with a famous slogan "you shall judge a word by the company it keeps" (Partington, 1998, p. 6). Collocates can be defined as "words which frequently occur together" such as heavy + smoker, post + letter, knife + fork, etc. (Field, 2003, p. 60). Namely, a group of words that are used and remembered generally with each other in a language are called as 'collocation'. Shin & Nation (2007) also argue that there have been many reasons why teachers and learners should be interested in collocations because of the fact that collocations help learners' language use, not only with the development of fluency but also collocations help native-like selection. Shin & Nation (2007) define collocation as a group of two or more words that occur frequently together which is not restricted to two or three word sequences and "a collocation is made up of two parts a pivot word which is the focal word in the collocation and its collocate(s), the word or words accompanying the pivot word. For example, in the sequences 'high school', 'high court', 'high street', 'so high', and 'too high', 'high' is the pivot word and the other words such as 'school', 'court' and 'so' are the collocates of the pivot word 'high' (p. 341). Similarly, Durrant (2008) points out that "collocating words, predict one another, in the sense that where we find one, we can expect to find the other" (p. 5). Richards and Rodgers (2001) give collocation instances of verbs with nouns: *do* my hair/the cooking/my work and *make* my bed/a promise/coffee. In studies of native speakers of English, Aitchison (1987, cited in Sökmen, 1993, p. 136) concludes that coordinates, including contrasts, are found to be very closely associated. In addition, collocations have "powerful and long-lasting" links.

Collocations can be divided into two subtypes: grammatical collocations and lexical collocations (Benson, 1985, cited in Miyakoshi, 2009, p.6). Miyakoshi (2009) explains grammatical collocations as collocations which occur with a dominant word (generally a verb, a noun, or an adjective) and a dependent word such as a preposition or of a particular structural pattern, such as the dative-movement transformation, *that*-clause, or *to* + infinitival + gerund. On the other hand, lexical collocations have two "equal" components, such as *verb* + *noun* or *adjective* + *noun*.

There have been arguments about how to present lexical items. Papathanasiou (2009) maintains that words might be related and grouped in different ways and

presenting related lexical items together in sets is called clustering. The same author mentions about linguistically based clustering and gives examples of words which are grouped in lexical sets such as body parts or words grouped by sense relations such as synonyms.

Another point that should be considered is that in daily conversations we more often than not give the meanings of words in terms of their relationships. In doing so, we characterize the meaning of words both in terms of its component features and their relationship to the other words. For instance, if we are asked to give the meaning of 'daisy' we may answer as 'it's a kind of flower'. This procedure has also been used in the semantic description of languages and it is treated as the analysis of lexical relations (Yule, 1996, p. 118). Therefore, Yule (1996) identifies lexical relations as synonymy, antonymy, hyponymy, homophony, homonymy, polysemy, metonymy and collocation.

At this point, Jullian (2002) defines the objectives of using lexical connections as:

- to make use of these lexical associations in ELT for the sake of recalling, vocabulary expansion
- to raise awareness among the students of the way we store lexical items; the kind of relations words keep with each other, and the grounds for such associations (p. 521).

Oxford and Crookall (1990) inform 'word association and concept association tasks, sometimes known as "elaboration," involve making associations between the new word or concept and the words or concepts already in the learner's memory, thus creating some context for the learner. The theory is that as long as these associations are meaningful to the learner, they will strengthen the learner's existing schemata and at the same time make the new word more accessible' (p. 16). Besides, Richards (1976) informs that "words do not exist in isolation. Their meanings are defined through their relationships with other words and it is through understanding these relationships that we arrive at our understanding of words." When learners are given a word or a list of words and asked to respond word or words there is a great deal of uniformity among the way they respond. Here are some typical responses given by Deese (1965, cited in Richards, 1976).

Stimulus	***Typical response***
accident	car
alive	dead
baby	mother
born	die
cabbage	vegetable
table	chair
careless	careful

Such responses suggest a number of different ways in which associative links between words are organized. For instance;

by contrast or antonym	wet-dry
by similarity or synonym	blossom-flower
by subordinative classification	animal-dog
by coordinate classification	apple-peach
by superordinate classification	spinach-vegetable

(Slobin 1971, cited in Richards, 1976).

Similarly, here are the responses which 99 British university students gave for *dark*.

light	41	body	1	negro	1
night	16	close	1	quiet	1
fear	4	corner	1	scare	1
black	3	dark	1	see	1
bright	3	darkness	1	shadow	1
room	3	fresh	1	sky	1
ages	2	frightening	1	sleep	1
alley	2	gloomy	1	slow	1
brown	2	god	1	sun	1
bench	1	ground	1	winter	1
blue	1	man	1		

(Kiss et al., 1973, cited in Schmitt, 1998, p. 390). In the list *light* is the most frequently given response and *winter* is the least frequent response among others. In terms of meaning the result shows that antonym of the *dark* has been used.

Another point about WA is that cross-association. It is another way of teaching word meaning, which means semantically related words are taught together. Synonyms

and antonyms are generally used for this kind of teaching. On the other hand, cross-association may cause confusion if form-meaning relationships are matched to wrong meanings (Öztürk, 2007). For example, *fat* and *thin* can be taught together, learners will have difficulty in remembering which word form (i.e. *fat* vs. *thin*) referred to which concept (i.e. "above average weight" vs. "below average weight"), and they might associate *fat* with "below average weight" and *thin* with "above average weight."

Another important issue that needs to be considered is planning a word association test. Peppard (2007) informs that the word association test (WAT) was "initially used as a psychological tool to study the subconscious mind, and more recently used by psycholinguists to explore the mental lexicon" (p. 4). There are various methods used for measurement of word association tasks. For instance, the participants may be allowed to associate freely (free association test) or responses may be limited to semantic categories, to particular synonyms, to terms within a certain context, or to choose among alternatives (controlled association test). Nielsen and Ingversen (1999) inform that

> priming is a way of manipulating the responses through verbal instruction and through the setting of the physical equipment of the simulated (work) context. Explicit information about the purpose of the test and context of the stimulus words as well as visual impressions communicated by the physical surroundings is expected to prime the respondents' mental models of the work domain and thus influence their associative responses. Priming is normally used in controlled tests (p. 18).

A word association task is defined as one where speakers of a language are given a set of stimulus words one by one and they are instructed to give the first word that comes to their mind (Read, 2004). By tradition, three categories of word associations have been identified: paradigmatic, syntagmatic, and phonological or 'clang' responses (Wolter, 2001). *Paradigmatic* responses have the same grammatical function as the prompt word and can be of four types: coordinates, superordinates, subordinates, and synonyms. *Syntagmatic* responses have a collocational or sequential relationship with the prompt word, and are not from the same word class. *Phonological* or '*clang*' associations are semantically unrelated but similar-sounding words. Read

(1993) adds a fourth category: *analytic* responses, which could be a definition of characteristics, as if explained in a dictionary.

Laufer (1997) draws a conclusion about words with multiple meanings that learners know one meaning of a polyseme or a homonym and they are reluctant to leave it when the word's meaning is diverse in a context. For instance, *since* is understood as '*from the time when*', although in the context it means '*because*'; abstract may be interpreted as '*not concrete'* though it means '*summary*' and so on. The reason why learners make incorrect guesses is that the familiar meaning of the word is the only meaning for them.

Most of the L2 studies on the relationship between word association and L2 proficiency showed that the number of total responses given to stimulus words increased as L2 proficiency increases, suggesting a positive relationship between the number of meaning connections and L2 proficiency level (e.g., Kolers 1963, Lambert 1972, Kruse *et al.* 1987, Riegel, Ramsey, and Riegel, 1967). The most recent study by Zareva (2007), who compared native English speakers with advanced and intermediate L2 learners, showed that the total number of responses produced by advanced L2 learners was not significantly different from that of the native speakers, but that intermediate L2 learners produced significantly smaller number of total responses than the native speakers did.

Category	Subcategory	Definition
Meaning-based association (MB)	Defining synonymy	x means the same as y
	Specific synonym	x can mean y in some specific contexts
	Hierarchical/lexical set Relationship	x and y are in the same lexical set or are coordinates or have a meronymous or superordinate relationship
	Quality association	y is a quality of x or x is a quality of y
	Context association	y gives a conceptual context for x
	Conceptual association	x and y have some other conceptual link
Position-based association (PB)	Consecutive xy Collocation	y follows x directly, or with only an article between them (includes compounds)
	Consecutive yx Collocation	y precedes x directly, or with only an article between them (includes compounds)
	Phrasal xy collocation	y follows x in a phrase but with a word (other than an article) or words between them
	Phrasal yx collocation	y precedes x in a phrase but with a word (other than an article) or words between them
	Different word class collocation	y collocates with x + affix
Form-based association (FB)	Derivational affix difference	y is x plus or minus derivational affix
	Inflectional affix difference	y is x plus or minus inflectional affix
	Similar form only	y looks or sounds similar to x but has no clear meaning link
	Similar form association	y is an associate of a word with a similar form to x
Erratic association (ER)	False cognate	y is related to a false cognate of x in the L1
	No link	y has no decipherable link to x

Figure 2.9: Word Association Test Response Categories **(x=stimulus; y=response)** ***(Fitzpatrick, 2006, p. 131).***

Fitzpatrick (2006) argues that the conventional three-way classification of association responses widely used in L1 mental lexicon studies seems not able to provide more accurate information about the associative behavior of subjects and Fitzpatrick (ibid) proposes a new classification system which is based on response data from earlier work, the findings of previous studies, and a consideration of the literature on aspects of word knowledge (e.g., Nation, 2001). As has been seen in Figure 2.9 The association responses are classified into four broad categories:

- Meaning-based responses (i.e., those determined by semantic characteristics);
- Position-based responses (determined by syntactic and collocation characteristics);
- Form-based responses (determined by phonological, orthographical or morphological characteristics);
- Erratic responses (where no link between cue and responses was apparent, or no response at all was given).

To sum up, the primary goal in this study is to investigate the word associations of EFL students. There are many strategies for teaching vocabulary in ELT classes and using word association tasks is just one of them. Also, many ways exist and are used to measure word association. In this regard, deciding on the appropriate strategies both for teaching and measurement needs great importance. Being aware of learning styles and strategies not only helps learners to learn better, but also enables teachers to attune their instruction so that they can reach more students (Oxford, 2001). In addition, Schmitt (1998) informs that the use of word associations holds a great deal of promise in the areas of L2 vocabulary research and measurement and word association procedures may be considered as an alternative way to test vocabulary. Stevick (1976) believes that since words are stored in associations, presenting words in a network of associations is an effective way to facilitate learning vocabulary in a second language (cited in Sökmen, 1993, p. 138).

CHAPTER 3

3. METHODOLOGY

In this chapter, the methodological aspects and the research procedure of the study, selection of the participants and data collection procedures are discussed. The primary aim of the study was to analyze Turkish ELT students' word associations in L2 in terms of lexical relations and word classes.

3.1. Research Questions

The following research questions constituted the basis for the study:

1. What types of word associations are commonly used by Turkish ELT students?
2. What types of word associations have the highest frequency of occurrence in terms of word class: verb, adjective, noun?
3. What lexical relations are identified within word associations?
4. What types of word associations have the highest frequency of occurrence in terms of lexical relations?

3.2. Instruments

Meara (2009) highlights that "successful L2 learners are avid collectors of words, and tend to measure their own success by the number of words that they know and current teaching materials and methodologies exploit and encourage this" (p. 33). With respect to Meara's thought and because of the fact that Word Associations (WA) have been considered to reflect the semantic organization in the human mind (Vasiljevic, 2008), a Word Association Test (WAT) was used to see L2 learners' lexical relations. Besides Jung's Word Association test was utilized to explore how the Turkish EFL students select the WA (see Appendix 1). The reason why Jung's test was chosen not the other applied word association tests was Jung's WAT seemed to be more suitable for Turkish adult learners as it contains 100 commonly used English vocabulary items. In the original test Jung and Riklin (1904) made an extended research into the associations of normal subjects preliminary to a study of pathological subjects by using four hundred stimulus words and the reaction time was written between the accented syllable and the response (cited in Loring, 1916, p. 15). In a classroom setting, as Harvey (1983) declares word association grids are very easily constructed and may be

used with many kinds of learner, both as a game and as a more serious activity such as part of a series of vocabulary build-up and exercises as shown in the Figure 3.1.

	example	*person*	*place*	*action*
transport	bus	driver	street	drive
Animal				
Sport				
Food				
Furniture				

Figure 3.1: Word Associations

Additionally, as Meara (2009) points out there is a need among researchers, learners and teachers for a valid and reliable test tools that are used to learn about and use that data on the common behavior of individuals' L2 lexicon. Therefore, in order to ensure the validity and reliability of the selected material each vocabulary item has been checked and attention has been paid to control whether they have synonyms in Turkish.

3.3. Participants of the Study

It is known that the mental lexicon changes with age and language proficiency. Also, as Ullman (2001) declares the lexicon includes memorized words, namely, pairings of sound and meaning and in the lexicon there must be words whose phonological structures and meanings cannot be derived from each other. Therefore, this study investigated the characteristics of the mental lexicon of subjects with similar proficiencies and ages. The participants of the present study consist of 26 Turkish ELT 4th class students studying at Çağ University in Tarsus/ MERSİN. The participants were selected by purposive sampling method. Fraenkel & Wallen (2006) states that purposive sampling is "based on the previous knowledge of a population and specific purpose of the research" and "investigators use personal judgment to select a sample" (p. 100).

3.4. Method

The first experimental research on the word association method was published in 1879 by Francis Galton, who made a list of 75 words to each of which using himself as subject, he acquired one or many free associations and the list was repeated four times in various surroundings, and the results persuaded him that the associations were not governed to any extent by memory (Galton, 1879, cited in Loring, 1916, p. 1). Since then, word associations have been used and have many implications in many research areas such as the study of memory, child language acquisition, cognitive behavioral disorders, language loss, cross-cultural psychology and bilingualism (Meara, 2009, p. xi). That is to say, word associations have been widely used in both L1 and L2 researches. In addition, word associations are considered to show how the words are stored and linked in people's mental lexicons. Related with the mental lexicon of learners Crossley et al. (2010) highlight that

> vocabulary size relates to how many words a learner knows (e.g. lexical features such as diversity or vocabulary size). Depth of knowledge features, in contrast, relate to how well a word is known (e.g. lexical features such as semantic relatedness, word sense relations, and word associations). Finally, access to core lexical items relates to how quickly words can be retrieved or processed (e.g. lexical features such as word concreteness and familiarity) (p. 2).

Furthermore, they are widely used to gather information concerning the organization of the mental lexicon and the cognitive abilities of individual subjects. (Aguirre et al., 2009, p. 28-29). Moreover, associative links are not limited to usage of vocabulary as in specific texts, which mean that word meaning is not approached as some static property of word knowledge, but rather as something that is created and defined in relation to other words in the lexicon (Vasiljevic, 2008, p. 4). Likewise, Harvey (1983) claims that lexical 'grids' have many aims such as getting away from the concept of the vocabulary list, providing learners to take a more active part in thinking about possible ways of classifying English lexical items, and enabling a framework which will lend itself to classroom exploitation and student-centered elicitation and categorization of vocabulary. That's why in terms of data collection using a

questionnaire of word association has a major advantage. It gives a lot of information about participants' vocabulary knowledge.

According to Vasiljevic (2008, cited in Aguirre et al, 2009, p. 28)

> the relationship between the stimuli and the responses can be analyzed quantitatively or qualitatively. Quantitative measures such as the number of associative responses and their strength and consistency are concerned with the degree of organization of the associative response domain. Qualitative measures examine the nature of the relationship between stimulus words and responses.

The word association test was taken by the participants individually, in order not to be influenced by each other. They were asked to write the first words which they think of when they read the words. The disadvantage of letting the students read instead of hearing the words could be that, they have more time to consider and possibly change their minds before they put their pencil to the paper. Another limitation of this approach is that while it provides valuable information on the semantic and syntactic properties of the word, these properties are acquired incrementally (Vasiljevic, 2008, p. 3).

The advantage of letting the participants read the vocabulary was that they would not be affected by tone of voice, pronunciation and accent. Additionally, as Sökmen (1993) points out in her research an individual aural/oral survey format is not preferred because of the fact that it is both time-consuming and causes anxiety for learners (p. 138). Instructions of how to complete the task are written on the test. There was no focus whatsoever on spelling in this study and this information is also stated on the test, so as not to hinder the participants from writing an association because of fear of a spelling error. As long as the words can be understood without difficulty, spelling is not an issue.

Read (2000) makes a distinction between two types of productive word knowledge which are recall and use and he informs that recall is tested when participants "are provided with some stimulus designed to elicit the target word from their memory", although "use means that the word occurs in their own speech or writing" (cited in Meara, 2009, p. 58). In his statements direction, it can be concluded that the test we used as a tool in this research examines recall ability of the participants rather than use ability. Therefore, another issue considered was that time limit and it

should not take longer than fifteen minutes since the participants were not asked to consider which word to write but only to state the first word which came into their mind.

The data gained through questionnaire was analyzed using descriptive statistics. According to Isaac & Michael (1997), this kind of research design is used "to describe systematically the facts and characteristics of a given population or area of interest, factually and accurately" (cited in Ekmekçi, 1997, p. 62). Additionally, Ekmekçi (1997) informs that this kind of study includes collecting data which evaluate the hypotheses' validity regarding the research participants' current situations.

Word associations written by the participants were counted to see which the most common answers are. Furthermore, the data was analyzed to see what kinds of lexical relations are used in the test, for instance synonymy, collocations, etc. As Crossley & Salsbury (2010) declare, such an approach provides us to examine about learners properties of word knowledge, lexical production and lexical acquisition. In addition, consideration was given to how the word associations were connected to the word classes of the words. The class and meaning analysis of the words would give information about the frequency of what types of word associations are commonly used in L2. That is to say, classification of words were decided upon

1) Sytagmatic Responses
2) Paradigmatic Responses
3) Clang Responses and
4) No Response.

Additionally, As Wright (2001) informs that meaning and word class are closely related with each other, so the responses to the stimulus words were also analyzed in terms of word classes (verb, noun, adjective) to see what type of words are commonly associated in the L2 learners' mental lexicon. Simply put, word association responses in the present study elicited by means of Jung's word association test were classified into four categories: paradigmatic responses, syntagmatic responses, clang responses, and no response and besides the responses were also classified into word classes noun, verb and adjective.

1) Paradigmatic Responses: As Hoey (2005) declares "pragmatic association occurs when a word or word sequence is associated with a set of features that all serve

the same or similar pragmatic functions" (p. 26). Therefore, these kinds of responses are words which demonstrate a clear semantic connection to the stimulus words. This connection may be one of these semantic relations: synonymy, antonymy, hyponymy, homonomy, homophony, polysemy and meronymy. For instance, for the stimulus word *dog*, possible paradigmatic response can be *pet* or *animal*.

2) **Syntagmatic Responses:** means that the response has a syntactical relation with the stimulus word and is from different grammatical form classes (e.g. *ball – catch*, *run – fast*)

3) **Clang Responses:** This refers to the responses which just phonologically resemble the stimulus word. (e.g. *phone - foam*; *knife -knight*; *acquire -choir*).

4) **No response:** This means that participants have not written any words the stimulus word. That is to say, there is no reply.

CHAPTER 4

4. DATA ANALYSIS AND RESULTS

In this section, we deal with how the word associations have reformed and not reformed from the stimuli according to word classes and lexical relations. As a reminder the instrument we have used, Jung's Word Association Test, consists of one hundred words which include 53 nouns, 24 adjectives and 23 verbs. Commonly used word associations were looked into by illustrating examples of the participants' word association results. Also, each class of stimuli words and the responses were investigated and showed separately and not all but the most frequent answers were mentioned in this section. The data analysis below follows the order of the research questions and sub-questions:

1. What types of word associations are commonly used by Turkish ELT students?
2. What types of word associations have the highest frequency of occurrence in terms of word class: verb, adjective, noun?
3. What lexical relations are identified within word associations?
4. What types of word associations have the highest frequency of occurrence in terms of lexical relations?

4.1. Analysis of Responses for Word Classes (Verb, Adjective and Noun)

In this section in relation to the research questions 1 and 2 the results obtained in the study was described and discussed in terms of participants' word class selection. In the first part, word class analysis of responses' for verb stimuli was analyzed, secondly word class selections for adjective stimuli and lastly what kind of word classes were used for nouns was discussed. As a reminder, word association stimuli and responses in this part of analysis were classified into three categories: verb, adjective and noun.

4.1.1. Response Patterns for Verb Stimulus Words

First of all, we examined response patterns for verb stimuli. The verb stimuli were a total of twenty three. In relation to the research questions 1 and 2 noun responses were the highest among all responses for three groups of stimuli words, that is to say, when the stimuli were verbs, all participants responded most frequently with nouns.

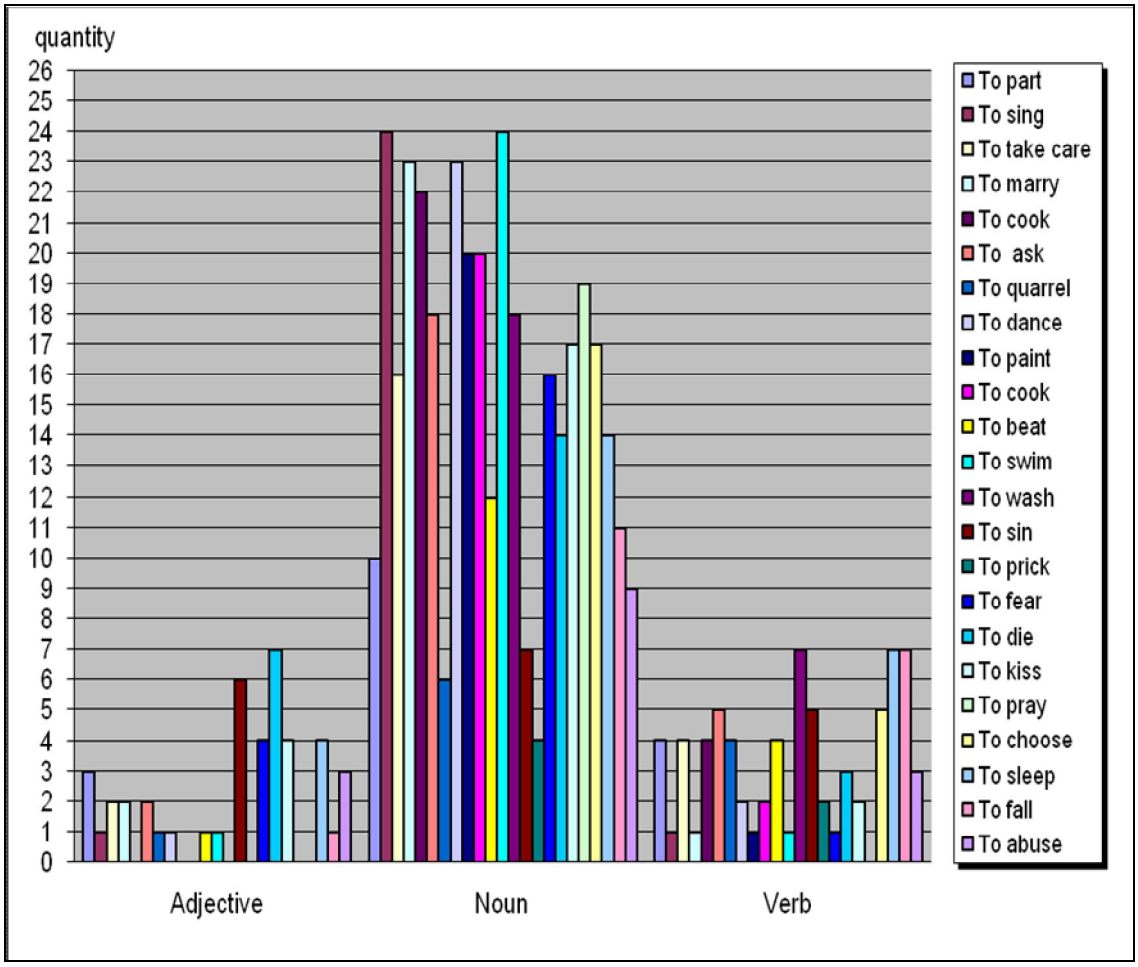


Figure 4.1: The Participants' Responses for Verb Stimuli

As has been shown in Figure 4.1 among the responses for 16 % verb the most associated ones were *to sleep* and *to fall* with seven participants and they generally gave the responds as *to rise* and *to hurt* for *to fall* , for *to sleep*, *to rest* and *to dream*. Furthermore, seven respondents preferred adjectives for the stimulus *to die* and six respondents favored *to sin* with an adjective which are mostly *dead* or *sad* for *to die* and *bad* and *evil* for *to sin*.

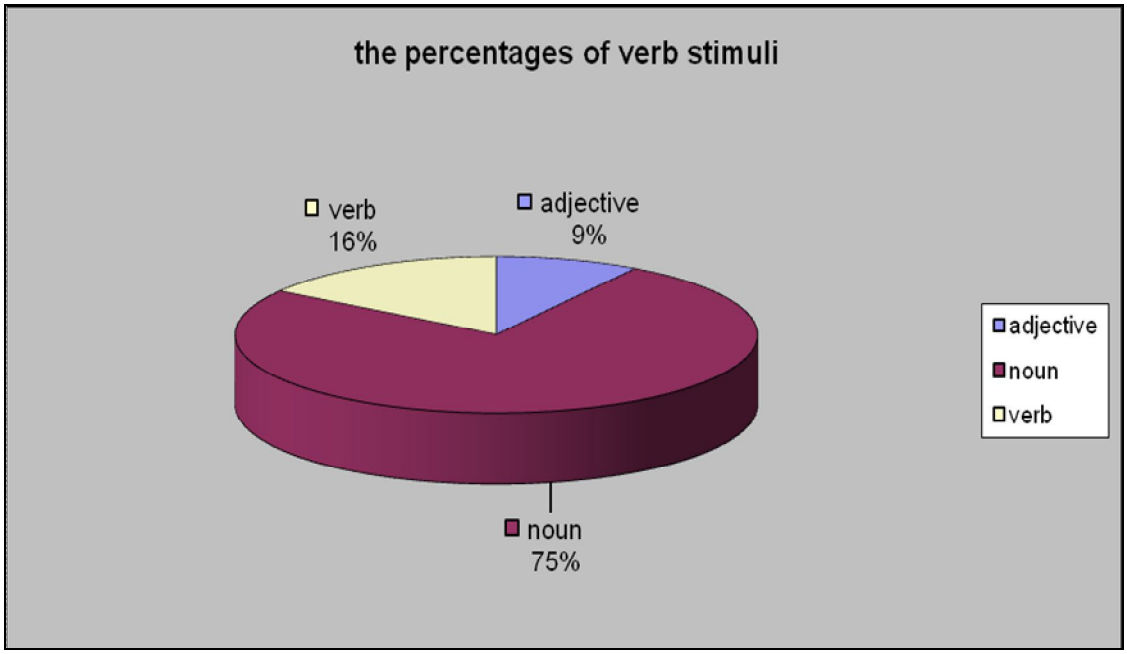


Figure 4.2: The Percentages of Responses for Verb Stimuli

Figure 4.2 shows the percentages of participants' responses for verb stimuli words. The results showed that 75% of the responses were nouns, 16% verbs, and 9% adjectives. That is to say, verbs were mainly associated with nouns. *To sing* and *to swim* triggered twenty four nouns which was almost 92% of all responses given to these verbs and most of the responses for *to sing* was *song* and *singer*, and responses for *to swim* was mainly *sea* and *pool*.

4.1.2. Response Patterns for Adjective Stimulus Words

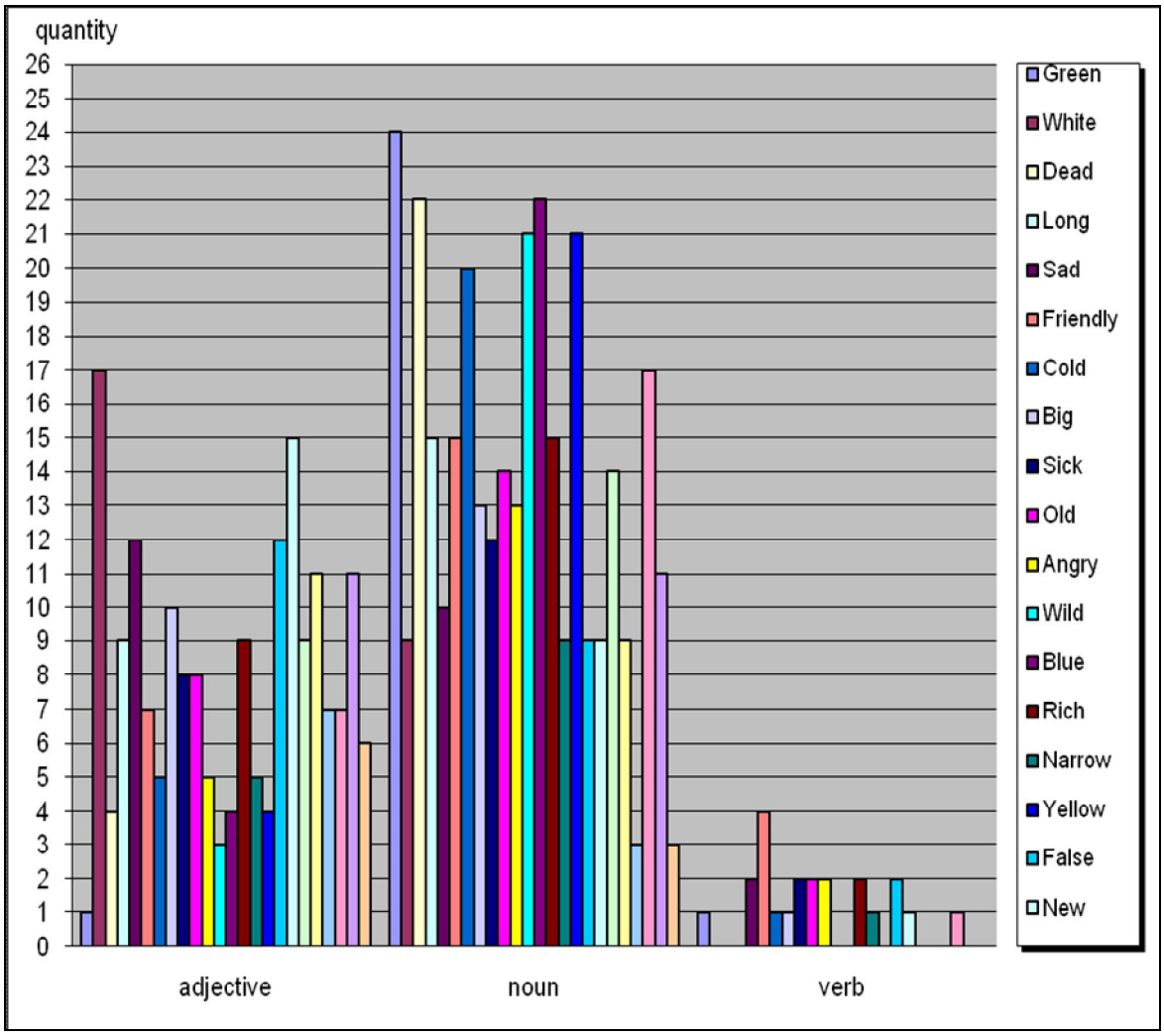


Figure 4.3: The Participants' Responses for Adjective Stimuli

As can be seen in Figure 4.3 the highest rate is the adjective *white* and seventeen participants associated *white* with an adjective which is almost 65% of its responses. The responses were generally *black* or *pure*. Shortly, these results show that the participants have tendency to associate an adjective with a noun. In addition, to the highest frequency of nouns the most associated adjectives with adjectives were *white* by seventeen respondents and second most associated one was *new* by fifteen respondents, which means more than half of the participants favored adjectives for these two stimuli. The associations were usually as follows: white-pure, white-black, white-soft and new-old, new-brand. In accordance with these results, Meara (2009) came up with a similar

finding for *white* in his research conducted by using ten common words taken from the Kent & Rosanoff WAT (1910) and 70 % of respondents replied the stimulus *black* with *white*.

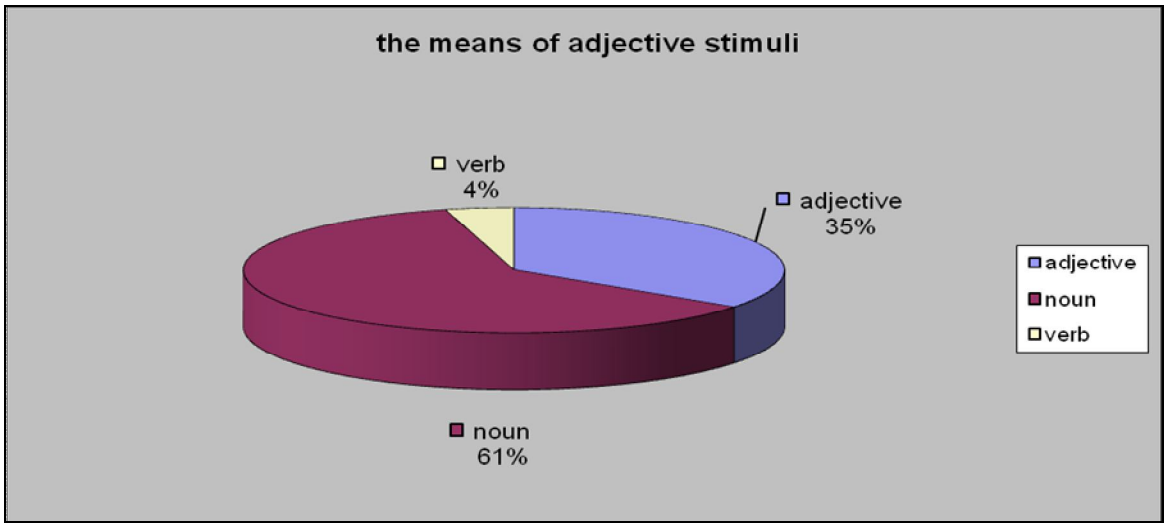


Figure 4.4: The Percentages of Responses for Adjective Stimuli

In total, there were 24 stimuli which are adjectives and as shown in Figure 4.4 the responses of participants mainly consist of nouns. The results showed that 61 % of the responses were nouns, 4 % verbs, and 35 % adjectives. Namely, for most of the adjectives nouns are preferred as word associations. On the other hand, when considered to the results of the verb stimuli words nouns are not as much as preferred as in the verb stimuli. The adjective *green* activated 24 noun responses which are generally *forest*, *tree* or *color*. This is nearly 92 % of its responses and the adjective *blue* triggered twenty two responses which are mostly *sky* and its percentage was 84.6 % of its answers.

4.1.3. Response Patterns for Noun Stimulus Words

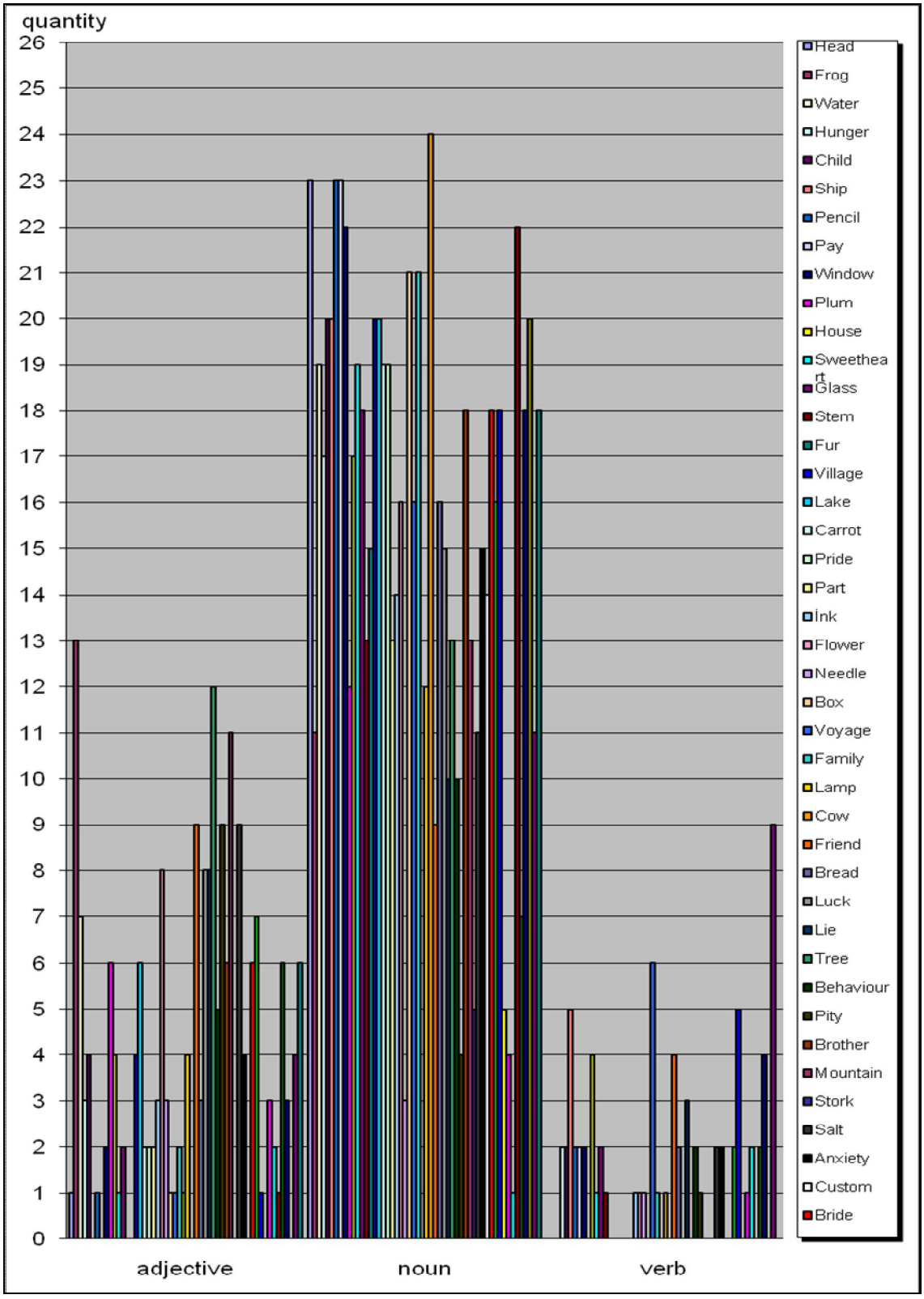


Figure 4.5: The Participants' Responses for Noun Stimuli

In the WAT there were 53 noun stimuli which consisted of the largest group of words in the test. All of the nouns are shown in Figure 4.5 and the situation in the results of other stimuli has not changed. That is to say, all nouns mainly triggered other nouns. As it can be seen in the Figure 4.5 the highest rate of all nouns was *cow* with twenty four noun responses which was 92.3 % of the answers. Most of the replies were *milk*. Furthermore, *pencil*, *head* and *pay* shared the second highest rate with twenty three noun answers.

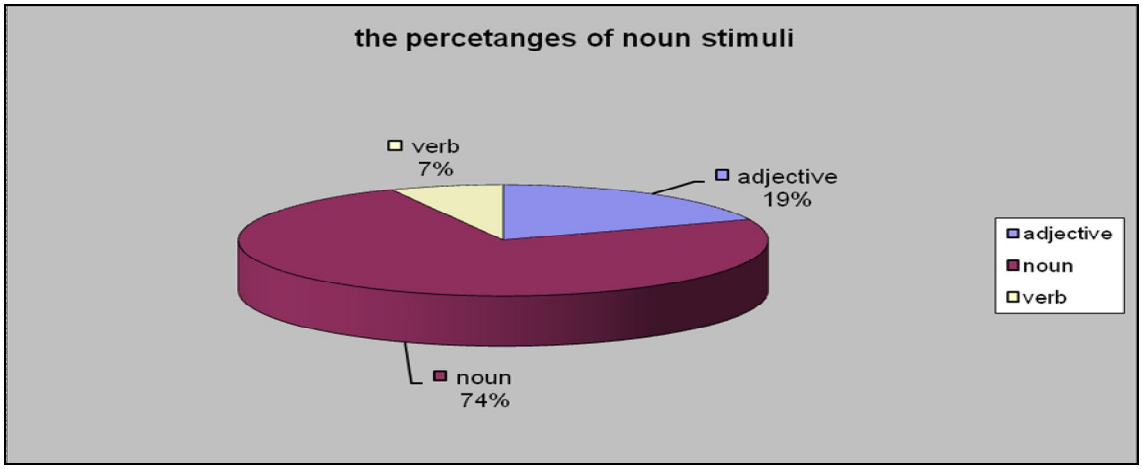


Figure 4.6: The Percentages of Responses for Noun Stimuli Words

To make the results more clear, the percentages are also shown in Figure 4.6. In total, the participants' responses consisted of 74% nouns, 19% adjectives and 7% verbs. These results show that noun stimuli mainly activated nouns. However, when we consider the results of noun stimuli with verb stimuli we came across with an amazing finding which shows that when the stimuli were verb participants' responses were 75 % noun but when the stimuli were noun the result was not vice versa.

Consequently, nouns are supposedly more highly integrated into the mental lexicon than verbs and adjectives because "(a) their meaning is often more clearly defined and less abstract the meaning of verbs and adjectives and therefore easier to process cognitively, (b) nouns have been known to the language user for a longer time than verbs and adjectives and (c) therefore are possibly also integrated into and consolidated in the word web to a higher degree than verbs and adjectives" (Nissen and Henriksen, 2006: 402, cited in Aguirre et al, 2009, p. 40).

Table 4.1: ***The Distribution of the Participants' Responses for Word Association Test in terms of Word Class***

	Adjective	Noun	Verb
Mean of verb stimuli	1,869565	15,82609	3,26087
Mean of adjective stimuli	7,875	13,75	0,916667
Mean of noun stimuli	3,867925	15,11321	1,415094

The outcome of the word class investigation has shown that the respondents tend to produce nouns as word associations. Moreover, the participants' responses are in contrast with stimuli word classes except nouns. When we look at Table 4.1 the mean of verb stimuli is the highest in noun responses and the lowest rate is in adjective responses. In addition, the adjective stimuli rate is likewise the highest in noun word class and the lowest in verb responses. That is to say, the participants had tendency to answer with a different a word class than the stimulus words. On the other hand, noun incentive words mean is still highest in noun responses. Consequently, in relation to the research questions 1 and 2 it is obvious that in all of three word classes by far the most produced words were nouns and the second most preferred were adjectives and the least associated ones were verbs. As Rothman (2009) declares the majority of words in languages are nouns may be the explanation of the reason why noun responses have the highest rate in the WAT.

4.2. Lexical Relation Analysis of Responses

In relation to the research questions 3 and 4 in this section, the results obtained in the study was described and discussed in terms of lexical relations of participants' responses. In the first part analysis of responses' lexical relations for verb stimuli was analyzed, secondly lexical relations of adjective stimuli and lastly what kind of lexical relations were used for nouns was discussed. As a reminder, word association responses in the present study elicited by means of Jung's Word Association test were classified

into four categories: paradigmatic responses, syntagmatic responses, clang responses, and no response.

4.2.1. Lexical Relation Analysis of Verb Stimuli Responses

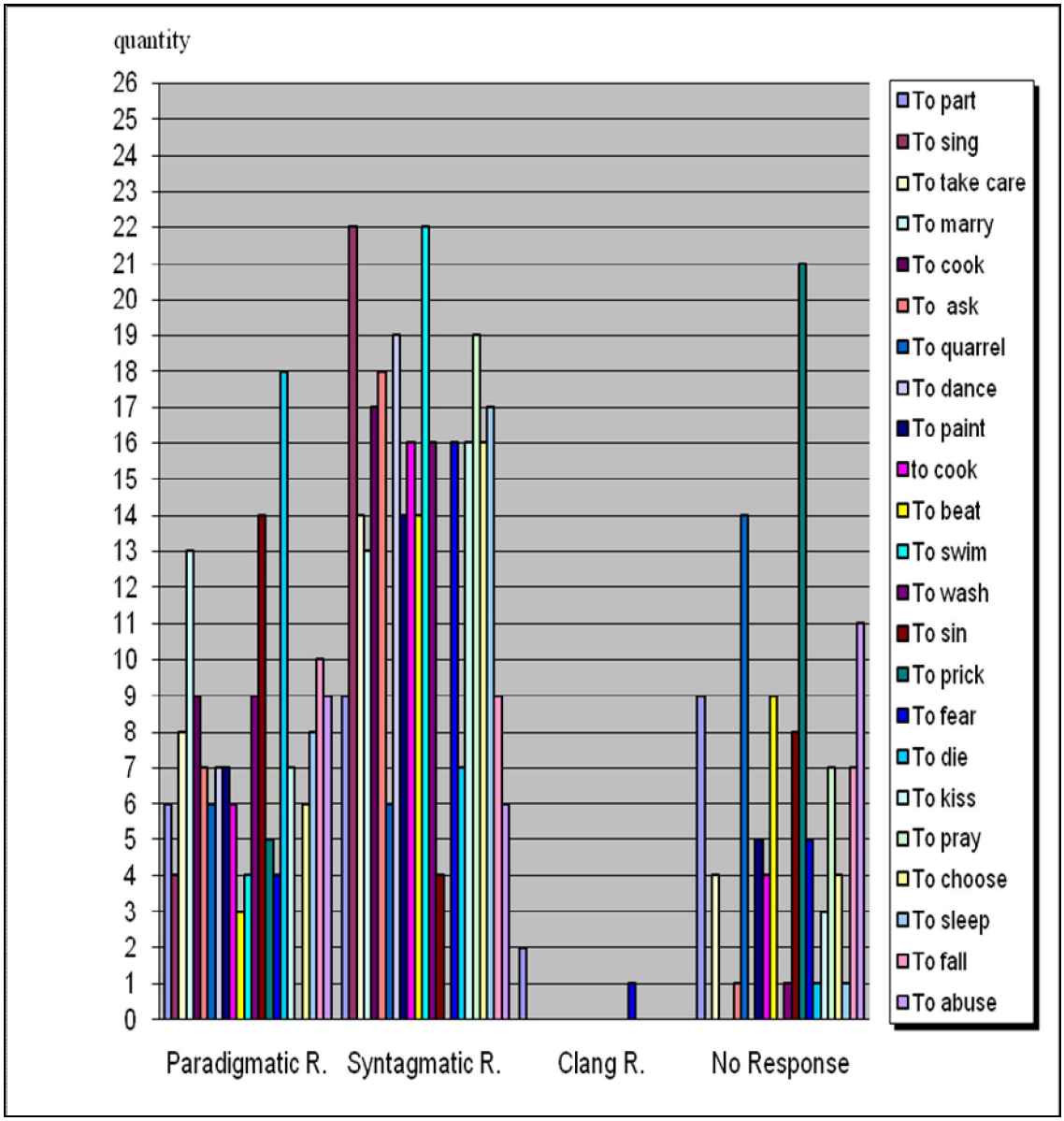


Figure 4.7: The Participants' responses for verb stimuli in terms of lexical relations

As has been shown in Figure 4.7 verbs elicited the largest number of sytnagmatic responses. As a reminder, sytagmatic responses are those which are in a different word class from the stimuli and mainly consist of collocations and Singleton

(2000) informs that " words which form collocations are repeatedly 'placed with' each other; that is to say, they often co-occur within a short distance of each other in speech and in written texts" (p. 47).

When we look at the highest amount of responses among other verbs, it is seen that twenty two participants associated *to sing* and *to swim* are with a noun. Most of the responds for *to sing* were *song* and responds for *to swim* were mainly *sea*. The amount of clang responses in the WAT was almost none. *To part* and *to fear* were the two verbs which were associated with a clang response. *To part* was associated with *party* and *participate* by two respondents and *to fear* was associated with *false* by just one participant. In the study of Aguirre et al. (2009), similar results have occurred and he comments on the reason of the result as "the higher proportion of syntagmatic responses when compared to paradigmatic ones in the case of L2 learners could have occurred because of the teaching strategies used in English Language classes and when new lexical items are taught, they are generally presented in chunks, including collocational patterns" (p. 55). Furthermore, in Figure 4.7 and Figure 4.8 the category of no response can not be disregarded as the rate is quite high. This may mean that participants were unfamiliar with these words or had no concept in their mental lexicon about these verbs. The verbs mainly left blank were *to prick* with twenty one, *to quarrel* with fourteen and *to abuse* with eleven participants. Related with this aspect of the result, Chaffin (1997) informs that although stimuli which produce weak agreement responses or that many participants can not respond to are assumed to be less familiar and to represent less organized concepts stimuli which produce commonly interrelated responses are thought to be familiar with the words and to be a sign of well organized knowledge.

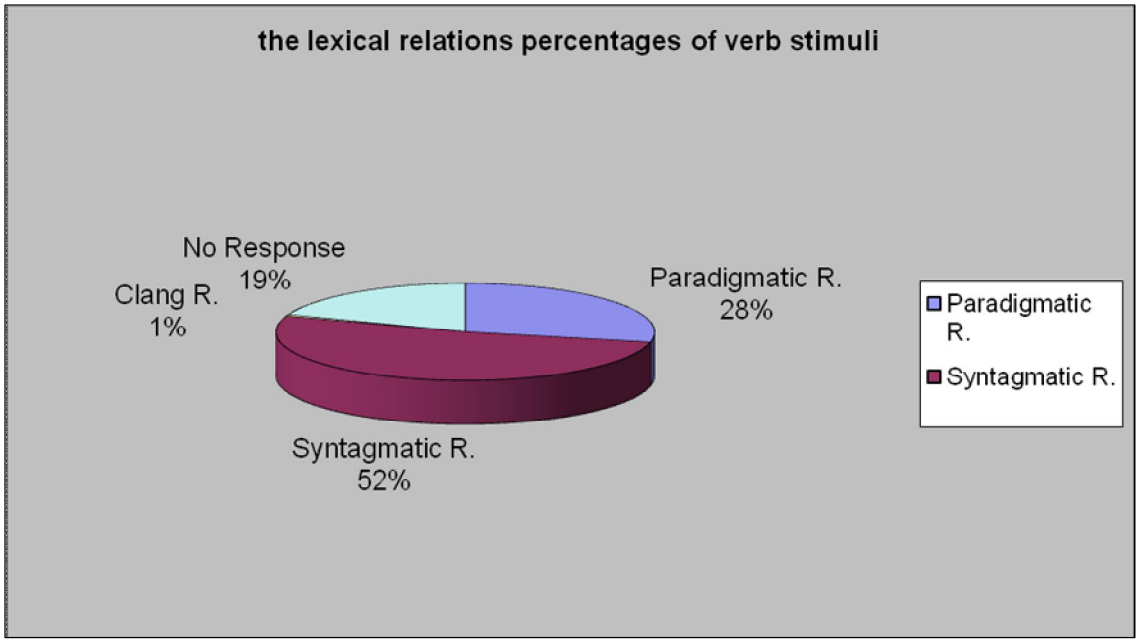


Figure 4.8: The Percentages of Responses for Verb Stimuli in terms of Lexical Relations

As for the percentages of the results as Figure 4.8 illustrates there are 52 % sytagmatic responses, which is more than half of the total, 28 % paradigmatic responses, 19 % no response and 1% clang responses. In accordance with Table 4.8, the most common group of responses are syntagmatic responses, secondly paradigmatic, then no response category comes and the lowest amount is in clang response category. To sum up, participants did not associate words according to not for their phonological resemblance but for their connection with other kinds of word class and namely they used generally collocations. Similarly, Wolter (2001) conducted a WAT study to a group of nonnative speakers and a group of native speakers results showed that the L2 mental lexicon is sytagmatically dominated for words which are well known although native speakers' results showed that they gave paradigmatically dominant responses for the same words.

4.2.2. Lexical Relation Analysis of Adjective Stimuli Responses

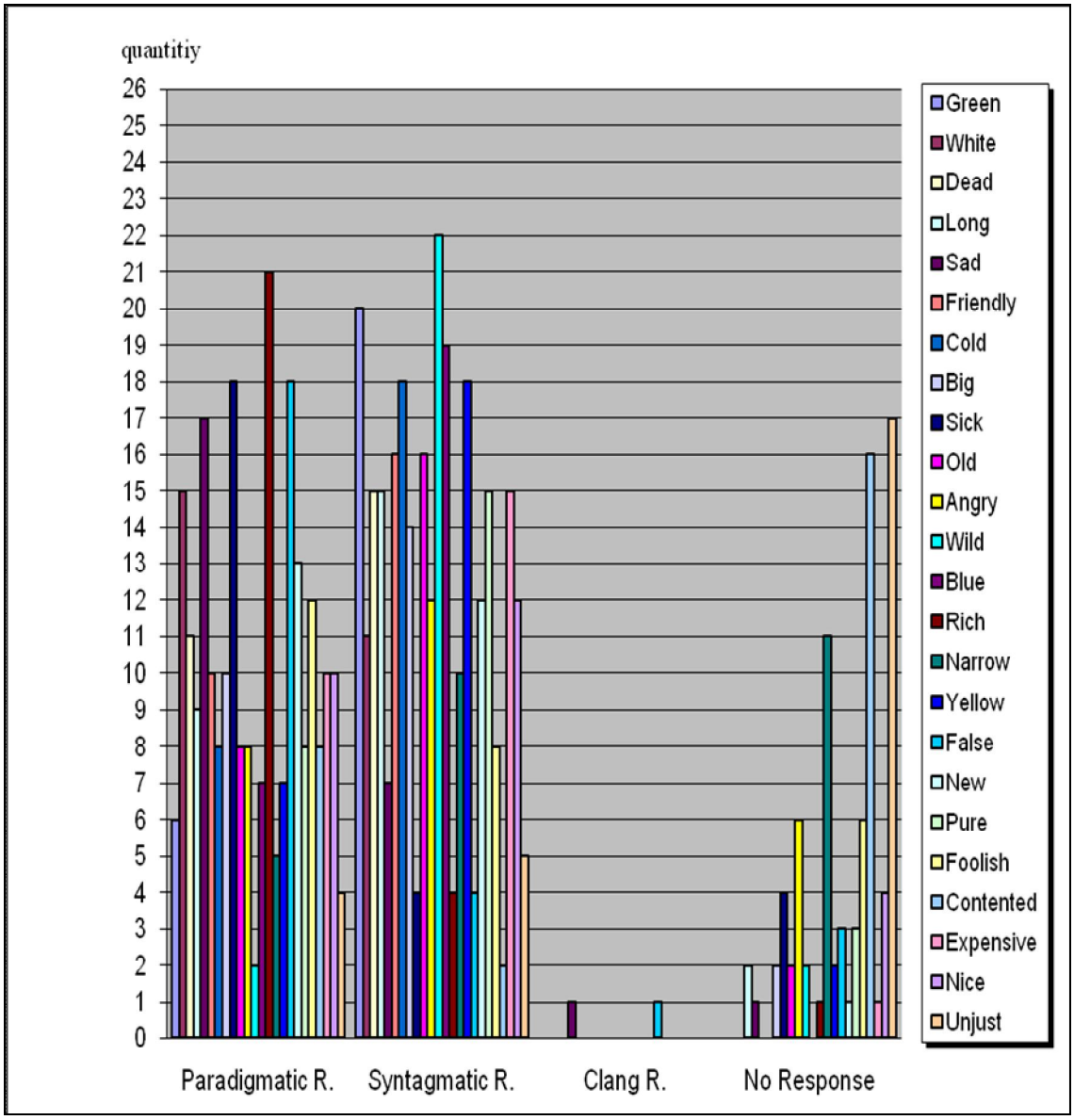


Figure 4.9: The Participants' Responses for Adjective Stimuli in terms of Lexical Relations

In relation to the research question 4, in Figure 4.9 adjectives elicited the largest number of sytnagmatic responses as in verb stimuli results. The most produced sytagmatic responses with twenty two participants out of twenty six for the adjective *wild* and secondly with twenty participants for the stimulus *green*. The respondents mostly gave associations as *animal* or *forest* for *wild* and *green* activated sytagmatic

responses which are generally *forest*, *tree* or *color* as in the part 4.1.2. These two stimuli got the highest rate among other words with % 84.6 for *wild* and for *green* % 76.9. As Aguirre et al. (2009) points out, the reason why a great amount of responses are syntagmatic in the nonnative learners could be explained by the possible organization of the mental lexicon.

Another point that was considered was the lowest rate. Likewise in the previous category, the results showed that the lowest rate was in the clang responses. On the contrary of the Meara's (2009) claim about that non-native learners' generally produce clang associations like native speaking young children, there were almost no associations related with phonological resemblance of the stimuli in his study. As can be seen in Figure 4.9, there were just two clang responses which are for the stimuli *sad* and *false*. The respondents associated *sad* with *bad* and *false* with *fear*.

As Figure 4.10 illustrates, the most associated stimulus in paradigmatic response category is *rich* with twenty one respondents and the second most associated ones are *sick* and *false* with eighteen participants. That means 80 % of all responses for *rich* and 69 % of the responses for *sick* and *false* had paradigmatic relation with each other. The participants generally replied *rich* with its antonym *poor* and with a related meaning *money*, they responded *sick* mostly with its synonym *ill* and with its hyponyms *flu*, *headache* or *cold* and responses for *false* were mainly its antonym *true*. Hurford et al. (2007) claim that antonyms are not just "the oppositeness of meaning" and mentions about the term binary antonyms as not the opposite but the negative of another word by giving the examples *true* and *false* (p. 121). Similarly, Saeed (2009) states that "there is a relation between words such that the negative of one implies the positive of the other" and the pairs are sometimes called complementary pairs or binary pairs (p. 67).

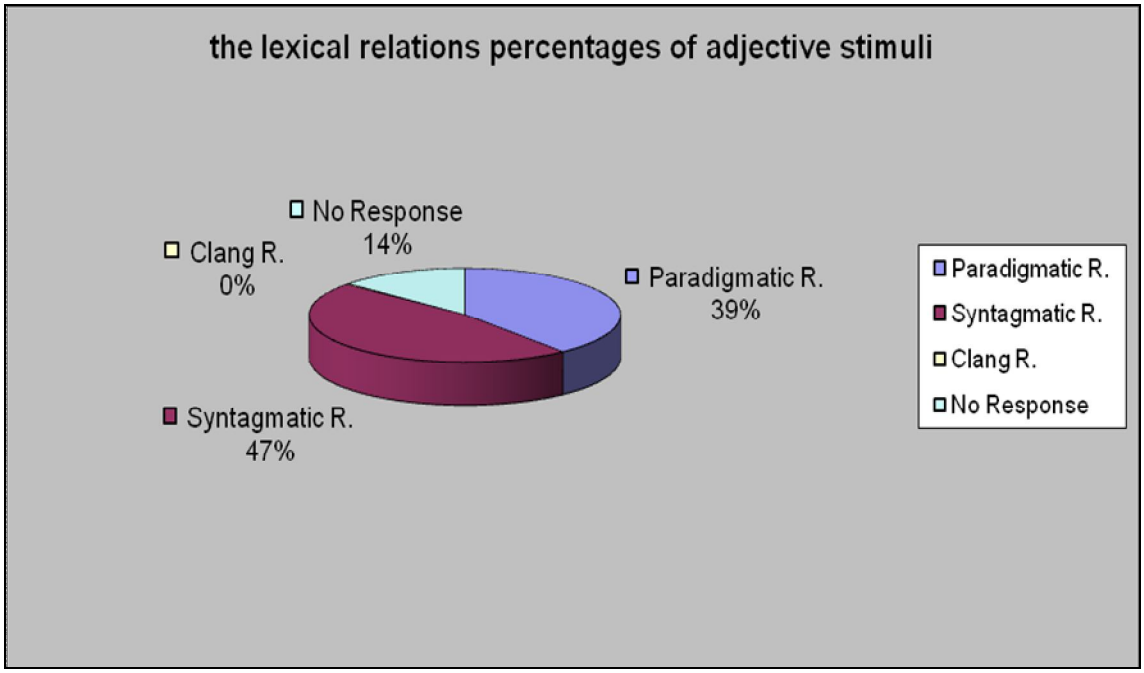


Figure 4.10: The Percentages of Responses for Adjective Stimuli in terms of Lexical Relations

In addition to the results has been discussed above the results of what the adjectives in WAT triggered were shown in Figure 4.10. As has been mentioned before obviously the highest rate was in the sytagmatic responses with 48 % and second highest rate takes place in paradigmatic responses with 39 % and no response category is 13 % and lastly clang responses percentage is 0. If we make a comparison with the lexical relation results of verb stimuli and adjective stimuli it may be stated that sytagmatic responses percentages are near each other with 52 % for verb and 48 % for adjectives although there is an increase in paradigmatic responses of adjective stimuli from 28 % to 39 %. Clang responses decrease from 19 % to 13 % and no response category has almost the same percentage. Likewise, in a study of Lara (2010) with native speakers and nonnative speakers the results show that both the intermediate and the advanced learners favored syntagmatic associations. On the other hand, an interesting fact is that the native speakers did not favour paradigmatic associations over syntagmatic ones.

4.2.3. Lexical Relation Analysis of Noun Stimuli Responses

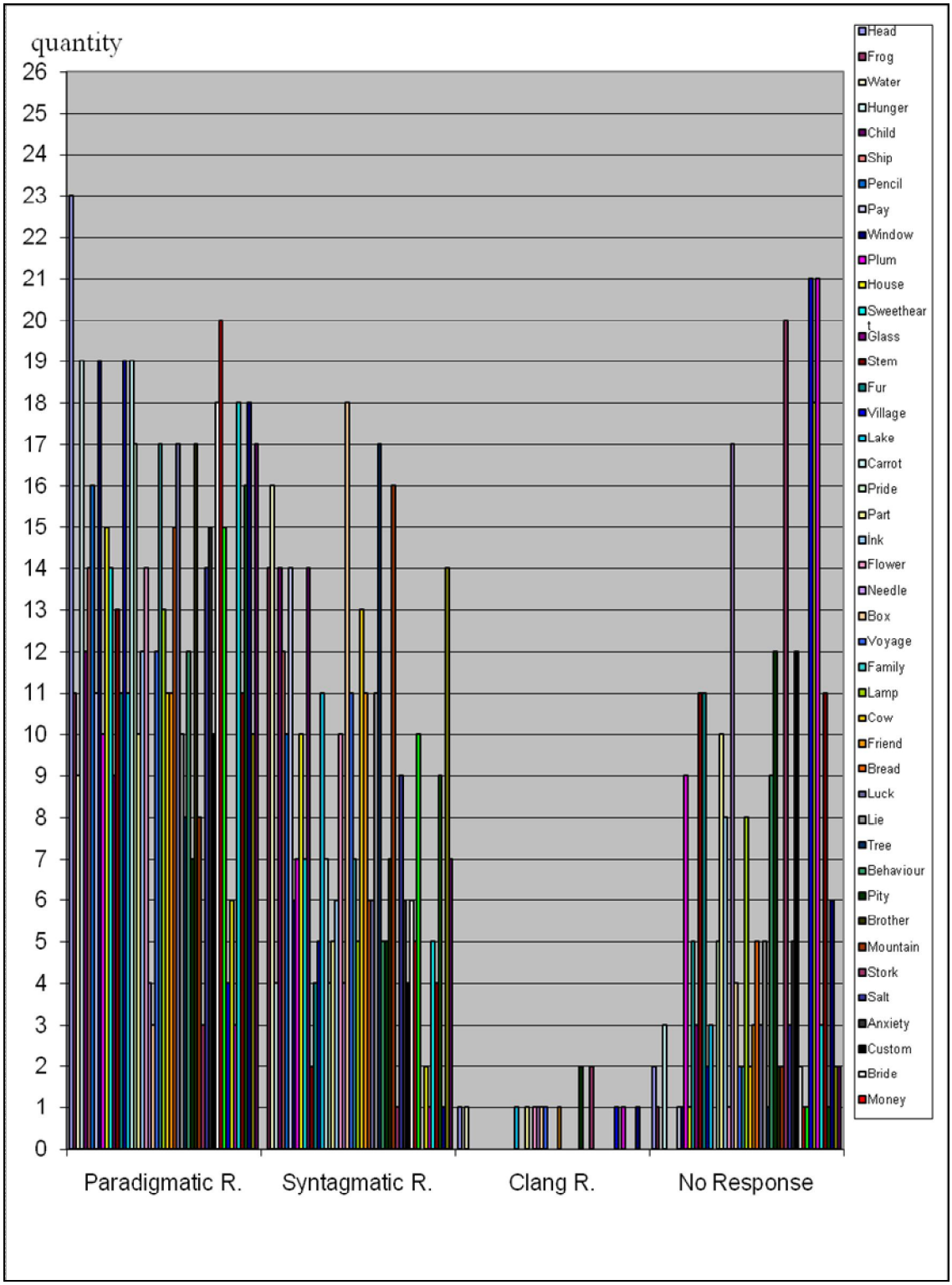


Figure 4.11: The Participants' Responses for Noun Stimuli in terms of Lexical Relations

As can be seen in Figure 4.11 and Figure 4.12, a surprising result has occurred in this part as the proportion of paradigmatic responses is the largest compared to the other types of responses obtained. The participants' proportion of paradigmatic responses is 48 % while syntagmatic responses rate is 30 % which is vice versa in the previous two sections. Besides, the respondents' proportion of clang associations is 1% and while no response category corresponds to 21 % of the total.

The most produced paradigmatic responses with twenty three participants out of twenty six for the noun *head* and the second most replied stimulus with a paradigmatic association with twenty participants was *money*. The respondents mainly gave associations such as *hair* or *brain* for *head* which were related with each other as they are at the top of the body and for *money* the participants favored responses which were generally related in terms of the word's meaning such as *shopping*, *house* or *car*. These two stimuli got the highest rate among other words with % 88.4 for *head* and for *money* % 76.9.

When we look at the highest amount of syntagmatic responses in Figure 4.11, it is seen that eighteen participants associated *box* and seventeen participants favored *tree* with sytagmatic associations. Most of the responds for *box* were *gift* and *present* which become collocations when they come together though the two words are nouns. Twelve responds for *tree* were *green*, which means as in the *present-box* or *gift-box* togetherness they are examples of collocation but this time they do not share the same word class as *green* is an adjective.

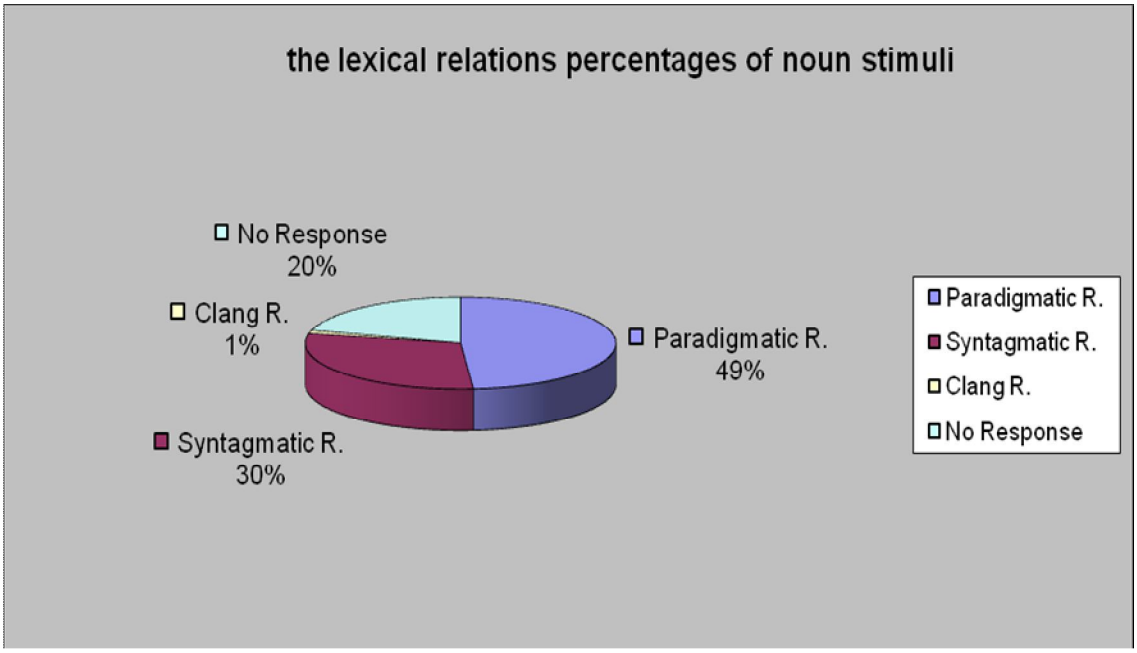


Figure 4.12: The Percentages of Responses for Noun Stimuli in terms of Lexical Relations

Another point that should be discussed here is the percentage of clang responses. As mentioned before and has been shown in Table 4.12, the amount of clang responses is 1 %. That is to say, the percentage is almost the same with verb and adjective lexical relations. However, the quantity of words is less in those two categories; namely, there exists 24 adjectives and 23 verbs. The result of 53 nouns with 1 % does not mean there are just a few clang responses as in others. The respondents associated sixteen words with a phonological resemblance. *Head- red, water-daughter, pity-stingy- tiny, stork-story*, etc. were some of the clang responses. Furthermore, one of the responses associated with *stork* was *knife* which showed that the respondent misunderstood or did not know the meaning of the stimulus *stork*, which is a kind of bird, and mixed the word with *fork*, therefore he/she associated it with *knife*.

Another important point in these results is that the percentage of no response category is quite high. Actually, the highest rate of all sections with 21 % as can be seen in Figure 4.11. *Pamphlet* and *despise* by twenty one, *stork* by twenty participants left blank. So many blank parts may mean that these words were unfamiliar to the respondents or did not trigger any associations.

Table 4.2: ***The Distribution of the Participants' Responses for Word Association Test***

	Adjective Stimuli	Noun Stimuli	Verb Stimuli
Mean of paradigmatic responses	10,20833333	12,66037736	7,391304348
Mean of syntagmatic responses	12,25	7,698113208	13,47826087
Mean of clang responses	0,083333	0,3019	0,130435
No response	3,5	5,33962264	5

As shown in Table 4.2, the outcome of the lexical relation analysis of words has shown that the respondents tend to produce paradigmatic responses for nouns. In addition, the mean score showed that the least associated paradigmatic responses are for verb stimuli. For syntagmatic category, participants' responses surprisingly change and they produce the most syntagmatic responses for verbs and the lowest mean score belongs to nouns. First language acquisition research has indicated that the older the children, the higher the proportion of paradigmatic responses. This has been referred to as the *syntagmatic-paradigmatic shift*, and can be explained by the cognitive and lexical development in the L1 mental lexicon. In addition, it was also found that unclassifiable and clang responses diminish with age (Ervin, 1961, as cited in Wolter, 2001, p. 43).

When we look at the mean of clang responses in each kind of word class, they are almost equal with the lowest rate of all response types. Lastly, the participants did not respond mostly to the noun stimuli with 5, 33 mean score, then verb stimuli with 5 and with 3, 5 mean score to the adjective stimuli in the WAT. All in all, in relation to all of the research questions, it is obvious that in all of the categories related with lexical relations of words according to word classes by far the most produced words belong to syntagmatic associations with verbs and the second most produced paradigmatic

associations with nouns and the least produced ones were clang responses with adjective stimuli.

CHAPTER 5

5. CONCLUSION

This chapter is related with the conclusion of the present research. Firstly, the starting point for the study and the summary of the findings are provided. Secondly, the implications gained from the study are presented with the recommendations for further studies and the last section presents the limitations of the study.

5.1. Summary of the Study

This study was set out to gain information about L2 learners' word association responses both which word classes were dominant in their mental lexicon and what types of lexical relations were mainly used. To achieve these aims, Jung's Word Association Test (WAT) was applied in this research to collect the data. The study aimed to find out the answers to the following research questions:

1. What types of word associations are commonly used by Turkish ELT students?
2. What types of word associations have the highest frequency of occurrence in terms of word class: verb, adjective, noun?
3. What lexical relations are identified within word associations?
4. What types of word associations have the highest frequency of occurrence in terms of lexical relations?

As Fitzpatrick (2011) informs individuals responses to word association tasks has implications for our understanding of the individual's mental lexicon and in this research the words in L2 mental lexicon are mostly sytagmatically related and then paradigmatically related. The notion of lexical relations of respondents is an indication of both lexical knowledge and the organization of the L2 mental lexicon. The results were considered in the light of findings which showed that different word classes promote different kinds of relations in the mental lexicon of adult L2 users. Therefore, learning more about the learners' organization of lexical knowledge and familiarity of words may be useful for an effective vocabulary teaching strategy.

Besides, the findings have shown that phonological relations did not have an important role in L2 mental lexicon as they did not show a tendency to associate words just by considering the phonetic features of the words in the WAT. That is to say, the result of the present study have crucial implications for vocabulary teaching and learning by assisting learners in consisting of stronger semantic links between words. Similarly, Zareva (2011) conducts a research and according to the result of his research he proposes that verbs need more time, attention, and work than nouns and adjectives do so that they become as well integrated in students' lexicons as the rest of the content words and lexical class has an influence on people's lexical connectivity and "certain words (i.e., nouns and adjectives) connect with other words in richer networks than others (i.e., verbs) and may, respectively, require a different amount of teaching and learning effort to fully integrate them into a developing lexicon" (p. 11).

Furthermore, when we consider the results in terms of word classes, nouns are more favored than other word forms and more associated by L2 learners. It can be summarized as that the participants had tendency to use nouns as word associations and as in L1 nouns are more dominant in their mental lexicon.

Finally, it can be informed considering the collected data WATs are accurate and effective tools for investigating the ways in which learners make connections between words they have known and the high amount of associations that learners make on word association tests give clue about the teaching and learning of new vocabulary.

5.2. Implications and Recommendations for Further Study

In this study the strongest implication from this research is that we should know and review how much of learners vocabulary consists of what kind of word classes and how learners associate words with each other. Nouns have the highest rate of all three word forms and sytagmatic responses for verbs and adjectives as well have the highest rate, using collocations and vocabulary items associated with nouns seems to be useful. Accordingly, Sökmen (1991) recommends to get learners involved in using collocations especially adjective + nouns and verb + noun, contrasts; especially adjectives in contrast when working with beginners, coordinates, and classifications through brainstorming and other word association activities (cited in Sökmen, 1993).

A second implication is that findings related with the paradigmatic responses showed that they cannot be underestimated. Therefore, paradigmatic relations such as

synonyms, antonyms or other kind of relations can also be utilized according to the learners needs. Accordingly, Zareva (2011) points out that linguists and psycholinguists give importance to word associations as data which provide useful information about how the mental lexicon is organized and what types of semantic information are accessed when a person hears or reads a word and he gives example; when the word *blanket* elicits the word *a cover*, this means that when a person comes across the word *blanket*, knowledge about its superordinate category can also be accessed. Likewise, Gyllson and Wolter (2011) think that collocations should take a more central position in vocabulary learning and teaching and how complex and unpredictable they may be sometimes, collocations apparently consists of an important part of a well-developed lexical network.

Another implication is about testing. As Wharton (2011) declares most of the L2 vocabulary testing is concerned with right or wrong and whether the learners know the word or not and "it may be more relevant however, to employ an evaluation method that is more sensitive to the gradual nature of vocabulary learning and the developing associational networks within the learner's lexicon" (p. 20). That is to say, the main aim of evaluating vocabulary knowledge of learners should be to see whether learners have acquired the target vocabulary permanently rather than learners right or wrong knowledge about the words.

Likewise, Vasıljevic (2008) recommends that "word association tasks where the learners are asked to select the appropriate paradigmatic / syntagmatic responses highlight the semantic and syntactic properties of the target words, strengthen the links between the items in L2 mental lexicon, and help build new concepts for L2 lemmas consequently resulting in a greater degree of automaticity and accuracy in production" (p. 14).

Another recommendation is that learners should be provided various kinds of vocabulary learning strategies and using word associations in and out of classroom setting is one of them. Besides, as Ghazal (2007) points out

> teachers need to bear in mind that individual learners may vary on the basis of which strategies they consider more useful and they apply more frequently. Thus, teachers may first need to have an appraisal of learner's belief regarding

vocabulary learning strategies and then try to help them gradually realize the value of other types of strategies (p. 90).

We can assume that lexical approach is suitable rather for advanced learners whose four skills (reading, listening, writing and speaking) are at good level and who need to improve their vocabulary knowledge. However, if the tasks are differentiated and learners are given assignments according to their skills, or if cooperative techniques are chosen, I believe that this approach can work well also with lower level learners. Meara (2009) informs that all kinds of language activities are signs of the same main skills and "if we could develop learning methods that, as a side effect, produced learners with native-like association patterns, we would also be producing learners who were better able to communicate in their foreign language" (p. 19).

Learning a foreign language requires having a good knowledge of vocabulary which is crucial for second/foreign language (L2) students, and its necessity is considered as an indispensable tool of L2 learning. In this regard, Khazaeenezhad & Alibabaee (2013) inform that instead of using direct vocabulary instructions using some vocabulary building activities such as free word association, brainstorming or mind mapping of words and topics can be more helpful for developing mental lexicon L2 learners. That is to say, learners may use word association strategy in order to recognize and remember the words in L2 and knowing a word entails knowledge of the network of associations between that word and other words in language.

Wilkins (1972, cited in Amiri et al., 2011) states that "Without grammar, very little can be conveyed, without vocabulary nothing can be conveyed." Vocabulary knowledge includes many components such as the spoken form, the written form, and the collocational behavior of a word; how frequent the word is, the stylistic register constraints of a word, the conceptual meaning of a word, and the association of word with other related words can be named as the most important ones. Carter (1998, cited in Amiri et al., 2011) notes that word knowledge means "knowing how to use it productively and having the ability to recall it for active use."

Consequently, As Henning (1973) states "learners might benefit from synonym and antonym games and exercises, paired-associate compositions in which lists of related words are given the learner from which he is to prepare written or oral compositions. Through these types of exercises, the language learner will begin to

recognize not only a larger inventory of lexical items encountered, but be able to identify the acoustic and semantic families from which they come, and thus more efficiently progress in language proficiency" (cited in İstifçi, 2010, p. 365).

5.3. Limitations of the Study

This section deals with the limitations of the study. The number of participants is the first limitation of the research. In total twenty six fourth grade university students responded the test and this may hinder to make a generalization about all L2 learners word associations. Secondly, their level is upper-intermediate as they are English Language Teaching department students, the results might be different in lower level learners responses. Another limitation of the study is that the WAT applied included three kinds of word class and a WAT which has a greater variety of word classes might a richer set of data.

Consequently, it would be better if the results were compared with the same native speakers' word associations and a comparison might be done to see the differences and if there is an effect of L1 on L2 word associations of Turkish adult learners. Nevertheless, in spite of its limitations, it is hoped that the total outcome of this study could be a starting point for more thorough investigations on mental lexicon and word associations of learners and additionally teaching and learning vocabulary.

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7. APPENDICES

7.1. Appendix 1: Jung's Word Association Test

Jung's Word Association Test Form

NAME _____ DATE_____

(ANSWER AS QUICKLY AS POSSIBLE WITH THE FIRST WORD THAT OCCURS TO YOUR MIND)

Word	Response	Word	Response
1. head		2. frog	
3. green		4. to part	
5. water		6. hunger	
7. to sing		8. white	
9. dead		10. Child	
11. long		12. to take care	
13. ship		14. pencil	
15. pay		16. sad	
17. window		18. plum	
19. friendly		20. to marry	
21. to cook		22. house	
23. to ask		24. sweetheart	
25. cold		26. glass	
27. stem		28. to quarrel	
29. to dance		30. fur	
31. village		32. big	
33. lake		34. carrot	

35. sick		36. to paint	
37. pride		38. part	
39. to cook		40. old	
41. ink		42. flower	
43. angry		44. to beat	
45. needle		46. box	
47. to swim		48. wild	
49. voyage		50. family	
51. blue		52. to wash	
53. lamp		54. cow	
55. to sin		56. friend	
57. bread		58. luck	
59. rich		60. lie	
61. tree		62. behavior	
63. to prick		64. narrow	
65. pity		66. brother	
67. yellow		68. to fear	
69. mountain		70. stork	
71. to die		72. false	
73. salt		74. anxiety	
75. new		76. to kiss	
77. custom		78. bride	
79. to pray		80. pure	
81. money		82. door	
83. foolish		84. to choose	

85. pamphlet		86. hay	
87. despise		88. contented	
89. finger		90. ridicule	
91. expensive		92. to sleep	
93. bird		94. month	
95. to fall		96. nice	
97. book		98. women	
99. unjust		100. to abuse	