Hacettepe University Graduate School of Social Sciences
Department of English Linguistics

# A LINGUISTIC STUDY ON WORD ASSOCIATION BEHAVIOR OF TURKISH SPEAKING CHILDREN IN URBAN AND RURAL SETTINGS: A SOCIO-COGNITIVE PERSPPECTIVE

Ruhan Güçlü

Master's Thesis

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## KABUL VE ONAY

Ruhan Güçlü tarafından hazırlanan "A Linguistic Study on Word Association Behavior of Turkish Speaking Children in Urban and Rural Settings: A Socio-Cognitive Perspective" başlıklı bu çalışma, 11/06/2015 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından yüksek lisans tezi olarak kabul edilmiştir.

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Yukarıdaki imzaların adı geçen öğretim üyelerine ait olduğunu onaylarım.

Prof. Dr. Yusuf Çelik

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## BİLDİRİM

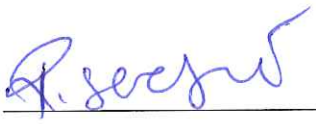
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Ruhan Güçlü

*To my precious husband*

## ACKNOWLDEGEMENTS

I would like to thank to Assist. Prof. Dr. Zeynep Açan Aydın for her valuable ideas, suggestions and for being ready whenever I asked for help since the very beginning of this research. I would like to express my thanks to Prof. Dr. Nalan Büyükkantarcıoğlu, for challenging my thinking by helping me question assumptions and view issues from multiple perspectives and for her endless support and encouragament.

I would like to give special thanks to Prof. Dr. Işıl Özyıldırım, Prof. Dr. Yeşim Aksan and Assist. Prof. Dr. Zeynep Doyuran for their valuable suggestions at the committee and encouragement for my academic studies. I owe special thanks to Prof. Dr. Melike Sayıl and Assoc. Prof. Dr. Birsen Şahin who helped me a lot in structuring psychological and sociological grounds for my thesis.

I extend hearty thanks to Res. Assist. Dr. Emel Kökpınar Kaya who was willing to help and give her best suggestions whenever I was in need and for her support. Many thanks go to Res. Assist. Abdullah Topraksoy for our exchanges of knowledge and friendship. I owe speacial thanks to Res. Assist. Esra Küçüksakarya for her support and patience for my bad moods in hard times and to Beste Kaptanoğlu for support and friendship.

I am deeply grateful to my husband, Suat, for his constant support, remarkable patience and unwavering love. I give my deepest expression of love and appreciation for the encouragement that he has always given me through the entire process. This thesis could have never been completed without his love, motivation and positive attitude.

Last but not least, I take this opportunity to express the profound gratitude from my deep heart to my beloved parents, brothers and family-in-law who supported me with their unconditional love, their patience and for having faith in me from the beginning until the end.

# ÖZET

GÜÇLÜ, Ruhan. *Kentsel ve Kırsal Kesimlerde Anadili Türkçe olan Çocukların Sözcük Çağrışımları üzerine Dilbilimsel bir Çalışma: Toplum-Bilişsel bir Yaklaşım*, Yüksek Lisans, Ankara, 2015.

Sözcük çağrışımı, dilbilim, sinir-ruhbilim ve ruhdilbilim alanlarında en çok kullanılan tekniklerden biridir. Sinopalnikova (2003)' ya göre çağrışım mekanizmalarını ortaya çıkaran en basit deney tekniği, serbest çağrışım testidir. Bu test, bilginin insan zihninde nasıl yapılandığı hakkında en geniş bilgiyi verir. Söz konusu çalışmada araştırmacı yaşanılan yerin çocukların dil gelişimi üzerinde etkili olup olmadığını ortaya çıkarmak amacıyla bilişsel bir bakış açısıyla sözcük çağrışım testini kullanmıştır. Gelişimsel ruhbilimci olan Wertsch (1991), insanın zihinsel işlevlerinin bu zihnin içinde yer aldığı toplumsal ve kültürel etkenlerden bağımsız ele alınamayacağını savunur. Bu görüşten yola çıkarak, bu çalışmada Ankara'nın kentsel ve kırsal bölgelerinde yaşayan 11 yaşındaki toplam 345 çocuğa 12 uyarıcı sözcükten oluşan bir liste sunulmuştur ve akıllarına gelen ilk beş sözcüğü yazmaları istenmiştir. İzlenen sözcük çağrışımlarının, sözcüklerin zihinsel sözlükte nasıl saklandığını ve nasıl ilişkilendirildiğini yansıttığı düşünülmektedir. Gelişimsel geçişleri ve anlamsal gelişimi gösteren bu geçişlerin yaşanılan yerden etkilenip etkilenmediğini açıklamak için, bu çalışmada Kess (1992) ve Wolter'ın (2001) dizimsele (syntagmatic) karşı dizisel (paradigmatic) ve uyağa (clang) karşı anlamsal (semantic) cevaplarından oluşan çağrışım türlerinin yanı sıra somuta (concrete) karşı soyut (abstract) cevaplar ve uyarıcılara cevap verememe (response failure) durumu da değerlendirilmiştir. Söz konusu çalışma özellikle de ana dili Türkçe olan konuşucular tarafından yapılan çağrışımların dizimsel-dizisel geçişi (S-P shift) konusunda diğer diller ile ilgili yapılan benzer çalışmaların bulgularını doğrulayıp doğrulamadığını araştırmaktadır. Sözcük çağrışım testine verilen cevapların analizi her iki grubun (köyde yaşayanlar ve kentte yaşayanlar) daha çok dizisel ve soyut cevaplar, daha az uyak cevaplar verdiğini göstermiştir. Gelişimsel geçişler her iki grupta da açık bir şekilde görülmüş olsa bile, kentte yaşayan çocukların gelişimsel geçişleri köyde yaşayan çocuklardan daha erken gerçekleştirmiş oldukları bulunmuştur.

Sonuçlar sadece doğal özelliklerin (nature) değil de çevrenin (nurture) de bilişsel gelişim üzerindeki etkisini kabul etmenin kaçınılmaz olduğunu göstermektedir.

**Anahtar Kelimeler**

Serbest çağrışım tekniği, yaşanılan yer (kentsel ve kırsal ortam), çağrışımsal davranış, dilsel-bilişsel gelişim

# ABSTRACT

GÜÇLÜ, Ruhan. *A Linguistic Study on Word Association Behavior of Turkish Speaking Children in Urban and Rural Settings: A Socio-Cognitive Perspective*, A Master's Thesis, Ankara, 2015.

Word association is one of the major techniques used in linguistics, neuropsychology and psycholinguistics. According to Sinopalnikova (2003), the simplest experiment technique to reveal the association mechanisms is a free association test which gives the broadest information on the way knowledge is structured in the human mind. In this study, the researcher used word association test in an attempt to reveal the influence of the residential area on the children's language development through a cognitive perspective. A developmental psychologist Wertsch (1991) suggests that human mental functions can not be studied independently of the social and cultural factors. Based on this point of view, in this study a word list composed of 12 stimuli words has been presented to a total number of 345 11-year-old rural and urban children in Ankara and they have been asked to write the first five words coming into their mind. The resulting word associations are thought to mirror the way the words are stored and linked in the mental lexicon. In addition to Kess's (1992) and Wolter's (2001) association types which are syntagmatic vs. paradigmatic and clang vs. semantic responses, in this study concrete vs. abstract responses and response failure have also been evaluated to illustrate the developmental shifts and whether these shifts, which show semantic development, are influenced by the residential locus or not. More specifically, this study also tests whether the associations produced by native Turkish speakers support the findings of similar studies in other languages with respect to the S-P shift. The analysis of the responses to WAT revealed that both groups have an inclination towards generating more paradigmatic and abstract responses and less clang responses. Although clear developmental shifts have been observed in both, it is found out that urban children have undergone developmental shifts earlier than rural children. The results show that it is inevitable to accept the influence of not only the nature but also of the nurture on the cognitive development.

**Key Words**

Word association task, residential area (urban and rural settings), associative behaviour, lingua-cognitive development

# TABLE OF CONTENTS

**KABUL VE ONAY** ..... i
**BİLDİRİM** ..... ii
**ACKNOWLEDGEMENTS** ..... iii
**ÖZET** ..... iv
**ABSTRACT** ..... vi
**TABLE OF CONTENTS** ..... viii
**LIST OF TABLES** ..... xi
**LIST OF FIGURES** ..... xii

**CHAPTER 1: INTRODUCTION** ..... 1

**1.1. CLEARING THE GROUNDS** ..... 1
**1.2. THE NEED FOR THE STUDY** ..... 5
**1.3. THE STUDY** ..... 8
1.3.1. Aim and Scope ..... 8
1.3.2. Basic Assumptions and Research Questions ..... 9
1.3.3. Boundaries of the Research ..... 10

**CHAPTER 2: METHODOLOGY: PARTICIPANTS, CHOOSING THE STIMULI, DESIGN AND PROCEDURE** ..... 11

**2.1. PARTICIPANTS** ..... 11
**2.2. CHOOSING THE STIMULI** ..... 12
**2.3. PROCEDURE** ..... 14
**2.4. DATA COLLECTION** ..... 15
**2.5. DATA ANALYSIS** ..... 17

**CHAPTER 3: SURVEYING THE RELEVANT LITERATURE** ..... 20

**3.1. CHILD DEVELOPMENT STUDIES** ..... 20
3.1.1. An Overview on Child Development Theories ..... 22
3.1.2. Cognitive Perspective ..... 24

3.1.3. Language, Mind & Sociocultural Approach .....30
**3.2. RESIDENTIAL AREA AS A SOCIO-COGNITIVE VARIABLE** .....40
3.2.1. Related Studies in the Literature .....45
3.2.2. Urban and Rural Life in Turkey .....48
3.2.2.1. Child's Language Development .....49
**3.3. WORD ASSOCIATION AND LANGUAGE DEVELOPMENT**.....52
3.3.1. Vocabulary: An Important Part of Language .....52
3.3.2. Word Association .....53
3.3.3. Categorization of Word Association Responses .....55
3.3.4. Word Association Test .....60
3.3.5. Word Association Research .....61
3.3.5.1. Children's Associative Behaviour .....65
3.3.5.2. Cross-Cultural Studies .....70
3.3.5.3. Gender-related Studies .....71
3.3.5.4. Bilingualism .....73
3.3.5.5. L2 Studies .....74
3.3.5.6. Associative Behaviour of Unhealthy People .....76
3.3.5.7. Literature on Turkish WA Studies .....79

**CHAPTER 4: ANALYSIS** .....80
**4.1.EVALUATION OF PERSONAL INFORMATION AND SOCIO-CULTURAL ACTIVITY QUESTIONNAIRES** .....80
4.1.1. Personal Info Questionnaire .....83
4.1.2. Socio-Cultural Activity Questionnaire .....88
**4.2. FINDINGS AND DISCUSSION**.....89
4.2.1. Word Association Behavior of Urban and Rural Children .....89
4.2.1.1. Response Failure .....89
4.2.1.2. Syntagmatic-Paradigmatic Shift .....90
4.2.1.3. Clang vs. Semantic Associations .....91
4.2.1.4. Concrete vs. Abstract Associations.....93

**CHAPTER 5: CONCLUSION** ..... 95

**5.1. A GENERAL OVERVIEW** ..... 96

**5.2. IMPLICATIONS AND RECOMMENDAIONS FOR FURTHER STUDIES** ..... 99

**REFERENCES** ..... 102

**APPENDIX 1. Word association test** ..... 121

**APPENDIX 2. Personal information questionnaire** ..... 122

**APPENDIX 3. Socio-cultural activity questionnaire** ..... 124

**APPENDIX 4. Rural children's word retrieval behavior** ..... 126

**APPENDIX 5. Urban children's word retrieval behavior** ..... 131

**APPENDIX 6. Rural children's syntagmatic and paradigmatic responses** ..... 136

**APPENDIX 7. Urban children's syntagmatic and paradigmatic responses** ..... 141

**APPENDIX 8. Rural children's clang and semantic responses** ..... 146

**APPENDIX 9. Urban children's clang and semantic responses** ..... 149

**APPENDIX 10. Rural children's concrete and abstract responses** ..... 152

**APPENDIX 11. Urban children's concrete and abstract responses** ..... 155

**APPENDIX 12. Originality Report** ..... 158

**APPENDIX 13. Ethics Board Waiver Form** ..... 160

# LIST OF TABLES

Table 1. The list of stimulus words classified by concreteness and word class ..... 14
Table 2. Set of 100 words commonly used in studies of L1 word associations ..... 64
Table 3. The distribution and comparison of urban and rural children's personal information ..... 80
Table 4. The distribution and comparison of urban and rural children's socio-cultural activities ..... 84
Table 5. The comparison of total number of responses of urban and rural chidren to 12 stimulus words ..... 89
Table 6. The comparison of the number of urban and rural chidren's syntagmatic and paradigmatic responses as first responses to 12 stimulus words ..... 90
Table 7. The comparison of the number of urban and rural chidren's clang and semantic responses as first responses to 12 stimulus words ..... 91
Table 8. The comparison of the number of urban and rural chidren's concrete and abstract responses as first responses to 12 stimulus words ..... 93

# LIST OF FIGURES

Figure 1: Bronfenbrenner' Ecological Model of Human Development ..... 42
Figure 2: The Ecological Techno-Microsystem ..... 47
Figure 3: Locations of the urban and rural schools of the present study ……17

# CHAPTER 1: INTRODUCTION

## 1.1.CLEARING THE GROUNDS

Psychologists and developmental researchers have proposed a number of different theories to describe and explain the processes and stages that children go through as they develop. Some tend to focus on the developmental milestones or specific achievements that children reach by a certain age. Others focus on specific aspects of child development such as personality, cognition, and moral growth.

The work of Lev Vygotsky (1934) has become the foundation of much research and many theories in cognitive development over the past several decades, particularly of what has become known as Social Development Theory. Vygotsky's theories emphasize the fundamental role of social interaction in the development of cognition (Vygotsky, 1934 in Karpar, 2005: 39). Followers of Vygotsky's theory have been intensively studying social and cultural influences on children's thinking. Kozulin et al. (2003: 128) describe Vygotsky's work as:

> At the heart of Vygotsky's theory lies the understanding of human cognition and learning as social and cultural rather than individual phenomena...Vygotksy strongly believed in the close relationship between learning and development and in the sociocultural nature of both.

"Spoken language, an associative higher mental process will reflect an individual's social circumstances." This conclusion arises from Luria's studies of mental functioning in three groups of children: urban children, rural children and homeless children. Based on this study, Luria (1974b: 49-50) said that:

> Social circumstances in which a child grows up will inevitably leave their mark on the mechanisms underlying complex psychological processes, not just on the content of those processes.

The child is an active agent with a stronger role for context -the objects, events, and people in the child's life (Fischer & Bidell, 1998; Fischer & Hencke, 1996). Early experiences greatly influence the way a person develops. The activities that the children are exposed to from birth to age 11 determine the way their learning patterns develop. A child's

cognitive growth is also affected by the values shared with peers and family members (Berger and Thompson, 1980: 459). As children interact with their environment, the schemas are constructed in their mind. Lakoff (1987) suggests that schemas are relatively simple structures that constantly recur in our everyday bodily experience. These structures are directly meaningful, since they are directly and repeatedly experienced in our environment (in Geeraerts, Cuyckens, 2007: 85). The knowledge of the environment is limited to the embodied experience of the individual. These experiences are reflected on the language used by that individual, even by that social network, which is the grouping of individuals in terms of specific patterns like small rural communities. It can not be said that the cognitive development is independent from the experience of the individual. As Keil (1989:5) also suggests, during the concept development, primary sources that the children make use of are always their observations and experiences which are based on their environments.

Processes of child development are considerably more heterogeneous, or inconsistent, than Piaget's descriptions would suggest. According to Flavell (1982 in Berger, Thompson, 1980: 447), two of the factors that account for this heterogeneity are the hereditary differences among individuals in their abilities and aptitudes and environmental differences in "cultural, educational, and other-task-related experiential background." Today, most researchers acknowledge that both nature and nurture play an indispensable role in language development.

Language development between ages 6 and 11 is remarkable, as children consciously come to understand more about the ways language is structured and can be used. This understanding gives them greater control in their comprehension and use of language, and, in turn, enlarges the range of their cognitive powers generally. Furthermore, 11 year of age is the time when children develop more capacity for abstract, scientific thinking (Berk, 2003: 245).

In addition to concrete- abstract shift, there are other processes giving clues about the children's cognitive maturity such as syntagmatic-paradigmatic shift, clang-semantic shift and word retrieval. In order to investigate these processes so as to learn about the

children's semantic development, word association task (WAT) is one of the methods that the researchers mostly use. Sinopalnikova (2003) suggests that the simplest experimental technique to reveal the association mechanism is a WAT.

Word association (WA) is thought to mirror the way the words are stored and linked in the mental lexicon (Peppard, 2007). It gives the broadest information on the way knowledge is structured in the human mind. Kess (1992) believes that word association system is like a "spider web in which words in the mental network are related to other words." For over a century, WA tasks have been used to investigate the content and organization of words and concepts in the mind. Cramer (1968:6) makes the following strong contentions regarding the importance of word association:

> Thinking is at least partly associationistic, and … the discovery of the correlates, determinants, and constraints of association will aid us in understanding thinking.

Word association is based on the assumption that giving stimulus concept or object and asking the respondent to freely associate what ideas come to his or her mind gives relatively unrestricted access to mental representations of the stimulus term. This is one of the most common and oldest methods for investigating cognitive structure and has been used by several researchers. Bahar and Hansell (2000 in İstifçi, 2010: 360) suggest that;

> The underlying assumption in a word association test is that the order of the response retrieval from long-term memory reflects at least a significant part of the structure within and between concepts.

According to Richards (1991), the responses to free association tests give much information about the psychological structuring of vocabulary in an individual and offer a way of investigating the syntactic and semantic relationships among words.

In classifying word associations, different classification systems which have some common characteristics were applied by different researchers. Early WAT studies established a trinity of response classsifications: paradigmatic, syntagmatic, and clang associations. Paradigmatic associations are responses that belong to the same word class as the cue (e.g., noun–noun, verb–verb). Syntagmatic responses, in contrast, do not

preserve the stimulus's word class and include (e.g. noun-verb, verb-noun). Clang associations, also called phonological responses are considered to be void of any clear meaningful link and based on similarities in phonology or orthography which are related with the spelling or physical form of the word (e.g. phone> foam; knife>knight). In early research concerning the nature of word associations, the distinction between paradigmatic and syntagmatic associations was the subject of extensive study (Deese, 1962; Glanzer, 1962).

Early studies into the responses of children on WATs (Ervin, 1961; Palermo, 1971; Emerson & Gekoski, 1976) found that as children aged, they produced more paradigmatic responses, and less syntagmatic and clang associations. This belief was most commonly referred to as the "syntagmatic-paradigmatic shift" (or "syntactic-paradigmatic shift", hereafter referred to as S-P shift). S-P shift refers to a cognitive phenomenon occurring somewhere between the ages of five and ten as a learner's language matures, and children produce proportionally fewer syntagmatic responses and proportionally more paradigmatic ones (Namei, 2004 cited in Cui, 2009: 58). In other words, paradigmaticity implies a higher level of linguistic competence than syntagmaticity.

Wolter (2001: 63) suggests that the S-P shift would be better described as a "shift from semantically meanigless responses to semantically meaningful responses." That is, it plays an important role in the study of the development of semantic language structure and cognition in children (in Escher, 1985). According to cognitive theory, which is a theory of learning in psychology that attempts to explain human behaviour by the examination thought processes, cognitive maturity is a pre-requisite for paradigmatic responses. In other words, a predominance of paradigmatic over syntagmatic responses is indicative of a more developed semantic system, as this pattern is typical of mature language users (Lippman, 1971 cited in Sheng et al., 2007).

S-P shift to paradigmatic responses seems to occur in children sometime between the ages of five and ten. It also coincides with other cognitive and linguistic changes such as the shift from pre-operational thought to logical concrete operations established by Piaget's research (Nelson, 1977 cited in Escher, 1985: 1).

Apart from the syntagmatic and concrete responses in children, there does seem to be the other universal tendencies in children's word association responses: the appearances of clang responses and response failure (Woodlow and Lowell 1916; Entwisle 1966, Luria 1981, Palermo, 1963). Moran (1967) suggests that as children get older, their responses become increasingly like those of adults in their language community. By the age of 11, the characteristics of children's word association become very close to adults.

A more important feature of word association is its applicability to experiments with various purposes. It has been utilized to measure the abnormality of individuals in clinical studies, to test learning theories, to find concept organization, an even to find different patterns which may be based on certain sociolinguistic variables such as age, gender, socio-economical and income differences and bilingualism vs. monolingualism.

Different responses represent different experiences. The responses to the stimulus words give us clues about the lingua-cognitive development and help us to determine whether/how/why they vary from one community to another.

## 1.2. THE NEED FOR THE STUDY

In psycholinguistics, the term "word association" refers to the connection or relation between ideas, concepts or words, which exists in the human mind and manifests in a following way; an appearance of one entity entails the appearance of the other in the mind (Sinopalnikova, 2003). By understanding mental association, it was felt that the secrets of the mind could be unlocked.

Since the first attempt of Galton (1880) to study word associations in controlled and experimental conditions, this procedure has been standardized and used many times during the last century in order to obtain word association for different languages.

Cognitive psychology, psycholinguistics, and applied linguistics are disciplines that have found word association tests quite useful in gaining insights into the very nature of human cognitive system and semantic knowledge. Word associations have been used in the

studies of deaf children (Frick, 1966), mentally retarded children (Keilman & Moran, 1967), and recently children with Autism Spectrum Disorder (ASD) and Language Impairment (McGregor et al., 2012). These are not the only disciplines that have shown a keen interest in word association methods. It can be seen that the lingua-cognitive development of bilinguals, multilinguals, people from different cultures, second language learners as well have been investigated and the studies of different age groups, economic status and gender have been among the variables that the researchers have taken into consideration. However, there have been few attempts to investigate the nature of word association in a developmental framework in Turkish considering the influence of the residential area and considering both the semantic and cognitive properties. In this regard, a thorough investigation of word association responses in a developmental framework may account for how children develop a progress in their cognitive competence through developmental shifts and how the influence on the residential locus as urban and rural areas on these shifts can be explained.

Entwisle (1968) used the word association method to reveal the relation of residential area, social class, or subcultural group membership to linguistic development. The study showed that, concerning the word association responses, the rural Maryland children tend to develop more slowly than the suburban children.

Regarding the completion date of this study, there seems to be no study on the word association behavior of rural and urban children in Turkey. As a mattter of fact, this study is a preliminary one taking into account the effect of residential locus on lingua-cognitive development through an analysis of word association responses of Turkish speaking children.

While previous studies dominantly concern response types individually, this study attempts at an investigation of four different types at once. The literature survey has revealed that the responses given to WAT have so far been evaluated in terms of following categories:

1. Syntagmatic-Paradigmatic shift: In word association tests over hundreds of years, native speakers of English and other Indo-European languages have consistently

given responses showing a paradigmatic relationship to stimulus words. In addition, Nigerian (Folarin, 1989), Navaho (Ervin and Landar 1963) and Chinese (Lin 1996) speakers have been reported to show similar patterning (Yoneoka, 2010). On the other hand, Japanese children do not have S-P shift, and Japanese adults' responses are dominantly syntagmatic (Moran 1968 in Yasutake, 1985). The study on Greek children's word association responses indicated a predominance of paradigmatic associations in children's responses and majority of syntagmatic associations in adults' responses (Mattheoudakis, 2011). Moreover, the analysis of the responses to the word association test of Iranian children and adults revealed that both age groups had an inclination towards generating syntagmatic responses (Sharif and Sadighi, 2013). The present study seeks to find out whether Turkish speaking children's responses exhibit S-P shift or not, as well as to discover whether residential locus affect S-P shift in Turkish children.

2) Clang-Semantic shift: Rhyming/clang responses have been studied to investigate how the children store the words in their memory. Henning (1973 cited in İstifçi, 2010) finds that advanced students remember words that are stored in semantic clusters, while low-proficiency learners tend to recall words on the basis of their sounds, which is also supported in İstifçi's study on word association responses of elementary and advanced English learners as a second language (2010). According to Soderman (1993) as semantic aspect of language ability develops, clang and syntagmatic responses decrease. Having noted the gap in the field, this study examines the clang-semantic shift of Turkish children in rural and urban areas.

3) Concrete-Abstract Shift: Piaget (in Slee, 2002) argues that at formal operations stage, children develop the capacitiy for abstract, scientific thinking (Berk, 2003: 245). Today, it is widely accepted by scholars that the way how children's cognitive development occurs is not as Piaget asserted (Bjorklund, 2000; Flavell, Miller & Miller, 2002 in Berk, 2003: 251). The current study contributes to the field by providing an illustration of the effect of residential locus on concrete-abstract shift.

4) Response failure: Word retrieval, or word finding is the ability to recall words that are already known and stored in long-term memory (Johnson, 2014). There is also a gap in Turkish response failure studies, especially in terms of the effect of residential locus.

The word association studies carried out to date have been conducted, for the most part, in English or other European languages. It is, therefore, of great interest to investigate the word association behavior in a language like Turkish that is both structurally and culturally different from languages already studied (Sharp & Cole, 1972).

All in all, this study is intended to fill the mentioned gap in the literature and contribute to Turkish socio-cognitive studies in the way that it represents a foray into a largely unexplored territory of word associations by studying the residential locus and illustrates whether the lingua-cognitive development is affected by this variable.

## 1.3. THE STUDY

### 1.3.1. Aim and Scope

Having noted that there is a gap in the field of linguistic research on "word association responses" in Turkey, this study basically focuses on the word association responses of Turkish speaking children in urban and rural settings. In particular, it aims at illustrating the effect of residential locus on the linguistic development.

Basically, this comparative study is both qualitative and quantitative in nature. It gives a statistical account of the urban and rural children's responses and these statistical findings are evaluated in terms of characteristics of responses.

This study does not claim to present all aspects of the cognitive development occurring in Turkish speaking children. It intends to comment on the lingua-cognitive development by only taking into consideration particular parameters like syntagmatic, paradigmatic, clang, concrete, abstract responses and response failure.

### 1.3.2. Basic Assumptions and Research Questions

Starting from the assumption that word association is "a window to the mind" (Deyne & Storms, 2014) and which reflects universallly shared mental activities, this study investigates the possibility of the effect of residential area on the linguistic development of children. In that respect, it tries to answer the following research questions, in particular:

1. Is there a difference between children living in urban and rural settings in terms of their productivity in word retrieval behavior?

2. When the word association behavior of urban and rural children is considered, what is the significance of the results with regard to the following response types:
    a) Syntagmatic vs paradigmatic
    b) Clang vs semantic
    c) Concrete vs. abstract

3. When the children's syntagmatic and paradigmatic responses are taken into consideration, is it possible to talk about S-P shift phenomenon in Turkish language?

### 1.3.3. Boundaries of the Research

The present study investigates the influence of the residential locus on the lingua-cognitive development via word association task. Factors such as educational background and ethnicity were controlled and also gender was not included as the study variable.

In this study, the structured set of word stimulus is restricted to only 12 words. Besides the limitation on the number of stimulus words, the schools where the data are collected are limited to eight schools half of them being urban schools and the other four being rural schools.

The study has been carried out in Ankara. No other city was considered in the study so as to present the effects of certain factors such as geographical differences, different developmental levels and means of livelihood, because these factors can inevitably influence the word association behavior of the children. In addition to such limitations, that the schools, all the schools where the WATs have been administered are state schools.

# CHAPTER 2: METHODOLOGY: PARTICIPANTS, CHOOSING THE STIMULUS, PROCEDURE

To answer the research questions, the free word associations of 365 children have been analyzed and compared according to their residential area. The method part consists of three sections. The first section concerns the participants and the information about their residential locus. The second section involves the features of the stimulus words. Finally, the third section gives information about procedure of the study including data collection and data analysis.

## 2.1. Participants

In this study, the pre-interviews have been performed with 402 participants in total in order to eliminate the influence of socio-linguistic variables except the residential locus. Accordingly, of the 402 original respondents, 57 were excluded from the current analyses as some of them gave responses in other languages than Turkish. As Read (1993: 358) summarized as follows:

> Native speakers have remarkably stable patterns of word association, which can be taken to reflect the sophisticated lexical and semantic networks that they have developed through their acquisition of the language second language learners produce associations that are much more diverse and unstable; often their responses are based on purely phonological, rather than semantic, links with the stimulus words.

A considerable number of the children did not answer the questions related with their parents owing to the fact that they did not know or live with either their mothers or fathers, or both of them since some parents are divorced or one of the parents is dead, even some children has grown up in the dormitory. In other respects, the children who were born in another city or country, bilingual children, mentally retarded children, the children with parents having university degree were excluded from the study in order to establish the homogeneity among the participants. Homogeneity was provided with all these exclusion and with that the participants have been living in the same environments and in the same classes. Accordingly, any IQ test was not used and reading-writing skills were not taken into account.

According to Piaget, who has made a significant contribution to our understanding of children's cognitive development during middle childhood:

> The stage between 7 and 11 years of age during which children begin to understand the relationship between things in the world but still cannot think in abstract terms (Slee, 2002: 331).

Besides the starting age of formal operational stage and abstract thinking, Rosanoff and Rosanoff (1913) argues that 11 year of age is the time when the characteristics of children's word association rapidly disappeared and become very close to adults. In short, this age coincides with some lingua-cognitive changes. The other reasons why only 11-year-old children have been included in this study is that "Each year finished in childhood show change over the cognitive and linguistic development" (Tutaş, 2000: 367). Accordingly, it would not be wrong to claim that age is an significant variable for the word association development.

As for the sample of this study, the children were from eight middle schools in Ankara, capital of Turkey. All of the children were in grade five. Four of the schools are in the villages which are Sirkeli (37 km away from city center), Beynam (38km away), Oğulbey ( 31 km away) and Çağa (84 km away). The name of the schools in these rural districts are successively as Sirkeli Middle School, Beynam Emine Erişen Middle School, İhsan Köksal Middle School, Çağa Middle School. The other four are at the urban districts which are Mamak (Mamak Middle School), Sincan (Ahmet Andiçen Middle School) Keçiören (İbn-i Sina Middle School), Şentepe (Mevlana Middle School) .In total, 234 urban children and 111 rural children have been included in the present study. In regard to determining the schools suitable for this study, the researcher received a considerable support by several District National Education Directorates and directors of the schools.

### 2.1. Choosing the Stimuli

Many researchers studying word association task have preferred using the stimuli from Kent-Rosanoff list, especially when testing native speakers. However, in this study the researcher has taken Deese's opinion (1962: 79) who found errors with the list's predominant use of adjectives and nouns as stimuli, therefore rendering the data as not being "useful in establishing general conclusions about the grammatical structure of

associations in the language at large." Taking Deese's suggestion into consideration and considering that the Kent and Rosanoff's word list dates back to 1910, that is to say it is not an up-to-date study and that the participants in this study are Turkish speaking people, words chosen as stimuli for the present study were obtained from Turkish studies.

As stimuli, nouns have been chosen from Aksan, Mersinli and Yaldır's (2011: 402) study called "İlköğretim Türkçe Ders Kitapları Derlemi ve Türkçe Ulusal Dil Derlemi Örneklemindeki Sözcük Sıklıkları" which is the corpus of Turkish course books (one of the courses in the schools in Turkey) in primary school. From the corpus which illustrates the frequency of nouns and adjectives used in the books, the researcher determined five nouns as stimuli which are (*gün (day), baş (head), zaman (time), çocuk (child), ev (house)*). Given that the category of the stimuli words have been chosen as not only noun but also verb, Özkan's (2011) study called "Türkiye Türkçesinin Yazın Dili Derlemi" has been used as a source. In his study, first fifty verbs used most in the written language have been stated, six of which were given to the participants as stimuli in the current study which are (*bilmek (know), gelmek (come), sevmek (like), okumak (read), düşünmek (think), görmek (see)).* The remaining one noun for stimuli list, an emotion word "korku" (fear) was determined because verb stimuli list also includes an emotion word "sevmek" (like).

In all, 12 stimuli half of which are nouns and the other six ones are verbs were chosen as stimuli, but not randomly. No adjective or adverb was given to the participants as stimuli based on the most previous studies using word association technique (Word Association Research in Chapter 2). Taking into account that concrete and abstract words have also been taken into the consideration to investigate another developmental shift in Turkish children. From twelve items chosen, six ones were abstract and the other six stimuli were concrete words. The researcher has equalized the number of abstract, concrete, noun and verbs to be able to get a reliable result from the analysis as shown in the table 2.

*Table 1. The list of stimulus words classified by concreteness and word class*

| Stimulus Word | Word Class | Concreteness |
|---|---|---|
| gün (day) | Noun | abstract |
| bilmek (know) | Verb | abstract |
| baş (head) | Noun | concrete |
| gelmek (come) | Verb | concrete |
| zaman (time) | Noun | abstract |
| sevmek (like) | Verb | abstract |
| çocuk (child) | Noun | concrete |
| okumak (read) | Verb | concrete |
| korku (fear) | Noun | abstract |
| düşünmek (think) | Verb | abstract |
| ev (house) | Noun | concrete |
| görmek (see) | Verb | concrete |

The stimuli were arranged in one noun-one verb order so that the participants may not get attached to the stable thinking way.

## 2.2. Procedure

Wagner et al. (1996) has declared:

> Ideas expresses within a word association procedure are spontaneous productions subject to fewer constraints than that typically in interviews or closed questionnaires.

This technique could provide a fast and convenient tool for exploring the cognitive development. This method has not been much used for understanding the influence of residential area, in particular social interaction or facilities on the lingua-cognitive development. More studies are necessary in order to evaluate the applicability of word association for evaluation of linguistic development depending on the residential areas and their facilities.

Following word association task (see appendix 1), the participants were given two questionnaires: personal information questionnaire (see appendix 2) and then socio-

cultural activity questionnaire (see appendix 3), respectively. Firstly, a personal information questionnaire has been presented to the children to be able to control other variables except the residential area. When it comes to the evaluation of socio-cultural activities based on the facilities in rural and urban districts, a socio-cultural activitiy questionnaire has been implemented. In this way, the profile of their social environment/social network/social interaction and the effect of the differences arising from the residential ares (urban vs. rural) have been illustrated in detail and clearly. It has already been expected to be differences in responses of urban and rural children especially in socio-cultural activity questionnaire due to the features which are peculiar to urban and rural life style (see the page 42 and 48). All these differences support the residential area variable.

### 2.3. Data Collection

In order to be able to collect data from the schools, the researcher got necessary permission from the Ministery of National Education. In pursuit of official correspondences, data collection stage started and completed in one month in total.

The data were collected from the students in their usual class hours by the researcher under instructors' supervision and permission.

The selection of the participants was based totally on random sampling. That the every child had the same probability of selection was important to minimize the effects of those uncontrolled factors such as division of the classes as successful and not successful.

The researcher firstly let the students get accustomed to this game by presenting some stimuli words which are not involved in the present study's stimuli list and by asking the first words that come to their mind. Following the warm-up process, for the word association task the children were given the list including 60 lines which means that for each stimuli they could write 5 responses at most. The stimuli were given verbally one by one. In addition, the researcher wrote the words on the board to prevent the misunderstanding, but did not give in the list to prevent the responses based on the orthographic associations.

The participants had no time limitation for word association task since it may lead to anxiety in children and affect their thinking way and associative beahaviour in a negative way. As Clark and Clark (1977 in Yoneoka, 2002: 5) point out "When given little time, Ss tend to give clang associations, like 'man-map'. When given slightly more time, Ss tend to give meaning related associations like 'man-woman'." Another reason why time limitation is not preferred in this study is that writing abilities may also affect their associative behaviour, especially in terms of response failure. Kess (1992 in İstifçi, 2010) also argues that "If participants must respond quickly, clang responses are common, if there is no time limitation more idiosyncratic responses occur."

Any voice record was not realized to avert that the performances may be influenced by the children's mood state such as timidity and excitement. The categories investigated in this study as response types are syntagmatic, paradigmatic, clang, concrete and abstract responses inasmuch as these categories are believed to give clue about the lingua-cognitive development.

Among the data, not only the words but also the phrases the children wrote were included in data analysis, but not the sounds or sentences. In total, 13222 responses were analyzed as urban and rural children's word association responses.

Data collection procedure was firstly carried out in the rural children and then in the urban children in an effort to equalize the variables according to the rural status as much as possible. As stated before (page 12), the data collection is limited to Ankara province. Turkey has seven distinct geographic weather and climatic regions, accordingly there are a various lifestyles and ways of livelihood such as farming, livestock, fishing and mining. Ankara province is located in the Middle Anatolia region where agriculture and animal husbandry are important sources of income. In rural areas where the present study's data is collected such as Sirkeli, Beynam, Oğulbey and Çağa, the people depend on agriculture and livestock breeding for their livelihoods. Considering these villages in detail successively, Sirkeli is a village in the district of Çubuk, Ankara Province and 37 km away from city center. According to 2000 population census, 1534 people live in Sirkeli. Beynam is a village in the district of Bala, Ankara Province and 38km away from

city center. According to 2000 population census, 1095 people live in Beynam. Oğulbey is a village in the district of Gölbaşı, Ankara Province and 31 km away from city center. According to 2000 population census, 725 people live in Oğulbey. Çağa is a village in the district of Güdül, Ankara Province and 84 km away from city center. According to 2000 population census, 1977 people live in Çağa. The geographical locations of these rural and urban schools are given on the map below.

*Figure 3: Locations of the urban and rural schools of the present study*




(Google Maps, 2015)

The rural schools and urban schools have been chosen from different geographical areas of Ankara for the data collection lest that the children living in the same environment resemble one another.

## 2.4. Data Analysis

In the present study, except the response failure analysis only the first responses was evaluated for analysis of syntagmatic, paradigmatic, concrete, abstract and clang responses because of the following reasons:

- "First "spontaneous" associations are more revealing of the social experience of a child than are "prepared" answers to the psychological questionnaire" (Kozulin, 2001:128).
- Considering that this is a continuous test method which means that the participants write more than one words, as also Nielsen and Ingwersen (1999) argues there is a risk that the participants associate their responses to the last given response word, which provides a chain or set of associatins. Example from this study: *gelmek (come) (stimulus word): göz (eye), göz bebeği, güneş, güneş gözlüğü, güneşlenmek.*

Mann- Whitney U test was performed to examine the total number of words written by the urban and rural children to 12 stimuli words. Likewise, the difference in the rural and urban children's first responses to each stimuli as syntagmatic, paradigmatic, clang, concrete and abstract responses was viewed via Mann- Whitney U test. Concisely, for the analysis of the word association behavior and the difference according to the residential area, Mann- Whitney U test was performed. On the other hand, the difference in responses of the rural and urban children to the personal information and socio-cultural activities questionnaires was evaluated by means of Chi-square and Fisher's Exact test. $P< 0.05$ is accepted as statistically significant level and SPSS 11,5 package version was applied for the analysis.

Basically paradigmatic association includes hyponmy, hypernmy, synonymy and antonmy responses, and syntagmatic associations include collocation and colligation responses (Peppard, 2007). Inasmuch as one of the aims in this study was to investigate S-P shift, syntagmatic and paradigmatic responses has been taken as basic way to determine the developmental shift. Syntagmatic and paradigmatic responses, namely the the category of the response is the same with the stimulus word's category or not, are sufficient for S-P shift judgement. More specifically, some categories such as attributive relation, functional relation, synonymy, collocational relation, place relation, meronymy, need relation, instrumental relation, semantic opposition, material relation, negative relation, time relation, causal relation, hyponymy, specific relation and member-collection were not taken into consideration individually. On the other hand, while

determining the responses' concreteness and abstractness, some criteria have been taken into consideration. It is widely known and accepted that concrete words are something tangible, namely they are perceivable by the senses while abstract ones are intangible which can encompass actions, events, ideas, states of mind, qualities and conditions. When this distinction was not sufficient in some cases for the analysis, the researcher considered and utilized some other features in order to distinguish concrete and abstract words. Warrington (1981) argued that abstract and concrete words are organized by category, each category having different neural substrates. Abstract words are defined in terms of similarity (in the form of synonyms) and in terms of contrast (in the form of antonyms). Concrete words are defined in terms of superordinate category and distinguishing features (Chalant et al., 2002). In other respects, abstract concepts have significantly fewer intrinsic item properties and more properties expressing subjective experiences than concrete concepts. Furthermore, abstract concepts are predominantly related to social aspects of situations (Wiemer-Hastings and Xu, 2005). These features were taken into consideration while determining the category of the responses as concrete and abstract.

# CHAPTER 3: SURVEYING THE RELEVANT LITERATURE

## 3.1. CHILD DEVELOPMENT STUDIES

The years between six and twelve, middle childhood is a time of important developmental advances when cognitive changes transfrom children's minds. The change which occurs in the child over time follow an orderly pattern that moves toward greater complexity. Researchers have agree upon the five following general rules in regard to child development.

- "Development is similar for each individual.
- Development builds upon earlier learning.
- Development proceeds at an individual rate.
- The different areas of development are interrelated.
- Development is a lifelong process" (Child Development Theories, 2015).

Even though the researchers agree upon these rules, they have viewed the children from different perpectives for ages. The foundation of some theories such as behaviorism, ethology, maturationism had been laid before 20th century. Philppe Ariés (1914- 1984), a French medievalist and historian of the family and childhood, argued that somewhere between the thirteenth century and modern times 'childhood' was discovered. In the medieval ages which fall on the date between 6th and 15th centuries, children had been seen as little adults (Lowe, 2009: 22). They could work at adult jobs, could be married, were made into kings, were imprisoned or hanged as adults. At the Reformation period (16th century), Puritan religion influenced how children were viewed. It was believed that children were born evil, and had to be be civilized (Shahar, 1990 in Berk, 2006: 11). Moreover, special books were designed for children. In turn of the 17th century, two important people, John Locke and Jean-Jacques Rousseau, had ideas about children during the Enlightenment. John Locke (1693: 2) suggested the concept of people being born as "tabula rasa"[1] and that children develop in response to nurturing. He was the forerunner of behaviorism. At the 18th century, Age of Reason, children were seen as noble savages and believed as they were born with an innate sense of morality. Jean Jacques Rousseau (1712-1778), who was forerunner of maturationist beliefs, used the

[1] Tabula rasa: a blank sheet, which is gradually filled by experience.

idea of stages of development and he believed that a child should be allowed to develop slowly (Monterio, 2005:40). By the start of the Industrial Revolution at 19th century, the approaches of Charles Darwin on human growth drew a great deal of attention with his theories of natural selection and survival of the fittest (Murphy, 2012: 6, 15.) He made parallels between human pretenal growth and other animals. He was the forerunner of ethology. As of the 20th century, childhood has been seen as worthy of special attention and theories about children's development expanded around the world. Psychologists and development researchers have proposed a number of different theories to describe and explain the process and stages that children go through as they develop. As its most basic, according to Bjorklund (2012: 4) development can be defined as "the changes in structure or function over time." In more detail, the development is "the pattern of movement or change that begins at conception and continues throught the life span" (Santrock, 2008: 2). The pattern of movement is complex because it is the product of biological, cognitive and socioemotional processes. Considering the 20th century and before, it is evident that child development have been described in three domains like biological, cognitive and socioemotional perspectives.

*Biological processes* involve changes in the individual's physical nature. Development of the brain, changes in motor skills, body size and physical health all reflect the role of biological processes in development.

*Cognitive processes* involve changes in the indivual's thought, intelligence, and language. Thought processes and intellectual abilities such as the child's thinking, intelligence, language, attention, memory, problem solving, imagination, creativity, academic and everyday knowledge all show the cognitive processes in the individual.

*Socioemotional processes* involves changes in moral reasoning, personality, the child's relationships with other people. In additon, interpersonal skills and includes self-knowledge, self-esteem, metacognition, sexual identity, ethnic identity and understanding and expression of emotions all reflect the socioemotional processes (Santrock, 2002: 16).

### 3.1.1. An Overview on Child Development Theories

The theoretical approaches on child development reflect biological, cognitive, socioemotional processes. Biological processes are very important in Freud's psychoanalytic and ethological theory, Piaget's information-processing and Vygotsky's social cognitive theories. Socioemotioanl processes are important in Freud's and Erikson's psychoanalytic theories, Vygotsky's sociocultural cognitive theory, behavioral and social cognitive theories and ecological theory (Santrock, 2008: 28, 29).

According to pschoanalytical theories, children move through various stages. Personality is best seen as a developmental process and unconscious aspects of the mind are considered. *Freud's Psychosexual Theory*: Freud (1856-1939) believed that personality has three structures like id, the ego and the superego and suggested that the child goes through five stages of psychosexual development which are oral stage, anal stage, phallic stage, latency stage and genital stage. He emphasized that a child's personality is formed by the ways which his parents managed his sexual and aggressive drives (Freud, 1923 cited in Stevens, 2008). *Erikson's Psychosocial Theory:* Erik Erikson (1902-1994) expanded on Freud's theories but he (1950, 1968) believed that developmental change occurs throughout life span. The child develops in eight psychosocial stages and each stage has a unique developmental task.

As a response to psychoanalytical theories, behaviorism was developed. Behaviorism became the dominant view from the 1920's to 1960's and it was an approach to psychology based on the idea that only observable actions of individuals were legimate variables to consider when constructing a model of human behavior. Behaviorists emphasised the importance of reward or punishment in, as well as the importance of role models and caregiver input (Nixon and Aldwinckle, 2005). The three versions of the behavioral approach are main theories. These are: *Pavlov's Classical Conditioning:* In the early 1900s, Russian physiologist Ivan Pavlov (1927) discovered the principle of classical conditioning, in which a neutral stimulus (such as ringing a bell) acquires the ability to produce a response originally produced by another stimulus (such as food). In the early twentieth century, John Watson (1913), "Father of American Behaviorist theory", demonstrated that Pavlov's concept of classical conditioning could be applied to

human beings (Cioni and Sgandurra, 2013: 7). *Skinner's Operant Conditioning*: In B.F. Skinner's (1938) operant conditioning, the consequences of a behavior produce changes in the probability of the behavior's occurrence and children "operate" on their environment and believed that learning could be broken down into smaller tasks, and that offering immediate rewards for accomplishments would stimulate further learning. *Social Cognitive Theory:* American psychologist Albert Bandura (1986, 1998, 2000) and Walter Mischel (1973, 1995) are the main architects of social cognitive theory's contemporary version. Bandura (1925- ) believed that people cognitively respresent the behavior of others and then they gradually become more selective in what they imitate.

The theories which study the biological aspect of child development are Maturationist Theory, Ethology and Attachment Theory in addition to psychoanalytical theories. These theories support that heredity and innate biological processes govern growth. Another biological approach to the development is by Urie Bronfenbrenner (1917-2005) who developed the ecological systems theory to explain how everything in a child and the child's environment affects how a child grows and develops. According to the Ecological Theory, both the environment and biology influence the child's development and the development can't be explained by a single concept, but rather by a complex system (Broonfenbrenner, 1994).

Early childhood is not only a period of amazing physical growth, it is also a time of remarkable mental development. Three important cognitive theories are Piaget's cognitive developmental theory, Vygotsky's sociocultural cognitive theory, and the information-processing approach. *Piaget's Stages of Development:* According to Jean Piaget, cognition develops through the refinement and transformation of mental structures, or schemes (Piaget & Inhelder, 1969 cited in Shaffer and Kipp, 2007: 245). Piaget believed that children go through four stages in understanding the world; these are: Sensori-motor, Preoperation, Concrete operations, Formal operations. *Vygotsky's Sociocultural Theory:* Lev Vygotsky (1896-1934) believed that language and thought initially develop independently of each other and then merge and he said that all mental functions have external, or social, origins (Santrock, 2002: 217). According to sociocultural theory, social interaction and culture guide cognitive development and

knowledge is created through interactions with other people and objects in the culture. This approach also agreed that children are active learners, but their knowledge is socially constructed. Vygotsky described the "zone of proximal development", where learning occurs. *Information Processing Theory:* In contrast to Piaget's theory, information processing theories are not the product of one person's work, but instead represent a number of scientists working with a common set of assumptions (Slater and Bremner, 2011: 55). Information processing theory emphasizes that individuals manipulate information, monitor it, and strategize about it; central to this theory are the processes of memory and thinking, develop a gradullay increasing capacity for processing information. There have been many different kinds of information-processing theories of cognitive development, but the neo-Piagetian models have been a dominant early approach (Goswami, 2002: 555). *Neo-Piagetian Perspective:* Neo-piagetian theorists, like Juan Pascual-Leone, Robbie Case, and Andreas Demetriou, identified the flaws in Piagetian theory and attempted to rectify them. The most influential neo-Piagetian theory of cognitive development to date is almost certainly that of Case (1978, 1985a, 1992b; Case et al., 1996) and Case (1985a) proposed that children's cognitive processes develop because they make better use of the available capacity (in Goswami, 2002: 558).

Along with biological and socioemotional processes of the child development, cognitive perspective on child development draws a great deal of interest since it is interdisciplinary study of the mind. Taking into consideration that cognitive abilities associated with memory, reasoning, problem-solving and thinking continue to emerge throughout childhood. The change in children's patterns of thinking as they grow older is called as cognitive development.

### 3.1.2. Cognitive Perspective

Cognitive science is a relatively new field, blossoming in the 1950's with the decline of behaviorism as the prominent approach to studying human behavior. The cognitive perspective differs from the behaviorist perspective in two distinct ways. First, cognitive psychology acknowledges the existence of internal mental states disregarded by behaviorists. Examples of these states are belief, desire, ideas and motivation (non-

observable states). Second, cognitive psychologists claim memory structures determine how information is perceived, processed, stored, retrieved and forgotten (Hurst, 2015).

The term ‘cogntive’ is described as *any kind of mental operation or structure that can be studied in precise terms* (Lakoff and Johnson, 1999: 16). Cognitive psychology focuses on how people perceive, remember, understand, evaluate, creat, think and speak. Furthermore, it differs from previous psychological approaches in two key ways. It accepts the use of the scientific method, and generally rejects introspection as a valid method of investigation - in contrast with such approaches as Freudian psychology. Additionally, it explicitly acknowledges the existence of internal mental states (such as belief, desire, idea, knowledge, and motivation) (Schunk, 2008). Understandably, many scientists and researchers argue that the empirical nature of cognitive psychology is at war with the immeasurable mental states of cognitive thought. However, given the very functioning of the brain in relation to higher thinking, it is a natural progression from empiricism to cognition (cited in Costley and Nelson, 2013: 3). While some mental processes are measurable, it is virtually impossible to adequately establish what determines how an individual perceives, remembers, thinks, speak or solves problems.

Cognitive psychologists argue that the mind is a processor of information we receive information through the senses, we try to understand that information and its relation to us, and we transmit information to others (Fulcher, 2003). They are concerned with the things that happen inside our heads as we learn. Thus, without cognition, full understanding and realization of mental processes may not be possible.

Considering cognition is the process by which knowledge is acquired, cognitive psychologists study of the processes by which knowledge is acquired. Specifically, these approaches look at processes such as thinking, attention, memory, language and perception. Children acquire different skills in these areas as part of their natural development. Although basic cognitive theory can be traced back to seventeenth century philosopher Rene Descartes, cognitive theory development as we know it has been pursued more aggressively since the middle of the twentieth century. Beginning with linguist Noam Chomsky and his 1959 critique of cognitive empiricism and operant conditioning as researched by B.F. Skinner (Boeree, 2006), the discipline as a whole has

become more widely considered as scientists and various researchers in the field have realized that only by using a more holistic approach to psychological studies will they be able to understand the developmental capacities of the mind (in Costley and Nelson, 2013: 2). Chomsky (2006), the main proponent of the view that biological influences bring about language development, argues that the process of learning language and processing data is not a random phenomenon; human beings are innately imbued with the Language Acquisition Device (LAD), a mechanism or process that allows children to develop language skills. According to this view, all children are born with a universal grammar, which makes them receptive to the common features of all languages. Because of this hard-wired background in grammar, children easily pick up a language when they are exposed to its particular grammar. Chomsky offers that children know how to form a sentence, but they do not know why they know how (Ormond, 2012: 224). This is where the study of psycholinguistics becomes much more interesting because it is here that the scientist tries to understand what exactly constructs the LAD, and why it varies from child to child (Costley & Nelson, 2013: 4). Chomsky's ideas have set the standard for the way that language acquisition and development is viewed.

Language use is a complex cognitive phenomenon, and is one of the areas that distinguishes humans from animals. Cognitive development focuses on the processes of the mind, including thinking and learning, as their major focus (Levine & Munsch, 2014: 46). Three of the best known theories regarding cognitive development are Piaget's cognitive developmental theory, Vygotsky's sociocultural cognitive theory, and the information-processing approach.

Jean Piaget (1896-1980) proposed an important theory of cognitive development and stated that children "construct" their understanding of the world through their active involvement and interactions (Santrock, 2008). Piaget is one of the earliest leaders in the field of cognitive psychology, particularly in relation to children and stages of development. His theories are still being used today by psychology and education professionals. Piaget's theory of cognitive development describes three main concepts: schemas, transition processes and four stages of development. According to Swiss child psychologist Piaget, schemas are cognitive frameworks or concepts that help people place

a concept into categories and associations. As experiences happen, the new information is used to modify, fit into previously existing schemas or change them. According to Piaget, this adaptation consists of two processes: assimilation and accommodation (Levine & Munsch, 2014: 43).

Piaget's theory of cognitive development is best recognized for its detailed description of the different stages of cognitive development and for its theoretical explanation of how the transition from one stage of development to the next takes place (Salkind, 1985:252). Piaget described them as fitting together into a succession of coherent and qualitatively different stages; the major ones are the sensorimotor, pre-operational, concrete operational and formal operational stages (Meadows, 1993: 208). The first stage of development is the sensorimotor stage between birth and 2 years and is concerned with reactions to sensory stimuli. The infant constructs an understanding of the world by coordinating sensory experiences with physical actions. Next comes the preoperational stage from 2 to 7 years. This focuses on the development of thought processes and egocentrism. The child begins to represent the world with words and images. The concrete operational stage takes place between the ages of 7 and 11 and is the development of rational and logical thought. The child can now reason logically about concrete events and classify objects into different sets. Finally, children reach the formal operations stage at 11. At this point, children can complete more complex cognitive processes such as abstract reasoning.

Like Piaget, Russian Lev Vygotsky (1896-1934) viewed the child as an active seeker of knowledge (Slater & Bremner, 2013). However, Vygotsky proposes that intellectual development is primarily a function of social interaction, rather than, as Jean Piaget argues, a product of epigenesis. The general attitude that an individual's development is a product of culture is known as the socio-cultural approach. According to the sociocultural theory, social learning precedes development and that the development of individuals cannot be fully understood without considering the social and cultural context. Unlike Piaget's stage theory, Vygotsky argued that children's learning takes place within a fuzzy range along the course of development; within the zone of proximal development (ZPD). According to Vygotsky the zone covers three developmental levels. The lower

level is called the actual level of development and reflects what the learner can do unassisted; while the upper level of the zone is called the potential level of development and reflects what the learner cannot yet do. Everything between these levels is called the proximal development. The entire ZPD is dynamic and moves with development (Smagorinsky, 1995 cited in Slater, 2011: 312). Unlike Piaget's stage theory in which the child is at the same level of thinking across all domains, Vygotsky proposed that each domain has its own dynamic zone. Hence, in a given domain one child's zone might be further along than another's, whereas in a different domain they might be the same.

Vygotsky claims that all children are born with four elementary mental functions: memory, attention, sensation and perception. These are then developed into higher mental functions through a child's interaction with their sociocultural environment (Nuttal and Media, 2015). Through his theory Vygotsky placed greater emphasis on both the cultural and social influences on cognitive development than previous cognitivists. So far as the relationship between the environment and children's thinking, Bronfenbrenner's ecological theory suggests that (Thotnburg et al., 1997) the layered envrionments in which children live are intertwined and multifaceted and their interactions influence children's cognitive development. Bronfenbrenner (1979: 21) defines ecological theory as:

> the scientific study of the progressive, mutual accommocation between an active, growing human being and the changing properties of the immediate settings in which the developing person lives, as this process is affected by relations between those settings, and by the larger contexts in which the settings are embedded.

Bronfenbrenner labeled different aspects or levels of the environment that influence children's development, including the microsystem, the mesosystem, the exosystem, macrosystem and chronosystem. This theory holds that our behaviour may be influenced in varying degrees by the environment we encounter throughout our lifespan.

The other major view on children's thinking is information processing. The related theory, in other words the information-processing approach emphasizes that individuals manipulate information, monitor it, and strategize about it (Santrock, 2002: 38). The focus is on what mental processes are used to deal with information, with how they are

perceived, with how they are stored in the memory, and with how they change during learning or development. It suggests that computation can be seen as the basis for human cognition and the logical operations carried out by computers might tell us something about how the human mind works that is the model of computer is used to describe how the brain works. There have been a number of developmental models of general information-processing, which are proposed by Case (1974, 1978, 1984, 1985), Kail and Bisanz (1982), Keil (1984), Klahr (1984), Klahr and Wallance (1976), Siegler (1983, 1984, 1986, 1989b) and Stenberg (1984, 1985) (cited in Meadows, 1993).

The Neo-Piagetian Perspective arose out of criticism of Jean Piaget's theory of cognitive development. Neo-Piagetian theorists, similar to Piaget, propose that cognitive development occurs in stair step-like stages. However, in contrast to Piaget's theory, Neo-Piagetians argue that Piaget's theory does not take into account individual differences that allow some children to move through the stages of development more quickly. Neo-Piagetians also adopted principles from other theories, such as the social-cognitive theory that allowed them to consider how culture and interactions with others influenced cognitive development and principles from information processing theories.

Robbie Case, a Canadian psychologist, was an influential neo-Piagetian who proposed a theory of executive control and central conceptual structures. Case proposed that *Executive Control Structures* are the building blocks of developmental stages and following four types of executive control stages: 1) *Sensorimotor Structures* (1- 18 months of age). 2) *Inter-relational Structures* (18 months - 5 years old). 3) *Dimensional Structures* (5 to 11 years). 4) *Vectorial Structures* (11 - 19 years). Case also suggested that differences occur in the learner's organization and development of different domains due to how meaning is organized in those domains. These were referred to as *Central Conceptual Structures* (Hurst, 2015).

In conclusion, the theories of cognitive development provide different accounts of the structures and processes underlying cognitive development. (Slater, 2011: 314). No matter how cognitive development theories differ in terms of process and structures they explain and support, it may not be wrong to talk about their common points and their

contributions. The cognitive theories (Santrock, 2011: 38, 39) present a positive view of development, emphasizing individuals' conscious thinking and they (especially Piaget's and Vygotsky's) emphasize the individual's active construction of understanding. Piaget's and Vygotsky's theories underscore the importance of examining developmental changes in children's thinking. Besides, Bronfenbrenner's ecological theory of human development (Thornburg et al, 1997) is indispensable owing to the fact that it emphasizes the effect of the environment in which children lives on children's development.

### 3.1.3. Language, Mind & Sociocultural Approach

It is easy to think of cognitive development as something that "just happens" exactly the same way for children worldwide. It goes without saying that child's linguistic abilities develop as he or she grows. Do the cognitive changes occur because of innate traits that all humans are born with? Or is language development based on a social process in which interaction drives growth and developmental changes?

During the past decades, two shifts have been given emphasis in the cognitive development field, which are nature and nurture perpective. From the nature's point of view, it is the biological foundations of language and cognition that support language development and thought patterns. In 1969, Chomsky developed the nativist approach and introduced the concept of language acquisition device (LAD) arguing that what children hear through interaction with others is insufficient to explain how they learn language. Nativist approach suggest that "children are passive participants in the learning process and the role of other people in a child's development is minimal" (Taylor, 2005: 145). Most researchers who examine the biological basis of development rarely investigate the social environment in detail and therefore rarely see how cognitive development is "constructed" by the social environment. From nurture's point of view, it can be pointed out that it is the social foundations of language and cognition that make our thought pattern develop into maturity. The environment helps us develop our vocabulary, know rules of the language through the experts our neighbors. The social foundation of language and cognition greatly determine nurture. In acknowledging the

significance of the environment, a well-known Russian social-cognitive psychologist Lev Vygotsky developed the language acquisition support system (LASS) to justify that the development of language and cognition requires a rich environment (Mkandawire, 2010). Interactionist approach claims that language development is the result of the interaction between both nature and nurture (the environment and experiences of the child). That is, as far as developmental psychologists are concerned, there is no nature/nurture dichotomy. Biological factors are inseperable from experiential factors, with two continuously interactiong. As Bjorklund (2002) suggests it is impossible to identify any purely biological or experiential effects but the implicit assumption of the bidirectional interaction. "The current perspective on the dynamic transaction of nature and nurture is one in which biological and environmental factors not only can peacefully coexist but also are intricately intertwined" (Gottlieb, 2007; Lerner, 2006; Sameroff, 2009a cited in Bjorklund, 2012: 11). That is, cognition and linguistic development would be complete with both the biological foundations and social foundations of language and cognition. This is because nature and nurture are the critical factors that constitute culture which in turn help us focus on linguistic and cognitive processes.

Sociocultural psychologists believe that how we develop and particularly how we learn to think is primarily a function of the social and cultural environment in which we are reared. The current interest in sociocultural perspectives in contemporary developmental psychology can be traced to the rediscovery of the ideas of the Russian psychologist Lev Semenovich Vygotsky (1962, 1978; see Cole, 2006; Gauvain, 2001, 2009; Rogoff, 1990, 1998, 2003; Wertsch & Tulviste, 1992 cited in Bjorklund: 2012). From the sociocultural perspective, how children understand their physical world "is embedded within knowledge of the sociocultural world… and it is the latter that enables and guides the former" (Nelson, 1996: 5). Vygotsky (1896- 1934) believed that after children acquire language, they don't just go through a set of stages. Rather their cognitive development depends on interactions with adults, cultural norms, and their environmental circumstances and largely on largely how, where, and when these interactions take place.

As can be seen from the statement "through others we become ourselves" put forth by Lev Semenovich Vygotsky (1987), social circumstances in which a child grows up will

inevitably leave their mark on the mechanisms underlying complex psychological processes, not just on the content of those processes (Kozulin, 2001: 128). Vygotsky suggested that "all mental functions have external, or social, origins" (Santrock, 2002: 217). All these point of views stress the fundamental role of social interaction in the development of cognition. For Vygotsky and his contemporary followers, children's development is embedded within a culture and proceeds as they are guided through life in collaboration with others. Beside the fact that there are many cultural universals and some aspects of development are also universal, many aspects of culture, such as the available technology and how and when children are expected to learn the survival skills of their society vary greatly. Such differences can have considerable influence on how cognition develops. Thus, understanding the social relations in which the individual exists helps us better comprehend the process of cognitive development (Wertsch, 1985: 58).

James Wertsch, the 21st developmental psychologist suggested (1991) that human mental functions can not be studied independently of the social, cultural and institutional constructions. Like Vygotsky, Wertsch emphasized the interdependence between individual and social processes in development, as well. A major theme that form the core of Vygotsky's theoretical framework and also which is supported by Wertsch is that higher psychological processes have a social origin, developing first on the social plane and only later becoming internalized and developing on the psychological plane (Wertsch & Tulviste, 1992). Vygotsky (1981) said that:

> [a]ny function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category (cited in Wilson, R. A., 2004: 205).

Vygotsky's formulation means that there's an inherent connection between these two planes of functioning. The importance of the transition from interpsychological to intrapsychological functioning for Vygotksy is apparent in his statement that "we shall place this transition from a social influence outside the individual to a social influence within the individual at the center of our research and try to elucidate the most important moments from which it arises (1960:116 cited in Wertsch, 1985: 61). When dealing with the social origins of higher mental processes, Vygotsky was mainly concerned with

interpsychological functioning. “In order to understand higher mental functioning on the intrapsychological plane, one must conduct a genetic analysis of its interpsychological precursors” (Wertsch, 1985: 61). Vygotsky referred to this dual nature of cognitive development as the general genetic law of cultural development. The social system in which the child is embedded thus channels cognitive development.

Vygotsky argues that higher mental functions necessarily appear initially in an external form because they are social processes in the following passage:

> It is necessary that everything internal in higher forms was external, that is, for others it was what it now is for oneself. Any higher mental function necessarily goes through an external stage in its development because it is initially a social function. This is the center of the whole problem of internal and external behavior... When we speak of a process, "external" means "social." Any higher mental function was external because it was social at some point before becoming an internal, truly mental function. (1981b: 162 cited in Wertsch, 1985: 62).

In parallel with Vygotsky’s arguments, Luria (1981) as one of Vygotsky's students and colleagues put it:

> In order to explain the highly complex forms of human consciousness one must go beyond the human organism. One must seek the origins of conscious activity. . .in the external processes of social life, in the social and historical forms of human existence (cited in Wertsch, 1991: 34).

This point of view of Vygotsky illustrates why the development occurs firstly on the social plane and then on the psychological plane. In this account internalization, the term Vygotsky gives for this situation, is a process involved in the transformation of social phenomena into psychological phenomena. Languge is first encountered by the child in the social plane, but is gradually “internalized” as the child master’s new concepts. The very mechanism underlying higher mental functions is a copy from social interaction; all higher mental functions are internalized social relationships (1981b, 164 cited in Wertsch, 1985: 66). This approach suggests that social reality as playing a primary role in determining the nature of internal intrapsychological functioning. That is, Vygotksy’s comments about internalization are a part of a larger concern with the social origins of higher mental functioning in the individual (Wertsch, 1985: 62, 63, 75).

As it can be inferred from the discussions above, the socio-cultural approach places culture and human interaction at the center of importance to human thought. Socio-cultural approach to the mind model which is supported by Wertsch covers and asserts this fact and aims at presenting a way to connect psychological processes to sociocultural settings. Accordingy, "human action cannot be separated from the milieu in which it is carried out" (Wertsch, 1991: 6, 15).

Another theme run through Vygotsky's writings is the claim that mental processes can be understood only if we understand the tools and signs that mediate them (Wertsch, 1985: 14, 15). This is another point that Wertsch and Vygotsky have in common with each other, as well as on the subject of the relationship between social interaction and higher cognitive processes, dual nature of cognitive development and internalization. The term sign is used by Vygotsky in the sense of having meaning (1979: 182). His sights into the nature of meaning in sign systems (especially human language) laid the groundwork for interpreting the genetic relationship between social and individiual processes (1985: 16). As it is vital in the process of developing higher psychological functions, the most significant sociocultural tool is language. As child master the use of language they not only use language as a means of communicating with others but also for guiding thinking and behavior.

All the themes argued by Vygotsky such as the social origins of higher psychological processes and dependence of the mental processes on the forms of mediation such as language are all closely intertwined in his work and presuppose one another (Wertsch, 1991: 19).

Mikhail Mikhailovich Bakhtin (1895- 1975) is another person who affects Wertsch's views as much as Vygotsky does. Wertsch drew on the ideas of Bakhtin as well as Wertsch in order to examine the problems of language and thought from a sociocultural perspective. Based on his statement "voice is the speaking personality, the speaking consciousness", Bakhtin (in Holquist and Emerson, 1981: 434) stressed the idea that voices always exist in a social milieu: In this context voice refers to more than auditory signal, it serves as a constant reminder that mental functioning in the individual originates

in a social, communicative processes (Wertsch, 1991: 13, 51, 52). One might be tempted to study the individual in isolation in order to understand collections of individual. However, what this generalization misses it that the mind cannot act in isolation, and in fact its functioning depends highly on the nature of its environment and the other minds it comes into contact with. In order to mention the voice of a person, this person must be the part of a social construction. In this way, it would be possible to talk about the voice. Similarly, according to James Wertsch (1991) and Peeter Tulviste (1992), cognitive processes are not understood as characteristics of individuals but, rather, as functions that can be carried out either between people or internally. Such processes can be viewed as socially constituted cognitive activity (Gauvain, 2001), which is "individual thinking that has embedded within it the contributions of the social world." As also emphasized by modern-day researchers, development or mental functioning in the individual can only be meaningfully studied by examining the social and cultural processes from which it derives.

According to Bakhtin (in Blachowicz, 1998: 344) language use reflect the social consciousness of the community. On that account, an utterance is not something that an individual produces on his/her own, but it would be proper to claim that how the individual produces a language is rooted in the interaction with other members in the community to which the individual belongs. At this point, it had better touch on Bakhtin's theory of dialogicality, which takes all speech (both inner and outer) as intended for others "dialogical" (Blachowicz, 1998: 344). Bakhtin (1979/1986 in Joseps, 2003: 14) argues:

> Any coherent complex of signs, any text, a work of art, a piece of music, a historical interpretation, all have dialogical properties. When such a coherent complex of signs is experienced by humans, it turns into "the reflection of a reflection."

Dialogicality offers infinite openings for new interpretations of language and thinking in the multivoiced world (Marková, 2003). All language indeed all thought appears as dialogical and dialogism not monologism is an epistemology of the human cognition and communication. In his sense, dialogism is something related with the knowledge of social objects, rather than of physical objects. Such type of knowledge, or as Baktin says "understanding" is fundamentally reflexive due to the fact that it is an understanding of the self and the other (Joseps, 2003). Drawing on the work of Vygotsky, Wertsch, Bakhtin

and others, higher mental functions that develop through dialogic processes derives from interpersonal activity (Fernyhough, 1996). In the light of all this information and interpretations about Bakhtin's theory of dialogicality, it can be put forward that Bakhtin emphasizes the vitality of social interaction by implying that language and cognition should be studied dependently with the social construction.

When the point in question is the vitality of the society's multivoicedness, it would be indispensable to mention the "social reality" fact which makes the society a society. This fact is composed of the coexist of both physical reality units and cognitive reality units. Searle (1995) who studied cognition and society relation since 1980, explained these units under two levels as lower level and higher level. Lower level exists in the environment independently from people while higher level is related with the units that the people construct in time. These levels makes up the social reality fact which makes a community the society. Each time when these subjective and objective units processes relatedly with each other, language forms and constructs our mind every time. On that account, these units determine the quality of the language. To sum up, interaction between langauge, mind and social reality facts are not one directional, these are all related.

That the language reflects thinking, thought patterns and social realities has been asserted by Wertsch (1991), Vygotksy (1987), Bakhtin (1981), Searle (1995) and many other researchers for thousands of years. At least since Aristotle, one of the greatest philosophers of Ancient Greece, language has been seen as distinctively human in its complexity. Aristotle clearly thinks language and thought are closely related and puts forth that the components of language are signs and symbols of the components of thought. Language and thought naturally emerge together in the cognitive development of humans (Hestır, 2013). Panini and Bhartrihari (India, 6th Century A.D.) suggested that our language influences the thoughts we have (Hattersley and Lee). The topic that whether the language influences our thoughts or the thoughts influence our language has been the subject of debate even to this day. Modistae believed that there is a structural paralel between language, thought, and reality in the construction of linguistic expressions. Modistae states that the structure of reality is mirrored in cognition and in language (Lecq, 2013). Instead of making relationship between language and thought as

a matter of priority, German philosopher and critic Johann Gottfried von Herder (1744-1803) asserts that mutual interaction arises between them: they are interdependent facts. Herder suggests that there is no thought beyond language (Trabant, 2009). Herder claims that "language is the form of cognition, not merely in which but also in accordance with which thoughts take shape" (Glock, 2015). In his famous contribution to the philosophy of language, Herder in his 1772 Abhandlung über den Ursprung der Sprache, vitality of the relationship between language and thought is especially emphasized (Mathas, 2013) by stating that "thought depends on language because it amounts to a form of inner speech, with concepts/meanings being the words of this language of thought" (Glork, 2015). Thought and language are therefore one and inseparable from each other. Besides, language is a means for reflection of content and form of the thought. In addition to all, Herder explains that firstly the cognitive processes related with concrete concepts and then the processes of abstract concepts develop (Robins, 1997). Wilhelm von Humboldt (1767- 1835), 19th century philosopher, brings forward the vital role of social and cultural role on the language and thought relationship. To realize social and cultural circumstances in a community, it is necessary to study the language used in that community. Humboldt (1999) argues that language develops only socially. These points of view suggested by Humboldt are one of the fundamental considerations espoused by 20th century philosophers. Franz Boas (1858- 1942), who has been called the "Father of American Anthropology" saw language as an inseparable part of culture and said (1911):

> It does not seem likely [...] that there is any direct relation between the culture of a tribe and the language they speak, except in so far as the form of the language will be moulded by the state of the culture, but not in so far as a certain state of the culture is conditioned by the morphological traits of the language.

For Boas, "not all life's experiences are sewn from the same cloth" ; they depend on one's cultural environment and so, too with mental achievements. To understand thought processes in any particular context, it is necessary to get knowledge of the current and past life experiences of the individuals (Laboratory of Comparative Human Cognition: 298). One of the most important figures in the early development of the discipline of linguistics is Boas' student Edward Sapir (1884-1939) who is an American anthropologist-linguist because of the fact that he examined the language-thought relationship in a linguistic point of view. In his writings, Sapir related the studies on

antropology, psychology and linguistics with his studies on language, culture and identity. Furthermore, Sapir espoused the viewpoint that every culture presents a distinctive worldview and languages are key to understand these differing world views of people. The structure of one's language influences the manner in which one perceives and understands the world. His student Benjamin Whorf (1897- 1941) is widely known for his ideas about linguistic relativity, the hypothesis that language influences thought. For Whorf, all higher levels of thinking are dependent upon language, and the structure of the language of the language one habitually uses influences the way in which one understands his or her environment (Kess, 1992: 240). The Sapir-Whorf hypothesis argues that "habits of using language influence habits of thinking" (Casasanto, 2012). In other words, people who speak different languages perceive and understand the world differently in predictable ways. Regarding the language and thinking relationship it is for centuries the question at issue that whether language plays a vital role for thought, whether the nature of language is influenced by the nature of thought or whether the language is simply the tool for conveying our thoughts. Throughout history, researchers have proposed different points of view concerning the language and thought relationship. As of the 20$^{th}$ century, the studies that the social perspective on this relation comes to the fore and since then effect of social phenomenon have been handled dependently on the studies on language and thought phenomenon. Georger Herbert Mead (1863- 1931), the major figure in in 20th century social philosophy, is best known for explaining how the mind and self emerge from social interaction. When it comes to "social interaction" phenomenon, About 1930, George Herbert Mead devised his notions about personality development with a strong social component which is termed later as symbolic interaction theory. He postulated that the "human mind could only develop in a distinctly human way by having its owner interact with other human beings" (Witt, n.d.). For the social psychologist Mead, mind arises out of the social act of communication.

> One's sense of self is greatly influenced by significant others, people of importance such as parents, siblings, and peers. Over the course of the lifespan, a person will internalize the values and attitudes of significant others and apply them to society as a whole, which Mead termed the generalized other (Turner, 1996: 284).

Mead (1934:191) asserted that mental states and personality have been shaped and molded by society and stated that "the content put into the mind is only a development

and product of social interaction". His theory of "mind, self, and society" is a philosophy of the act from the standpoint of the experiencing individual in interaction with an environment. He argues (1934) that "cognition is a process of finding out something that is problematical, not of entering into a relation with a world that is there."

As Ritzer (2008:351) explains, "a thinking, self-conscious individual is… logically impossible in Mead's theory without a prior social group. The social group comes first, and it leads to the development of self-conscious mental states."

It may not be wrong to claim that Mead's arguments on mind, self and society are parallel with Bakhtin and Vygotsky, who lived in the same period of century, Bakhtin stressed the idea that "voices always exist in a social milieu" (in Wertsch, 1991) as Mead emphasized that "the interaction within a group or community creates the self" (Graves, 2008: 25). On the other hand, while Mead suggests that in the development of mental states, the social group comes first and then and it leads to the development (Ritzer, 2008), Vygotsky also asserts that any function in the children's development appears on two planes, firstly on the social level, later on the psychological level (Vygoysky, 1978: 128).

When "social interaction" phenemenon is considered, it is to the point to touch on the subject of "symbolic interactionism", the approach which was developed as a system of thought by the philosophers John Dewey (Prus, 1996) and Charles S. Pierce (Herman and Reynolds, 1995). The term "social interaction" was coined by Herbert Blumer (1900-1987), one of Mead's students, did much to shape this perspective. He (1969) determined its basic premises:

> (1) Humans act toward things on the basis of the meanings that things have for them, (2) the meanings of things derive from social interaction, and (3) these meanings are dependent on, and modified by, and interpretive process of the people who interact with one anoher.

It may proper to claim that Bakhtin, Vygotsky and Wertsch are not the first to suggest that the environment, social interaction play vital role on the cognitive development of the individual. In the light of the information that the history presents us, it can be realized that many researchers espoused this viewpoint decades earlier.

It can be understood that language-thought relationship has been one of the major topics that the researchers handle throughout the centuries. As of the 20th century, that disciplines such as antropology, sociology and psychology began to examine the language has contributed much to the linguistics. The interdisciplinary studies of these and many other distinctive disciplines such as philosophy, social psychology, cognitive science have shed light on language, mind and society phenemenon, hence social and cognitive studies have raised concern since the previous century. It has been explained that much as the humanbeings are born with a developed mind, interaction of the self with the other members of the society come into prominence in regard to cognitive development. In other words, focusing only on the individual or only on the environment could not provide an adequate explanation of development. Cognitive development must be seen as the result of interacting factors, with the social environment being a ciritical ingredient to this mix without ingnoring the biological foundation (Bjorklund, 2012: 78).

## 3.2. RESIDENTIAL AREA AS A SOCIO-COGNITIVE VARIABLE

There has recently been revieved interest in the studies of cognitive development from birth through childhood into youth living in urban and rural settings and the studies about how the multiple facets of the environment determine the course of cognitive development which is linked to the development of language. Gottfried (1984:1) states:

> The relationship between home environment and cognitive development has been and continues to be a controversial issue in developmental psychology. It is an issue of both theoretical and practical significance. Theoretically, it is important to ascertain the environmental factors that correlate with cognitive development and the extent to which they account for unique variance in developmental status. This information is necessary for understanding the construct of cognitive development and the degree to which environmental process regulate it.

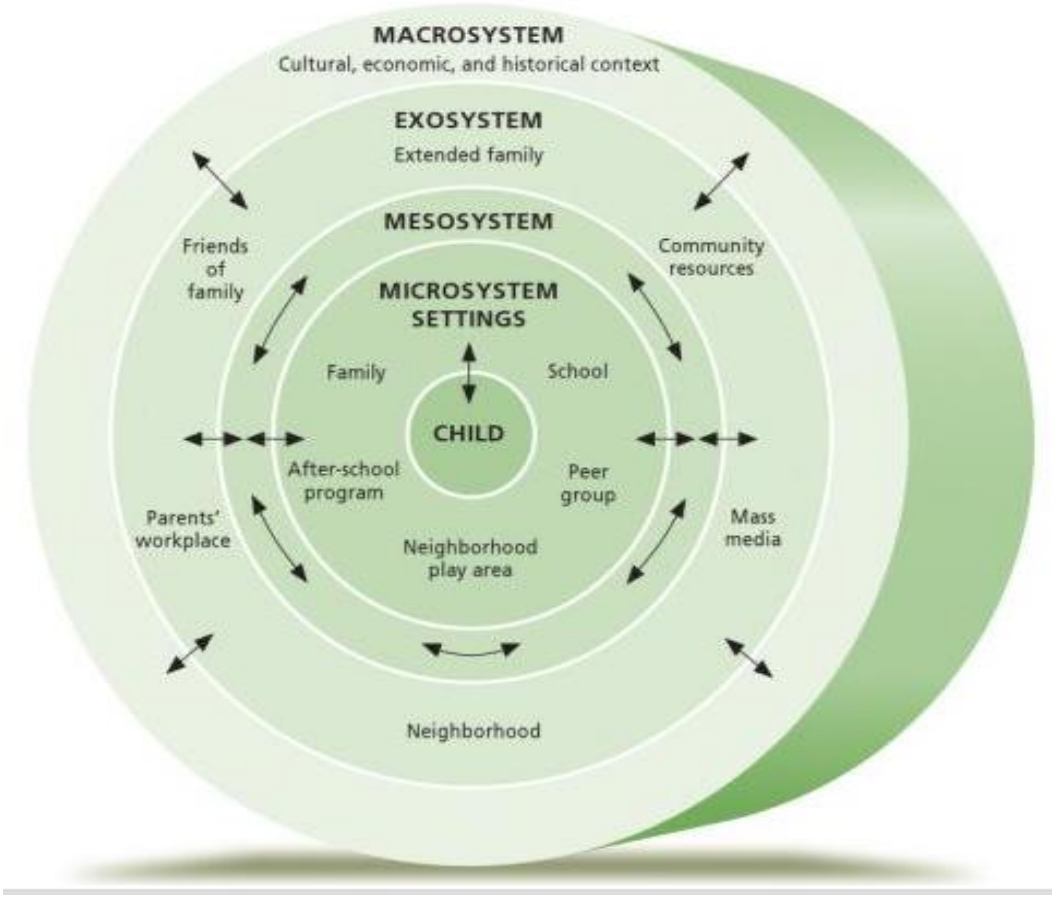
The development of an individual child has typically been assumed to be a result, at least in part, of the child's environment. For example, a measure of the environment has been found to predict subsequent cognitive and language development (Bradley & Caldwell, 1976a, 1976b, 1977, Bradley, Caldwell & Elardo, !977, 1979; Elardo, Bradley, & Caldwell, 1975, 1977 cited in Siegel, 1984).

Considering the interaction with the environment and that the environment comprises the physical and ecological surroundings of the child in the community, it is inevitable to say that the interaction occurs through language and with the natural environmental resources via technologies and tools. Accordingly, it is necessary to consider the effect of the factors in the area of residence on the course of the cognitive development by taking into account the human interaction in the society or ecological surroundings. One of the most remarkable theories on this issue can be regarded as Bronfenbrenner's Ecological Theory of Human Development which is generally regarded as one of the world's leading scholars in the field of developmental psychology. As Of (2012) states this theory has widespread influence on the way psychologists and others approach the study of human beings and their environments. Because it emphasizes the environmental factors as playing the major role in development of cognition, it would not be wrong to say that Bronfenbrenner identified Soviet developmental psychologist Lev Vygotsky as important influence on his theory.

> Ordinarily, we think of "ecology" as a branch of biology that deals with the complex interactions between living organisms and their natural environment. But the term applies equally well to the multilayered relationships between human beings and their social environment (Steinberg, 2011a: 15).

A central argument of the ecological approach is that a person develops within the context of his or her relationships. Considering that the development reflects the influence of several environmental systems, it is possible to discuss many environmental factors such as the person's family, school, peer group, neighborhood which includes the space in which the individual lives. This explains the Microsystem, one of the four environmental systems proposed by Ecological Model. It can be understood with the diagram in Figure 1 by which the other subsystems are illustrated.

*Figure 1. Bronfenbrenner' Ecological Model of Human Development*




(Steinberg et al, 2011a: 16).

To fully understand human development, the contexts in which it occurs must be taken into account. As depicted in figure 1, children both influence and are influenced by their immediate "microsystems," the most direct interactions with social agents take place; interactions with parents, peers, teachers etc. Johnson (2010) states:

> Ecological systems theory assumes that child development is the consequence of ongoing reciprocal and spiralling interactions between the child and his/her microsystem such as immediate home, school and community environments.

Besides the bidirectional influences between a child and his or her immediate context, another important layer is the "mesosystem," which is the system comprising connections among immediate environments, that is the network of connections between the environments. The broader layer, the "exosystem" is composed of the external environmental settings which only indirectly affect development owing to the fact that

the child does not directly participate in these settings such as the child's parent's workplace or community resources, however they can still be influential on the development. "Macrosystem" includes the larger cultural context such as economical, cultural and historical contexts. That a fifth system has been added to the model has been mentioned in some sources, this is the Chronosystem, the largest layer comprises the patterning of environmental events and transitions over the course of life (Of, 2012).

Whether the influence is direct or indirect, whether it is less or more, each of these systems has an effect on a child's development (Paquette and Ryan, 2001). As can be inferred from "layers" of environment given in the Figure 1, Ecological Theory of Human Development looks at a child's development within the context of the system of relationships that form his or her environment. Many researchers have taken all of these factors into account and investigations of environmental influences on cognitive ability have increased in the past quarter century. As Coon et al. (1992) argues that not only interactions with members of one's nuclear family, but also interactions with teachers, peers, neighbors and others who might be referred as the 'community family' and the settings that Microsystem comprises according to Ecological Model has attracted the attention in terms of their influences on the course of development.

Considering the peers and neighbors, namely social environment in two distinct urban and rural spaces as ecologically and geographically, Of (2012: 353) claims that:

> Interaction within the rural microsystem is usually at face to face primary contact level, while that of the urban microsystem is a blend of both primary and secondary contact levels, but more of secondary. The space as well as the time spent within the microsystem by people differs and varies on a societal basis.

Opportunities for verbal inter-change may be limited for the rural children because of isolation of dwellings, lack of peers, kindergartens, schools, after-school programs, shopping centres, art activities and lower exposure to mass media such as television, computer, internet.

As Beers (1957) suggests, the rural-urban distinction, although initially valid, has become less meaningful during the 20th century as interstate highways and mass communication

have strengthened the connection between rural and urban areas and as the predominance of agriculture has waned in rural areas. Similarly, Hobbs (1994: 149) noted,

> Cities have deconcentrated into the countryside, and rural and urban lifestyles have converged under the effects of a mass society with its mass media and mass consumption.

According to Sorokin and Zimmerman (1929) and Wirth (1938) rural and urban communities differ from each other in terms of some multiple dimensions such as such as population heterogeneity, size and density, and the predominance of agriculture. In more detail, it can be said that an urban zone can be characterized by following components: administrative criterion or political frontiers, population density, economic function and the presence of specific urban features (roads, pavement, electric lighting, and sewage systems. On the other hand, rural zones include the entire population, territory and other resources of the countryside in other words, the areas located outside of the large, urbanized centers (cited in Ba, D.). Since at least 1874, the rural residents has been defined "as anyone living in or near towns of some specified size (e.g., fewer than 2,500 residents)" (Truesdell, 1949). Thus, the "purely rural" community is sparsely populated, lacking in diversity, and based on farming as a way of life and livelihood. Nevertheles, UNICEF (2012) claims that the definitions of "urban zone" and "rural zone" differ from one country to another and is constantly revised. Much as there is no consensus about how "rurality" should be defined and measured, Kasarda and Janowitz (1974) suggest that "four dimensions such as population size and density, community ties, traditionalism, and land use have figured prominently in discussions of rural life and serve as a possible basis for defining rural settings."

Especially with the increase of the exposure span to mass media, it may be agreed that rural-urban distinction is not much dramatic compared to the previous centuries. Degree of urbanization, perhaps because of its relation to opportunities for verbal interaction, seems to be generally correlated with the rate of the development. Despite all, today there are still many areas in which the rural life has been sustained in all over the world even if the degree of the urbanization varies from country to another.

Based upon her study on the area of residence and cognitive development Herrans (1992) suggests that the area of residence is such a strong variable in the determination of cognitive performance that, independently of gender and education, it allows to predict that adults in urban areas will perform better than adults in rural areas.

### 3.2.1.Related Studies in the Literature

According to the research carried out by Rodrigues in Puerto Rico (1992) children who grow up in poorer environments develop at a slower pace the cognitive abilities needed to perform successfully formal operations. It would not be wrong to claim that the area of residence has been identified as predominant factor that mediate results in tasks designed to assess the level of cognitive functioning.

Arab studies focused on the urban/rural differences in cognitive development have reported faster rates of cognitive development among urban children and adolescents compared with their rural counterparts ( Lemonda & Mcfadden, 2010: 365).

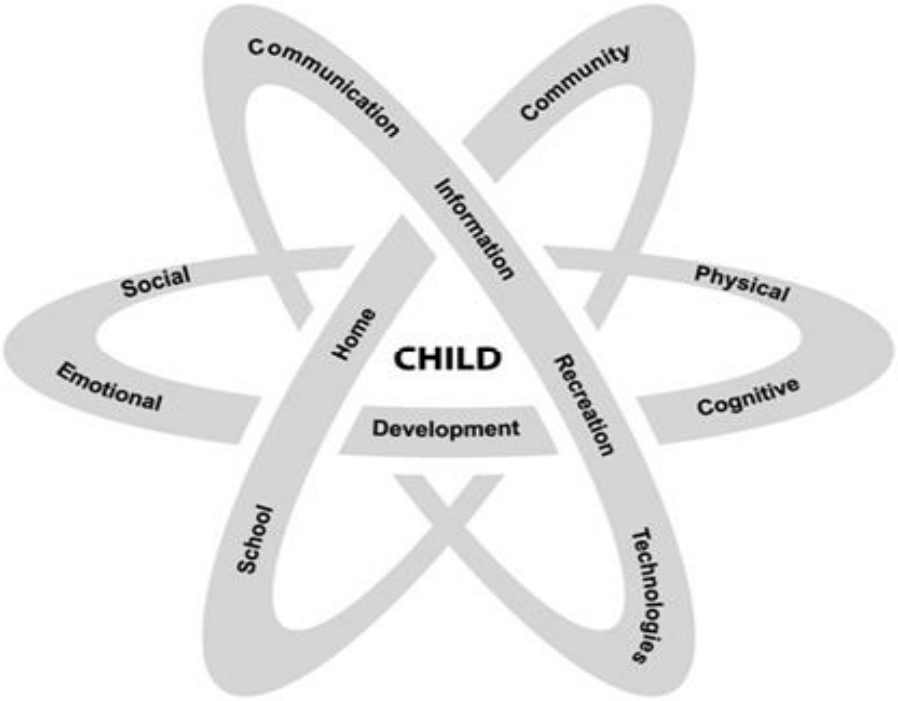
Voght and Mastin' study (n.d.) on rural and urban differences in language socialization and early vocabulary development in Mozambique showed that rural infants are delayed in their vocabulary development which may in part be explained by a transition in the socialization style. It has been found that urban infants are exposed to more than three times as much speech and co-speech gestures than rural in infants which correlates to their vocabulary development. These findings are in line with predictions based on Keller's (2012) distinction between rural and urban communities.

Opper (1977) compared urban and rural Thai school children. The two samples differed both in physical environment and in parental occupations (rice farmers vs. government officials or professionals), but in average school performance the samples were similar. Here, again, the rural children lagged behind the children from Bangkok, but the factors responsible for the delay are not entirely clear.

As the sociohistorical approach to human cognition offers, there is indeed a strong connection between the social interactional processes that constitute acitivity in a culture and the psychological processes of its members. This is so because an individual's psychological functioning is seen to emerge through the process of internalizing various processes in social interaction which is itself culturally organized (Laboratory of Comparative Human Cognition, 1985).

Small communities benefit from mass media to a lesser extent. The actions such as listening to the radio, reading newspaper, going to the cinema are significantly at the low rate in the small communities which accommodate under 200 people (Geray, 1975). Taking these points into consideration, the studies on the relationship between technology and cognitive development have much paid attention recently. The increasing presence of digital Technologies in children's immediate environments suggests the need for the proposed theoretical techno-microsytem. The ecological techno-microsystem, proposed by Johnson and Puplampu recently, is a refinement to Bronfenbrenner's theoretical organization of environmental influences on child development and situates the developing child in the context of Internet use in home, school and community environments. Parents of 128 children in first through sixth grade consented to cognitive developmental assessment of their children and completed questionnaires on children's use of the Internet at home and family socioeconomic characteristics. In general, indices of home Internet use accounted for more of the variance in children's cognitive development than did indices of socioeconomic status.

*Figure 2: The Ecological Techno-Microsystem*




(Johnson, 2010)

The ecological techno-subsystem furthers our understanding of environmental influences on child development by emphasizing the impact of digital technologies on cognitive growth during childhood. On the another study, children who reported using Internet at home were rated by teachers as having more friends than children who did not report using the Internet at home. The ecological techno-microsystem is further validated; aspects of development (i.e., social and cognitive) are differentially affected by various patterns of online behavior during childhood. Some uses of Internet (i.e., email and visiting websites) across some contexts (i.e., home and school) were associated with child cognitive ability as determined by classroom teachers (Johnson, 2010).

According to the study carried out by Salmon et al. (2013) in low socio-economic areas with 613 Australian children and their mothers, children living in urban areas reported significantly higher levels of screen time (almost 30 more minutes a day than their rural counterparts), with screen time comprised of television, DVDs, the internet or computer

games. Considering result of the Johnson's study given above, it would not be wrong to make such a comment that in the communities where the technology is used less, the children develop less cognitive ability; accordingly, taking into consideration that the technology is used less in the rural areas as against urban areas, rural children lag behind the urban ones from the point of cognitive development, if all other factors playing role in the cognitive development are left aside.

According to Jersild (1979), the studies on the children with the same level of intelligence coming from low socio-economic level and high socio-economic level show the results are in favour of the ones with the high level of socioeconomic background on account of lenght of the word, the number of the words and vocabulary. For him, the children having low socioeconomic level are unlucky in the matter of language development (cited in İpek & Bilgin, 2007). This is because the parents with low income and with low level of educational background and poor environment, accordingly lack of stimuli that the children experience, the limited use of vocabulary at home between the members of the family, the lack of correct usage of the mother tongue at home and the insufficiency of verbal communication.

### 3.2.2. Urban and Rural Life in Turkey

The villages and cities have distinctive life styles and the differences in socioeconomic levels and educational facilities increase day by day in favour of the cities (Deniz, 2003). No matter how the degree of urbanization increases, Turkey is one of the countries where the the rural and urban distinction can still be mentioned. TDK (2015) defines the the village as "Yönetim durumu, toplumsal ve ekonomik özellikleri veya nüfus yoğunluğu yönünden şehirden ayırt edilen, genellikle tarımsal alanda çalışılan, konutları ve öteki yapıtları bu hayata uygun yerleşim birimi, köylük yer, köy yeri." In spite of the fact that people living in villages can make contact with the people or environments they wish via developing techonolgy as much as possible, it may not be wrong to enunciate some factors leading to the villages' sustaining their own features in Turkey which are the small number of the real life objects and the people in the real environments, use of the words, phrases and sentences rarely, that the population is less hence the less interaction and the

lack of communication and that the communication occurs almost always with the same people, the small number and the isolation of dwellings and that the leisure time activities such as going to the shopping centres, cinema and theatre and diverse course facilities and big schools involving a good number of students are less available, that the mass media is less extensive and that the extended family is preferred rather than the nuclear family, and the lack of various transportation facilities and that the community is based on farming as a way of livelihood. Kut and Koşar (1989) asserts that environment and family settings such as the area of residence, residential building, transportation, education, health, entertainment facilities, utilities, environmental conditions, the family's socioeconomic conditions, the livelihood, neighbourhood relations and intra-family communication have an influence on the individual's personal traits and communication skills with his or her environment.

In this day and age called as "era of communication", the facilities and necessities regarding that the people can make contact with each other have increased. Living in the society necessites the individual to be in touch with other people. The child firstly acquire the language in his or her family and environment, however then differences in language skill levels appear in the children growing up in various socioeconomic environments.

#### 3.2.2.1. Child's Language Development

In child's language development, socialization and environment on communication, socioeconomic and educational conditions, age, gender, generation, class, area of resindence, morals and laws, etnicity are significantly important with respect to the child's language development (Kağıtçıbaşı, 1990: 246). Öz (2003: 177), Demir (2007: 15) and Karatay (2007: 150) agree this fact by propounding that the variables such as the affection of the family and their socioeconomic conditions, environment, age, gender, school influence the vocabulary development.

Even if all differences come out thanks to the features in microsystem, those in the other systems such as mesosystem, exosystem and macrosystem should also be considered as stated previously (Figure 1). As Aksan (1998: 81) states in his definition of mother

tongue, language is influenced by mother and near environment in the first place, and then the other environments with which the child interacts, and language is engraved in child's subconscious and reflect it. Regarding this explanation, it can be said that the words in the mother tongue is acquired and learnt by the family and near environment at first and then the other environments with which the child is in contact.

Pilancı (2009) investigated Turkish students between the ages 7 and 9 during 3 years and reveal how they develop vocabulary with the aim of determining the effects of variables on vocabulary development such as age, pre-knowldege, social environment, economic environment and education level. The study was conducted between 2006-2009 in town schools in Eskişehir. The school A is a suburban school and the parents are with the low level of education and economic condition while the school B places in the urban district with the parents with high level of eduation and economic condition. Throughout three years, the words in 11 basic topics added by the students into their lexicon has been searched. According to the collected data, social and economic environment factors play vital roles on vocabulary development. Pilancı states that there is not adequate study which investigates the relationship between socio-economic environment and the language development.

Taking all the environmental systems into consideration, it can be enunciated that the challenges facing the families in the rural areas are quite different from those confronting their urban counterparts. The people living in rural areas are less often in contact with their environment and prefer being quite rather than speaking because working is more important. In the cities, of course the work is also important. However, the works in the village necessiates less communication than those in the cities. In the villages the children are the vital workers for the family, so the time available to spend with mass media is less for rural children.

Even in the matter of emotions and needs, the rural people talk as the occasion arises. Therefore the number of the words they learn and use is restricted because of the restricted interest and communication areas. Moreover, feeling necessity for quicker and easier speaking leads to restrictions in expressions.

Studies have long shown a difference in cognitive ability between high- and low-income children. But for the first time, researchers have found a difference between low-income children growing up in rural areas and those growing up in urban environments. Researchers at Dartmouth College have found that children growing up in rural poverty score significantly lower on visual working memory tests than their urban counterparts. The study results are also groundbreaking because they demonstrated a gap between the verbal and visual working memories of children living in rural poverty. The study explains that the environment which the children live in and how this environment influences the development. For example, rural areas tend to have less noise pollution than urban ones, and chronic noise pollution has been shown to hurt verbal working memory. On the other hand, rural areas lack visual stimuli common in cities such as traffic, crowds, and signs, and this may give rural children less opportunity to develop their visual working memory, thereby the children who see less objects and who are exposed to less words have less vocabulary and visual working memory development (Dartmouth College, 2013). The working memory differences between the low-income rural and urban children could also be, in part, a reflection of language ability differences that exist between the two samples. "Although no extant research specifically compares the language ability of low-income rural and urban children, language ability is known to be related to working memory ability" (Just & Carpenter, 1992 and Moser, Fridriksson, & Healy, 2007 cited in Tine, 2003).

The complaints have increased about the topics on that the young people and children have difficulty in expressing themselves and their ideas and that they do not read newspapers and books and that they fail in the lessons, briefly they have difficulty in building a healthy interaction and communication. The complaints such as "we do not speak the same language" tells that the words, concepts and phrases are not shared by the community (Tosunoğlu, 1999).

Doğaner (2009) states that around the world, a student is supposed to use 4-5 thousands of words at the end of the middle school (14 years of age), whereas in Turkey, the students use 2000-2500 words at best at the end of the middle school, further in some regions it

regresses till 1000 words. Such type of research findings support the existence of this problem.

In Deniz's study (2003), it is aimed to describe the written expression skill levels of the primary education students living in urban and rural areas and to reveal whether these skills are infleunced by the environment the children live in. The research has been carried out in eight urban schools and four rural schools in Çanakkale on 400 fifth-grade-students between the years of 1999-2000. Written expression studies have been performed to reveal the written expression skill levels and "t" test is used for the analysis of the collected data. Findings have showed that the students in urban schools are significantly more successful than the rural students. About this result, what the area of residence provides the students and their family in regard to socioeconomic and cultural circumstances has a strong influence on the written expression skills.

As many researchers agree, degree of urbanization seems to be generally correlated with the rate of development because of its relation to opportunities for verbal interaction. That the opportunities for verbal inter-change may be limited for rural children and their lower exposure to mass media may be crucial factors in the rural-urban difference.

## 3.3. WORD ASSOCIATION AND LANGUAGE DEVELOPMENT

### 3.3.1 Vocabulary: An Important Part of Language

It is well known that vocabulary is of vital importance in language study because it is the essence of a language. As Wilkins (1972: 111) suggests "without grammar very little can be conveyed, without vocabulary nothing can be conveyed", there will be no sentence, no text and no language without vocabulary.

The term vocabulary is used to denote a system formed by the sum total of all the words and word equivalents that the language possesses. Vocabulary knowledge is a cornerstone of language development and is more that just knowing words, it is about understanding their meanings and being able to use them in a meaningful way (Johnson & Yeates, 2006). Word is the smallest unit that can stand alone as a complete utterance and it is at the same

time a semantic, grammatical and phonological unit. The prominent French linguist A. Meillet (1866-1936) combines the semantic, phonological and grammatical criteria and says: "A word is defined by the association of a given meaning with a given group of sounds susceptible of a given grammatical employment" (Dixon and Aikhenvald, 2002).

Clark argues that vocabulary development is not merely an increase in the number of words that a child acquires during a particular period of time; it also involves fundamental changes in the ways in which the same words are used (Ness and Lin, 2013). It seems almost impossible to overstate the power of words; they literally have changed and will continue to change the course of world history (Pikulski and Templeton, 2004). Truly, without vocabulary, there will be no sentence, no text and no language.

### 3.3.2. Word Association

The concept of association itself has a long history dating back to ancient Greek philosophers. Aristotle noted association as "train of thoughts" (Esper, 1973). Esper (1973) describes the history of associations from Aristotle to the present, as the swing between two extremes of a theoretical continuum, between empricism and innaticism. In today's psychology and linguistics this corresponds to behaviorism and cognitivism. This opposition can be traced through philosophers of the 16th through 19th century nativism with Descartes and Spinoza, empricism among British Associationists such as David Hume and Thomas Hobbes. According to Rappoport (1974), the nativists saw association as second in human intelligence. Associations "do not provide insights necessary to understanding" and are "a source of errors that disturbs correct thinking". On the other hand, British Associationists, as their name implies, saw associations as central to thinking.

It must be remembered that these philosophers took association for purely a subjective phenomenon and studied it only by introspection of their own experiences (Cofer and Musgrave, 1963). It was a philosophical question and discussed only as an "epistemological" matter. In the late 19th century, however, Darwinism and German

functionalism combined with British associationism; and experimental psychology was born (Esper, 1973).

In the 1950's, word associations and verbal learning came into close interaction, mainly due to the rise of behaviorism (Ester, 1973). Riegel (1970) describes the birth of behaviorism, one of the 20th century's dominating force (both in psychology and linguistics), as the general trend in science toward the end of the 19th century. Wundtian psychologists devoted themselves to isolating and describing three sets of this model (namely, sensations, images and feelings) thereby performing a larger number of word association studies. In the first half of this century, clinical psychologists besides the Wundtians were active in word-association experiments. Freud Jung and others utilized free word association in psychoanalysis in order to tap the unconscious, a task difficult to achieve by other methods, Bleuler (1918:5) rationalised the use of word association:

> …in the activity of association there is mirrored the whole psychical esence of the past and the present, with all their experiences and desires. It thus becomes an index of all the psychical processes which we have but to decipher in order to understand the complete man.

A similar view, though in the field of semantics, was expressed by Szalay and Deese (1978: 21):

> Associations make meaningful statements, … their simplicity and immediacy makes them, however, much closer to the stable, significant aspects of the subjective respresentation of the world than an equivalent set of fully articulated sentences about the stimuli.

In the 1960's, however, the other end of the scale, generative linguistics and cognitive psychology, started to gain wide support. Their predecessors, Gestalt psychologists, emphasized the role of insights in learning and proposed the Gestalt Laws of perception, thereby insisting that the framewok for cognition is present at birth. This Gestalt tradition maintained that linguistic behaviour can not be adequately described in terms of asscoiatiive chains (Houston 1972). The rise of this view made a significant impact on word association.

The transformational grammar of Chomsky gave rise to the Semantic Feature Theories. These were eventually applied to word association in order to explain the classification

of words, thus creating a new association theory. Now association was seen as the end of the product of the underlying linguistic process, whereas according to the behavioristic view, it was association which underlay the linguistic products. This change of attitude toward word association was best expressed by Clark (1970: 272) :

> Language … should not be thought of as a consequence of built-up associations; rather, "word associations should be thought of as a consequence of linguistic competence.

In this new science, the actual experiments of word association were begun. That is, the first experiments in word association had to wait until the very late 19th century.

### 3.3.3. Categorizing Word Association Responses

Different types of word associations have been of great interest to psychologists as indicators of individual differences (Jenkins, 1960 cited in Batool and Shah, 2015). Human beings response to different types of stimuli differently. These stimulus-response actions form associations.

In early studies of this nature, analyses of the links were based on the Saussurian definitions of syntagmatic and paradigmatic relationships. A distinction was made between pairs of words that occur in text (syntagmatic, e.g. van-drive) and pairs of words that can be substituted for one another without changing the grammaticality of the sentence (paradigmatic, e.g. van-train). A third category, known as 'clang', was later added to this framework to represent responses based on the form of the stimulus, typically phonological (e.g. van-fan).

Peppard (2007) acknowledges that the majority of word association literature focuses on the two main organizing principles of language: syntagmatic (chain) and paradigmatic (choice) relations. In addition to the paradigmatic/ syntagmatic distinction, word associations can be based solely on their phonological or orthographic relations. These responses, sometimes labeled clang responses, are far less common and usually given by low-level language learners. He classified some of the categorizations of sense relations stated above as syntagmatic and paradigmatic relations. Paradigmatic relations include co-ordination, hyponymy and hypernymy, synonymy while synatgmatic relations include

collocation, multi-word items, encyclopedic knowledge. When it comes to the third main type which is phonological and orthographical relations, this category do not include any sub sense-relation type according to Peppard.

Kess (1992 cited in İstifçi, 2010), who asserts that an association theory looks for latent relationships, the covert links that words have with other words, images and thoughts, divided word associations into 3 types:

1. Members of the same part of speech class
    a) paradigmatic responses (responses which fall in the same syntactic category such as bus> train; black> white)
    b) syntagmatic responses (responses which fall into other categories such as ball> catch; run>fast)
2. Members of the same taxonomy
    a) subordinate (dog>retriever)
    b) super ordinate (dog>animal)
3. Rhyming or clang responses (phone> foam; sister>blister).

Read (1993) carried out a study with university students of English and tested their knowledge of "academic" words. Read's test consisted of a target word followed by eight other words, four of which are semantically related to the target word, and four of which are not. Read's test aimed to assess receptive word knowledge and knowledge about the meaning of a word, the words with which it is associated, and the collocations in which it occurs. He distinguished three types associations on the basis of "preliminary drafting of items": (a) paradigmatic; (b) syntagmatic "The two words are collocates that often occur together in a sentence"; (c) "The associate represents one aspect, or component, of the meaning of the stimulus word and is likely to form part of its dictionary definition." (in Nekah et al., 2013: 359).

Miller (1996) reports that associative responses of adults can be investigated by using four types of semantic relations which were found to be salient in the lexical organization of most speakers of English:

1. Superordinate, coordinate and subordinate terms

2. Attributive terms
3. Part-whole relations
4. Functional terms

WA behavior has conventionally been assessed in term of the types of sense relations between the stimulus and the response. As stated by Nekah and Ebrahimi (2013: 388-391), some categories for sense relations are as follows:

Hyponmy relation

House is a hyponym of the subordinate building, but the building is in turn, a hyponym of the subordinate structure, and, in its turn, structure is a hyponym of the subordinate thing (Griffiths, 2006).

Meronmy

Relationships which are expressed either with the term part, or which by their position in a part-whole expression signal part, are considered to be meronymic and to 'structure semantic space in a hierarchical fashion' (Winston et al. 1987: 417 & 418).

Member-collection relation

Member-collection is a type of meronymic relationship which manifests a relation between a part (a member) and a whole such as the existing relationship between tree and forest, or horse and herd (Safavi, 2005: 104).

Synonmy relation

Synonymy is one of the most common sense relations. Two synonymous words are mostly used interchangeably although there are no two terms with completely identical meaning (Yule, 1996: 118).

Semantic opposition relation

The relation seems semantic opposition or antonym when the meanings of the words are opposite (Safavi, 2006: 35,36). Antonym is considered as a type of opposition, and opposition has various kinds such as gradable opposition, complementary opposition,

symmetrical opposition, directional opposition, lexical opposition, connotational opposition, semantic contrast.

Instrumental relation

In instrumental relation, one of the pairs is an instrument which is mostly put in a specific place such as refrigerator/kitchen, or it is an instrument which is used in an industry or any type of work such as hammer/carpentry (Izanloo, 2006: 62,138).

Material relation

Material relation exists between two objects, one of which is made of the other.

Place relation

Some words are related to each other on the basis of the place they occupy, for example, a chair is used to sit on, or a room is a place to live in and so forth. Place relation has some subcategories such as high relation, inside relation, outside relation, beside relation, job relation, cycle relation.

Causal relation

Cause and effect is a relation which can be seen in lots of lexicons, for example bacteria and disease have a causal relationship.

Attributive relation

Attributive relations describe the words, for example, convenience describes chair (Carroll, 2008: 108). On the basis of this relation, one of the words which construct the pair is an adjective which has been made through a derivational process, smallness (being small), cleanness (being clean), envy (being envious).

Specific relation

Specific relation refers to the concepts which are meaningful only in relation to specific words. For example; dog collar that is meaningful just in relation to a dog.

Time relation

Time relation exists between word pairs which imply a specific time such as morning /breakfast.

Negative relation

It shows the paucity of a characteristic in the word, for example invalid implies the shortage of validity, or incapable imply the paucity of capability.

Need relation

It can be exemplified in the following instance, human being/sleep/food/cloths.

Collocational relation

Collocational relation cannot be categorized in any of the aforementioned relations, although the existing relationship between the word pairs is obvious such as spoon/fork and snow/rain (Yule, 1996: 122,123).

Functional relation

In functional relation, the word which has been replied does something with the stimulus word, for example, sitting on/chair (Carroll, 2008: 108).

Social-cultural relation

Social-cultural relation is an indirect and sense relation which has been made by different social and cultural factors.

Classifying the responses may be time consuming and problematic since many responses could be classified as either paradigmatic or syntagmatic depending on the thought process of the participant. For example, the ‘story’ can be given as a response to the stimulus word “book”, This can be paradigmatic: It was a good book./ It was a good story. Or it can be syntagmatic/ collocational as in ‘storybook’ (Peppard, 2007). Meara (1982: 30) makes a similar statement: “Personally, I have always found that this [paradigmatic/ sytagmatic] distinction is very difficult to work in practice, especially when you cannot refer back to the test for elucidation, but this difficulty is not generally

commented on in the literature." Such type of points should be taken into consideration while attempting to make sense of the results.

### 3.3.4. Word Association Test

Word association, one of the oldest methods psychologists have for studying semantic relations, today is studied not only in psychology, but also in linguistics, and its macro field; pscyholinguistics. Psycholinguistics is a science which examines the relationship between language and mind. This field deals with the process of speaking, its mental factors and existing relationship between language and knowledge. In fact, psycholinguistics is the knowledge of comprehension, production and acquisition of language. It puts emphasises on language knowledge and cognitive processes in the application of everyday language (Carroll, 2008: 3 cited in Nekah et al., 2013). Psycholinguistics intend to assess the infrastructural processes of the human mind through the examination of linguistic performance. Psycholinguistics have proposed some ideas about lexical relations and models of comprehension, storage and retrieval (Molavi, 2007: 77).

The popularity of word association lies largely in the fact that it is a game anybody can play (Clark, 1970). In its basic form, word association needs only participants, a word list, and an experimenter. The Standard instruction of "say the first word that comes to your mind after hearing each word I say" will get the raw data required. In its simpliest form a series of disconnected words (stimulus words) are projected orally or in writing to the respondents who must respond within the first word which comes to mind (response words). These associations reveal the respondents' verbal memories, thought processes, emotional states and personalities. For instance, if someone hears the word 'doctor', other words such as 'nurse', 'patient', 'hospital', and 'drug' come to his mind. This event is similar to the flow of electricity which turns on some lights simultaneously; therefore, the recognition of these words becomes easier. But the aforementioned feature is inconsistent, transient and obligatory; it means that the listener cannot choose whether being reminded or not, he is subconsciously reminded of related words such as nurse,

patient, hospital and so forth. Although this event is different from contextual effect, it can be influenced by it.

Regarding the word association studies throughout history, the researchers have taken different points into consideration in the analysis stage, from the reaction time or response failure to the stimulus words to the categorization of the response words, also with different variables.

### 3.3.5. Word Association Research

The credit for the first word association experiment goes to Galton, a cousin of Charles Darwin (1879). He tested 75 words with himself as a subject and repeated the experiment four times. Realizing that the same responses occurred frequently, he noted the importance of early life experience, and distinguished three types of responses; visual image, historic representation and pure verbal (Levelt, 2013: 148).

Following Galton, many German psychologists, mainly the Wundtians, pioneered word association experiments of the 19th century. They found that stimuli with many response possibilities, ambigious stimuli and rare stimuli had long reaction times. Stimuli which were frequent had short reaction times. Galton, Wundt and notably Swiss psychoanalyst Carl Jung felt that the way words are associated in the mind had important psychological implication and suggested that word associations would reveal consored and unconscious aspects of people's thoughts (Deese 1965; Stan 1983 cited in Edwards, 2003). It has been used to reveal the private world of an individual.

Cattell (1887) did the first controlled association test by specifying the relationship between stimulus and responses. He also found the reaction time gets shorter when more control is imposed (cited in Freedheim and Weiner, 2003).

So far, these experiments had been done with a very small number of participants. The first experiment with a large group of participants was carried out by Cattell and Byant (1889). They had published association norms for 10 concrete and 10 abstract words.

They tested 465 participants and constructed the first frequency tables, showing that the same responses were given by many participants. This was later developed into the concepts of response commonality and primary responses (cited in Levelt, 2013: 430).

Reaction time was studied by Mayer adn Orth (1901), who tested four participants and obtained their introspective reports. He found that when there is an intervening conscious process, reaction time gets longer, thereby suggesting the classification of spontaneous and mediated associations. The same distinction was called "immediate" and "mediated" by Aschaffenburg (1895). Trantschold, on the other hand, suggested a completely different classification: "outer" (logical) and "inner" (semantic) relationships. Dauber (1911) found an inverse relationship between the number of different responses to a stimulus and the frequency of a particular response, thus clearly establishing the concepts of primary response and response frequency. He also noted that clang associations (associations connected by sounds with little semantic relation) seldom occur, yet tend to appear more frequently with nonsense syllables. All these studies were characteristically concerned with stimulus and response variables, with reaction time as the only other variable, in sharp contrast with the variety of studies available today. Other variables, such as subject variables were not considered. The results, by today's standards, were sketchy, with only a handful of participants and little control on testing environment. This is partly because these scienists were pioneers without any guideliness to follow, but mainly because they were interested in the phenomenon of word association itself. They wanted to know the mechanism between stimulus and response, (the apparent components of word association), thereby speculating on the process behind it. However sketchy statistically or methodologically they may have been, their findings and speculations did lay the ground work on which clinical studies could grow. These studies concentrated on the differences between normal and pathological populations and used word association as a tool to measure subject variables.

Thumb and Marbe (1901) used a variety of stimuli instead of the common nouns. They tested a list of 60 words of different grammatical classes on eight participants and proposed Marbe's Law, the main components of which are:

1. responses are from the same grammatical class as the stimuli,

2. associations tend to be reciprocal,
3. the more common an association is, the shorter the reaction time is.

The first proposition of Marbe's Law was tested by Schmidt (1902) with eight ten-year-old boys and using 48 verbs in various conjugations as responses. Wreschner (1907) used fifteen educated adults, five uneducated adults and two children, and also found that most responses are from the same grammatical classes. In addition, he was the first person to introduce subject variables for consideration, and more importantly, was the frist person to challange explicitly contiguity and similarity. He discovered what we now call latency and priming effects, as well as the tendency for a response to a familiar stimulus to be automatic and common among participants, he even noted what we now call association strength- that certain words recur as a response to different stimuli. He suggested "psychical reworking" as the association process, urging scientists to study the memory process and the lexicon of associated words as the psychology of language. Thus he represents the first swing back to the nativist position, although the full swing was 50 years away.

From the start of experiments in word association, the possibility of its application to clinical purposes had been suggested. Besides the fact that both Galton and Cattell are examples of such advocated (Esper, 1973) in order to use it in clinic an laboratories, however, the typical word association of a normal population had to be known. Responding to the need for such a norm with which the pathological population coould be compared, G. H. Kent and A. J. Rosanoff (1910) tested a total of 1000 people on 100 words, which makes it the first large scale study. The participants were of different occupations and levels of education. Kent and Rosanoff read one word at a time to a person who was to give the first word that came into his/her mind.

*Table 2. Set of 100 words commonly used in studies of L1 word associations*

| | | | |
|---|---|---|---|
| 1 table | 2 dark | 3 music | 4 sickness |
| 5 man | 6 deep | 7 soft | 8 eating |
| 9 mountain | 10 house | 11 black | 12 mutton |
| 13 comfort | 14 hand | 15 short | 16 fruit |
| 17 butterfly | 18 smooth | 19 command | 20 chair |
| 21 sweet | 22 whistle | 23 woman | 24 cold |
| 25 slow | 26 wish | 27 river | 28 white |
| 29 beautiful | 30 window | 31 rough | 32 citizen |
| 33 foot | 34 spider | 35 needle | 36 red |
| 37 sleep | 38 anger | 39 carpet | 40 girl |
| 41 high | 42 working | 43 sour | 44 earth |
| 45 trouble | 46 soldier | 47 cabbage | 48 hard |
| 49 eagle | 50 stomach | 51 stem | 52 lamp |
| 53 dream | 54 yellow | 55 bread | 56 justice |
| 57 boy | 58 light | 59 health | 60 bible |
| 61 memory | 62 sheep | 63 bath | 64 cottage |
| 65 swift | 66 blue | 67 hungry | 68 priest |
| 69 ocean | 70 head | 71 stove | 72 long |
| 73 religion | 74 whiskey | 75 child | 76 bitter |
| 77 hammer | 78 thirsty | 79 city | 80 square |
| 81 butter | 82 doctor | 83 loud | 84 thief |
| 85 lion | 86 joy | 87 bed | 88 heavy |
| 89 tobacco | 90 baby | 91 moon | 92 scissors |
| 93 quiet | 94 green | 95 salt | 96 street |
| 97 king | 98 cheese | 99 blossom | 100 afraid |

(Kent and Rosanoff, 1910)

After analysing the responses given to these stimuli words, Kent and Rosanoff claimed that there was uniformity in the organization of associations and people shared stable networks of connections among words. They gave psychologists and other researchers the classic word association data to which they have come back again and again, even up to the present day (Carroll, 2008). The importance of the Kent and Rosanoff's study as a bridge between the early studies already reviewed and recent ones to be reviewed was that the Kent and Rosanoff study suggested statistical method in word association, which it enables reliable results, and also suggested the comparison of word association responses of different populations, that is, it provides a comparative analysis and information about the populations. Another significant contribution of Kent and Rosanoff is that they carried out socio-cultural studies in which sex, socio-economic status, education and cultural differences are measured; linguistic cultural studies in which the word sssociation of different linguistic populations is compared.

Developments in cognitive linguistics relating to the categorization of sense relations (e.g. Croft and Cruse, 2004), insights from natural language processing research (e.g. latent sematic analysis, Landauer et al., 1998), and the development of large-scale lexical data-bases such as WordNet (Miller, 1995) have some potential to challange and inform WA categorization systems, especially in the case of semantic (paradigmatic) connections (cited in Fitzpatrick et al., 2013). WA studies gives information on the way how knowledge structures in the human mind. Besides the syntagmatic, paradigmatic and clang responses, concrete and abstract reponses and shift from one to another also gives clues about one's semantic development. How these response types differ according to the variables such as one's age, gender, culture, being bilingual, socio-economic conditions have been studied for years.

#### 3.3.5.1. Children's Associative Behaviour

In the history of psychology, free word association has been studied in both adults and children for its implications regarding cognitive and language development. However, because the age range when the shift from one response type to another corresponds to childhood, a great number of WAT studies have focused on the association behaviour of the children.

The study of children's word association started as a direct result of the Kent/Rosanoff norms in the United States, and it is well known that children's word association differs from that of adults in containing clang responses and less commonality (Palermo 1963). The importance of mental age rather than chronological age in association was discovered by comparing retarded and healthy children (Eastman and Rosanoff 1912, Otis 1915). Rosanoff (1913) established data on 300 healthy children, 25 at each age from four through 15. They found that these characteristics of children's word association rapidly disappeared and by the age of 11 became very close to adults'.

One of the most important of the child studies was reported in 1916 by Woodrow and Lowell. They tested 1000 fourth and fifth grade children on 100 words, 90 of which were taken from the Kent/Rosanoff norm. The results of this study suggested many differences between the word associations of adults and children. Except in a few cases, popular responses differed. Compared to adults, children tended to give fewer contrast, superordinate, coordinate, part-whole, noun-abstract attributes; fewer principles and cause-effect responses; and to give more verbs, verb-object, noun-adjective, adjective-noun, pronoun, reinterpreting responses, and more syntagmatic responses. Mental age of the children vary from one to another and the main effect is on the language.

Brown and Berko (1960) found a positive correlation between the correct use of nonsense syllables and age, and more interestingly, a strong correlation among homogeneous (same form class) responding, age, and the correct use of nonsense syllables. Thus paradigmatic responding (called homogenous by Brown and Berko) was found to be closely related to the linguistic skills associated with correct understanding and the use of parts of speech.

After statictical analysis of children's texts (counting grammatical sequence and associative responses) Ervin (1961) concluded that paradigmatic responses are produced by "training forward contiguity in speech", that is, tea and coffee are associated in the frame of "a cup of tea." Indeed, this association is the result of mediation process by contiguity as in A-B, A-C, B-C. The increase in paradigmatic responding is caused by both increased contextual variety and increased vacabulary, which reduces the probability

of syntagmatic responding. She also found that clang responses decreased markedly between kindergarten and third grade and reached almost zero in grade six.

Palermo and Jenkins (1963) tested 500 students at each of these grades: four through eight, ten, eleven, and tewlve. They also tested 100 college students and resported and extensive chronological norm. A list of 100 Kent and Rosanoff words and and additional 100 words were used as stimuli. They found, contrary to other studies showing adults giving more superordinate responses than children, that superordinate responses reached their peak among grade four, five, and six students and steadlily decreased to the college level. Opposite responses steadily increased with age, but surprisingly, the paradigmatic responses to adjectives descreased between grades four and twelve, while the rest of grammatical classes showed the expected increase as age advanced. They also compared their results with those of Kent and Rosanoff and of Woodrow and Lowell, and found that today's children are much closer to adults than the children of 50 years ago. Thus, they stated, linguistic development is much more rapid today.

Entwisle et al (1964) in their preliminary report on the massive norms of 1200 young children, reported on th testing of 500 children with 96 words. It was found that syntactic responses gradually replaced noun responses and reached their peak at grade one. Then, the shift toward paradigmatic responses from syntactic responses occured first with adjectives, then nouns and finally with verbs. They compared the results of this study with other studies, and found that compared to the Woodrow and Lowell study (1916), there was a marked increase in paradigmatic responses among their participants. They speculated that the mass media caused the acceleration of linguistic development, which resulted in early S-P shift. These researchers accept Ervin's theory. Entwisle (1964: 74), however, goes even further in her full report of the study in 1966, proposing that it is not age which is causing the S-P shift but rather that "All words may go through similar stages of development at a rate that depends on exposure but is modified both by discriminability of stimulus and by contextual clues. The development of these stages is governed by increasing exposure to every word."

In McNeill's study (1966) two experiments have been conducted for dealing with the production of paradigmatic word associations. The first indicates that paradigmatic associations are not learned by experiencing words in contiguity. The second experiment indicates that paradigmatic associations arise through the same processes that create productive distribution classes. The results have implications for the paradigmatic shift of childhood.

Entwisle and Muss (1968) applied word association task to the rural German children at first-, third-, and fifth-grade levels to show patterns of paradigmatic responding like those seen in American children, although it seems that German children develop more slowly. Sex differences are much more noticeable than in American children. Residential locus (rural vs. urban) may explain more variance than differences between languages.

Brosier (1974) investigated the relationship between paradigmatic responding and academic variables. He tested 400 students in grades one through five. The factors controlled were age, sex, race, academic variables such as vocabulary, reading comprehension and so forth; and the occupation, education and intelligence of the head of the family. A word association test and a sentence completion exercise were the tasks administered. He found that vocabulary scores, education and age were significantly correlated with paradigmatic responding.

It has been suggested that it is not only academic or intelligence variables but also social status variables which seem to influence the S-P shift. Kumin (1973) tested 100 lower class and 100 middle class children. Seventy noun and verb stimuli were divided and presented half orally and half visually. In both cases, middle class children produced more paradigmatic responses. In this study, the researcher attempts to choose the children with the almost same social networks.

Mattheoudakis (2011) examined the developmental shift of response type through a qualitative study of word associations in Greek. In particular, it was investigated whether the associations produced by Greek speakers confirm findings of similar studies in other languages with respect to the syntagmatic-paradigmatic shift. A translated version of the

Kent-Rosanoff test was administered to both adults and children who were native speakers of Greek. The findings of this study do not provide support for the concept of the syntagmatic-paradigmatic shift, as they indicate a predominance of syntagmatic associations in adults' responses.

Sharif and Sadighi (2013) conducted a study to compare and contrast the word association behavior of children and adults in Persian language. 24 children who are six years olds in a day care center and 23 undergraduates studying at an institute of higher education in Iran were given a single-response word association test. The analysis of the responses to the word association test revealed that both age groups had an inclination towards generating syntagmatic responses and the concrete stimulus words elicited more syntagmatic responses than the abstract words. Moreover, in all word class types under scrutiny (e.g., nouns, adjectives, and verbs), syntagmatic responses outnumbered the other three types of responses.

In his dissertation, Yasutake (1985: 43) summarizes the children's word association studies with the following statements:

- Children tend to give clang responses and other response faults (unrelated response, stimulus repetition, etc.) which disappear rapidly as children grow older.
- The S-P shift seems to appear between ages five and ten, depending on the form class of stimuli and the intelligence of the child.
- Exposure to language environment, lexical memory organization, the development of semantic knowledge, and cognitive development seem to play a role in the S-P shift.
- Contrast responses play a major part in paradigmatic responding.

Language development between ages 6 to 11 is remarkable, as children consciously come to understand more about the many ways language is structures and can be used. This understanding gives them greater control in their comprehension and use of language, and, in turn, enlarges the range of their cognitive powers generally.

3.3.5.2. Cross- Cultural Studies

When reviewing the few cross cultural studies, it should be noted that differences are mainly found in the areas of primary responses, commonality and importantly, S-P dichotomy. These are same areas in which differences are found between adults and children. The large scale cross-cultural comparison of word association responses was first reported by Rosengweig (1959) who used the Russels and Jenkins norm as the American sample. He compared French, German and Italian responses to translation equivalents of the Kent and Rosanoff word list with the American norm. High frequency primaries were almost the same across different languages and low frewuency primaries were dissimilar. The most popular responses were usually paradigmatic responses.

Entwisle and Muuss (1968) studied word association of German rural children. By using High German speaking and Low German speaking samples as well as American data for comparison, they tried to see whether inter-language difference would cause developmental difference. Twenty participants in each of grades one, three and five in each dialect were tested on 96 stimuli from the 1966 Entwisle norm. The increase in paradigmatic responses to adjectives and verbs was greatest between grades one and three with a moderate increase between grades three and five. Paradigmatic German speaking participants consistently gave more paradigmatic responses to nouns showed only a moderate increase. High German speaking participants consistently gave more paradigmatic responses than Low German speaking sunjects. A significant intearaction of form class, dialect, grade was found.

Ekpo-Ufot (1978), using 30 words from the Kent and Rosanoff list, compared continuous word association by 115 Nigerian students to the Minnesota norm. A 42% equivalence was found in the three most popular responses, and Nigerian participants gave more noun responses than the U.S. population. Ekpo- Ufot attributed this difference to basic cultural and personality differences.

Isa and Maskill (1982) also considered cultural difference to be the reason for interlanguage differences in word association, and found higher commonality among Malaysian children than Scottish children. These children were given a test of free word

association to scientific words, and a test of controlled association to elicit scientific words. Malaysian children produces more and unified responses. Since they were matched for education and age, cultural difference was concluded to be the cause.

Results from a wide range of studies done by Szalay (1978) and his collaborators indicate, for example intelligence has a more academic association for Americans and is more related to respect, politeness and manners for Koreans (Rozin et al., 2002).

A total of 195 participants from four countries were asked to indicate all the words that came to their minds when the stimulus words, "rice" and "good rice" were verbally presented. Frequencies of elicited words were counted and these words were grouped in different categories by triangulation. Some similarities and differences were observed among countries which are Korea, Japan, Thailand and France. French participants tended to associate "rice" more frequently with concepts such as foreign countries, culture, travel and exoticism. Participants in Asian countries tended to associate it more frequently with concepts such as agricultural products, necessary goods, and emotions. For good rice, all participants elicited terms linked to taste, health and process. However the relative importance of these categories of terms differed between countries. Health was more considered by Korean and Thai participants and cooking process was more considered by French and Japanese participants. Agricultural process was frequently cited by Korean and Japanese participants. Results showed that there are clear cultural differences in terms of utilitarian and symbolic motivations to consume rice as well as on the relative importance of the main quality criteria associated with rice (Son et al., 2014)

3.3.5.3.Gender-related studies

According to the study carried out by Haas (1979), male adults tend to use nouns more than adjectives and verbs because they do not tend to make evaluations as woman do. The study of Bawaneh et al. (2011) showed that females use more proper nouns than males. Another study have shown that the number of the abstract concepts show difference according to the gender. Some of the studies show that the females are dominant in abstract thinking (Sciencedaily, 2008) whereas other studies suggest that

there is not gender-based difference in terms of abstract thinking and use of abstract concepts or there is male-dominant abstract language use (Roberts, 2010).

The responses of female and male adults are predominantly in the same category, paradigmatic or syntagmatic, shown in a study (Jung & Kent and Rosanoff, 1910). Also suggested by "Bybee's (1988) model of morphological structures in the mental lexicon, morphologically related words are indeed linked in form as well as meaning" (cited in Jogn, 1976). Brue Bridgeman and Gordon McHalle (1996: 16) argues that "women appeared to perform relatively well with a format that requires written responses." Evidence form a variety of sources supports the finding that, on the average, females have better verbal abilities than males, but the advantage is likely to be small and depends on the type of verbal ability that is measured. Like the other cognitive abilities, "verbal abilties" is not a unitary concept. The term applies to all components of language usage: word fluency, which is the ability to generate words (both in isolation and in a meaningful context), grammar, spelling, reading, writing, verbal analogies, vocabulary, and oral comprehension (cited in Halpern, 2012).

Sex differences in some verbal abilities appear early in life. According to Cole (2001), children learn to use 200 to 300 words by age 2. Between 16 months and 30 months of age, girls lead boys in the number of words they can say by about one month of development (in Fenson et al., 1994). Another study provided a somewhat higher estimate of girls' early vocabulary development, with 2-year-old girls using an avearge of 275 words, whereas boys use an average of 197 words (Lutchmaya et al., 2002).

Both Kimura (1999) and Halpern (2000) suggested that verbal retrieval is more efficient in women. Herlitz et al. (1999) suggested that women were more efficient in word recall. In their study, they found evidence for women being more efficient in the free recall of abstract words (cited in Hamilton, 2008: 68).

Women generally tend to outperform men on tasks that engage long-term linguistic knowledge, such as verbal fluency and synonym- generation tasks (e.g., Herlitz et al,

1999, Kimura and Harshman, 1984, Larsson et al., 2003, Loonstra et al., 2001 and Maitland et al., 2004).

Another study compared the free associations of males and females of a younger group (18–39 years old) composed mainly of American college students to an older group. Participants were asked to write the first thing that came to mind in response to nine common foods, as well as the feelings/emotions and social relationships they associated with the nine foods. Responses were coded into 17 categories. Overall (aggregated across the different foods), males and females were almost identical in the category distribution of their free associations (Rozin et al., 2002: 423).
According to a study released in 2010 by Robelen, there is "good news for girls and bad news for boys… overall male students in every state where data are available lag behind females in reading" (Halpern, 2012 ).

3.3.5.4. Bilingual Studies

The studies reporting on bilinguals' word association are limited in number. Taylor (1976) administered continued word association to French and English bilinguals and found that the bilinguals tend to give translation equivalents as responses. This may well be the natural result of English and French response similarity.

Berrueta- Clement (1978) studied bilinguals and monolinguals in Guatemeala and found that the two groups differed in association patterns and commonality. Importantly, bilingual participants gave associations similar to monolingual speakers of each language.

Riguet (1980) administered the Kent and Rosanoff list to monolingual Tunisians and French- Arabic bilingual Tunisians. Responses in French by bilingual Tunisians were very similar to the French norm, yet very different from monolingual Arabic speakers. Riguet attributed this pattern to the different educational system rather cultural difference.

Reustle (2008) investigated the effect of L1 on the syntagmatic-paradigmatic shift in bilingual Russian-English speaking children and monolingual English-speaking children via a repeated word association task. The results showed that 5-6 year-old English

monolingual participants produced more paradigmatic responses then their Russian-English bilingual peers, although with age, there was a large increase in the number of paradigmatic responses produced by the bilingual participants. By age 7-8, the bilingual participants were using more paradigmatic responses than their 7-8 year-old monolingual peers.

Sheng et al. (2006) examined lexical–semantic organization of bilingual children in their two languages and in relation to monolingual age-mates. Twelve Mandarin–English bilingual and twelve English monolingual children generated three associations to each of 36 words. Responses were coded as paradigmatic (dog–cat) or syntagmatic (dog–bark). Within the bilingual group, word association performance was comparable and correlated between 1st and 2nd languages. Bilingual and monolingual children demonstrated similar patterns of responses, but subtle group differences were also revealed. When between-group comparisons were made on English measures, there was a bilingual advantage in paradigmatic responding during the 1st elicitation and for verbs. The results of this study support that previous studies in finding parallel development in bilinguals' 1st- and 2nd-language lexical–semantic skills and provide preliminary evidence that bilingualism may enhance paradigmatic organization of the semantic lexicon.

3.3.5.5. L2 studies

According to Schmitt (1998) the use of word associations holds a great deal of promise in the areas of L2 vocabulary research and measurement. He further claims that word association procedures can be used as an alternative way to test vocabulary.

For Wolter (2002) when developing a WAT, it should be kept in mind that

1. WAT would be relatively quick and easy both to administer and to score,
2. Be a nice complement to other methods of assessing learner performance and
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, he 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. However, his study with a group of language learners and native speakers did not support his views since he could not find any evidence that word associations in a foreign language are linked to proficiency. Some researchers such as Randal (1980), den Dulk (1985) and Kruse et al. (1987 all cited in Wolter, 2002) tried to demonstrate a link between proficiency and responses on a multiple response word association test. They claimed that WAT could function as a means of assessing proficiency. However, there appeared some problems with these studies, too and they were criticized because they used words from Kent-Rosanoff (1910) list.

Soderman (1993) found a "shift in response types" in L2 mental lexicon. By testing four groups of ESL learners of different language proficiency levels, Soderman found a decrease in clang responses and syntagmatic responses with the increase of learners' proficiency level. Her findings also show a phonological-semantic shift in learners' associative patterns with the development of their lexical knowledge and language proficiency. The study suggested that the mental lexicon between L1 and L2 learners are not as different as it is believed earlier (cited in Du and Gao, 2013).

Previous research has shown a tendency for native speakers to respond to word association stimuli paradigmatically and for non-native speakers to respond syntagmatically (Coulthard et al., 2000: 27; Meara, 1983).

Peppard (2007), in his study, aims to explore the L2 mental lexicon. A simple word association test consisting of eight stimulus words was administered to both low-level and high-level Japanese EFL students as well as a group of native English speakers for comparative reasons. Half of the participants were presented with verbal prompts and the other half were presented with visual prompts. In total, 556 responses were collected for the eight stimulus words, with six instances of low-level students being unable to provide a response. All of the responses were first classified into paradigmatic, syntagmatic and phonological associations; the paradigmatic responses were further classified into co-ordination, hyponymy/ hypernymy and synonymy. The results suggest that attempting to

categorize word association results based on word class is insufficient; the specific nature of individual words likely has a stronger effect.

Several studies have reported that Japanese adults tend to respond syntagmatically both in English and Japanese. Koreans were also found to respond this way (Yoneoka, 2001).

İstifçi (2010) investigated word associations of elementary and advanced level EFL learners through a 20-item Word Association Test in order to see whether there are differences or similarities between the results of the students in these groups. In order to examine the word associations of the students in each level, a questionnaire which includes 20 words was designed by the researcher. Of the 20 words, 10 words were abstract and 10 words were concrete nouns. The nouns were randomly selected among the words that students mostly use in ther English courses. 25 students in elementary and 25 students in advanced leves (between the ages of 18-20) participated in the study. The data were analysed according to Kess' classification with one modification. In the second type (members of the same taxonomy) 'coordinates' was added as the third type. All responses were counted and ranked according to their frequencies. It was observed that students in elementary level preferred using simple adjectives such as *love-necessary, harmful, mother-friendly, life-good, beautiful* whereas the students in advanced level used more complex and derived words such as l*ove-affection, romanticism, mother-confidence, safety, beauty, life-expectancy*. This difference might be due to their levels since the students in advanced level were exposed to more complex vocabulary and they may have kept it in their memory. Another finding is that students in elementary level made personal attributions in their responses more than the students in advanced level (e.g. love-Ezgi, death-my grandfather, home-my family, freedom-Atatürk, peace-Manço). The result of this study suggested that EFL learners try to use a wide range of word association tehcniques and the proficiency level of the students have partial effect on their use of word associations.

3.3.5.6. Associative Behaviour of Unhealthy People

One of the most striking study among the WAT studies is the participants of which are deaf people and healthy people. Restrains (1969) used word association to test deaf people

and matched healthy people. Two schools were chosen as subject pools with one supplying 89 studies, nine to twenty years old and the others supplying 63 students, nine to fifteen years old. The control group was comprised of 302 comparable school students of nine to 17 years old. The 200 word list of the Palermo and Jenkins' norm was used as stimuli. The participants were divided into three age groups and compared. There was a significant increase in contrast responses as participants got older, in line with Palermo and Jenkins. Deaf students gave more paradigmatic responses than healthy people.

Previous word association tests administered to deaf children using English words have yielded conflicting, ambigious, or uniterpretable results (Kline, 1945; Koplin, Odom, Blanton & Nunnaly, 1967; Nunnally & Blanton, 1966 cited in Hoemann and Tweney, 1991). Hoemann and Tweney (1973b) designed a word/sign association test including nouns, verbs, and adjectives that could be administered to deaf participants. The task was administered individually to deaf children and to a group of hearing participants in the same age range. There was a significant tendency on the part of both deaf and hearing participants to make more paradigmatic responses with increasing age. The syntagmatic-paradigmatic shift was a consistent and as regular for deaf children as it has previosuly been shown to be for hearing children. Although hearing children produces quantitaviley a greater proportion of paradigmatic responses, the deaf and hearing groups' performance were qualitatively similar. These results suggest that the course of linguistic and conceptual development of deaf children using a visual language parallels the development of hearing children using a spoken language.

The study conducted by Saffran et al. (2003) reveal whether the pictures and words elicit different associates. Healthy participants were asked to produce the "first word that comes to mind" in response to pictures or words that differed with respect to manipulability and animacy. In separate analyses across participants and items, healthy participants produced a significantly higher proportion of action words (that is, verbs) to pictures as compared to words, to manipulable as compared to non-manipulable stimuli and to inanimate as compared to animate stimuli. These data suggest that pictures and words initially contact different forms of conceptual information and are consistent with an account of semantic organization that assumes that information is distributed across different domains

reflecting the mode of acquisition of that knowledge. Participants included 24 native English speakers (14 female) with no history of neurologic or visual deficits. The mean age of the participants was 33.8 ±11.3 years (range 19–61). Twelve participants were tested with each stimulus set; half of the participants saw the word stimuli first and half saw the line drawings first. Thus, for each stimulus, 12 participants responded to the picture and 12 to the word. Participants were tested individually in sessions lasting approximately 25 min. The data from this study demonstrate that pictures and words elicit different associates; pictures elicit more verbs than words. Additionally, more verbs are produced in response to manipulable and inanimate objects. Finally, responses to words are significantly more likely than responses to pictures to match standard word associates. These data suggest that words and pictures initially contact different types of representations.

The construction of associated word lists is important for the elaboration of psychological and neuropsychological tasks and experiments. It remains unknown whether differences exist in the semantic associations of words from childhood to adulthood, possibly indicating important lexico-semantic developmental changes that influence neuropsychological assessment. Another neuroscience study compared semantic word associations in children and adults in terms of forward associative strength and set size. The participants included 247 children from the third grade of elementary school, aged 7 to 11 years and 108 adults, aged 16 to 49 years. The task consisted of the participants responding to the first word that came to mind with a meaning related to each of 87 words presented aloud (target). The children's responses had significantly higher forward associative strength between the target and the most frequent associate word and a smaller response diversity index. Although the meaning and total set size did not significantly differ between groups, 40.2% of the targets had a large meaning set size in the children compared with only 10.3% in the adults. Among the most strongly associated pairs, 56.3% were equal between the sample groups. These results suggest that the selection of stimuli for the construction of verbal cognitive tasks should consider specific word association norms for different ages (Zortea and Salles, 2012).

3.3.5.7. Literature on Turkish WA studies

Bostancı (2009) studied to determine the signs of sub-culture at different genders and social stratums via the associations of 207 basic words in Turkish. Gender and social stratum differences have an impact on the lifestyles, and the perceptions, attitudes, behaviors, and language which are also shaped by those life styles. This study showed that the associations of 207 basic words express the characteristics of subcultures, life styles, and language use at different genders, and social stratums.

Pilancı (2014) studied the socio-economic factors which affectes the word associations of the Turkish children between the age of seven and nine. The data of the study were collected in two schools differing in regard to socio-economical features, during the school years 2006-2007, 2007- 2008 and 2008-2009. The results of the study showed that socio-economical differences lead to different word association.

Şimşek (2011) studied the word associations of university students to the phrase "Gençliğin Eğitimi." The participants from three different countries such as Turkey, Russia and Ukraine. The results showed that Turkish students produced singular and negative word associations. The majority of the positive word associations by the countries were related with the concepts "hope and expectation."

Overall, regardless of which direction word association studies go, the close interrelationship between language and word association can never be denied, no matter which implicit process is involved. This is because both the input and output of word associations are language and indeed the objective reason is that "our ability to produce associations is presumably derived from our ability to understand and produce language" (Clark, 1970: 272).

# CHAPTER 4: ANALYSIS

## 4.1. Evaluation of Personal Information and Socio-cultural Activity Questionnaires

In this section, the analysis and evaluation of personal information and socio-cultural activity questionnaires are given. These two questionnaires give clue about the social interaction in urban and rural setting.

### 4.1.1. Personal Information Questionnaire

*Table 3: The distribution and comparison of urban and rural children's personal information*

| | **URBAN (n=234)** | | **RURAL (n=111)** | | $\chi^2$ | **p*** |
|---|---|---|---|---|---|---|
| | **N** | **%** | **N** | **%** | | |
| Gender | | | | | | |
| Female | 110 | 47 | 58 | 52.3 | 0,829 | 0,363 |
| Male | 124 | 53 | 53 | 47.7 | | |
| Duration of living in urban/rural area | | | | | | |
| Since birth | 176 | 75.2 | 84 | 75.7 | 0,009 | 0,926 |
| Since … years old | 58 | 24.8 | 27 | 24.3 | | |
| Living in urban/rural area beforehand | | | | | | |
| Yes | 27 | 11.5 | 12 | 10.8 | 0,040 | 0,842 |
| No | 207 | 88.5 | 99 | 89.2 | | |
| Duration of living in urban/rural area beforehand | | | | | | |
| 1-2 years | 16 | 66.7 | 4 | 40 | | |
| 3-5 years | 6 | 25 | 5 | 50 | 2.239 | 0,278 |
| More than 5 years | 2 | 8.3 | 1 | 10 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Having own room at home | | | | | | |
| Yes | 130 | 55.6 | 38 | 34.2 | 13.699 | 0,000 |
| No | 104 | 44.4 | 73 | 65.8 | | |
| Pre-school education | | | | | | |
| Yes | 147 | 62.8 | 50 | 45 | 9.711 | 0,002 |
| No | 87 | 37.2 | 61 | 55 | | |
| Mother's educational background | | | | | | |
| Not literate | 5 | 2.1 | 12 | 10.8 | | |
| Primary/middle school degree | 152 | 65.2 | 80 | 72.1 | 18.485 | 0,000 |
| High school degree | 76 | 32.6 | 19 | 17.1 | | |
| Father's educational background | | | | | | |
| Not literate | 3 | 1.3 | 8 | 7.2 | | |
| Primary/middle school degree | 133 | 56.8 | 78 | 70.3 | 18.424 | 0,000 |
| High school degree | 98 | 41.9 | 25 | 22.5 | | |
| Father's occupation | | | | | | |
| Worker, farmer, tradesman | 193 | 82.8 | 106 | 95.5 | 10.603 | 0,000 |
| Officer, retired | 40 | 17.2 | 5 | 4.5 | | |
| Mother's occupation | | | | | | |
| Not worker | 183 | 79.2 | 100 | 90.1 | | |
| Worker, farmer, tradesman | 36 | 15.6 | 11 | 9.9 | 8.593 | 0,014 |
| Officer | 12 | 5.2 | 0 | 0 | | |
| Number of sibling | | | | | | |
| One sibling | 108 | 49.5 | 26 | 24.3 | | |
| Two siblings | 75 | 34.4 | 46 | 43.3 | 21.757 | 0,000 |
| Three and more sibling | 35 | 16.1 | 35 | 32.7 | | |
| Family type | | | | | | |
| Nuclear family | 197 | 84.2 | 93 | 3.8 | 0.009 | 0,924 |
| Extended family | 37 | 15.8 | 18 | 6.2 | | |

*Chi-square **Fisher's Exact test

As can be seen in the table above, no significance was found between urban and rural children in terms of gender, duration of living in rural/urban area at present and beforehand and their family types ($p>0,05$).

In relation to the other points, significant differences have been revealed in terms of information about urban and rural children. Statistically significant differences were detected on the percentage between urban and rural children's having own room at home ($p< 0,001$) and preschool education ($p< 0,01$). In detail, the percentage of urban children's having own room (55,6%) is much more than rural children's having own room (34,2%). Another question was related with the children's pre-school education. The percentage of urban children's pre-school education (62,8%) is much more than rural children's pre-school education (45%). Even if there are significant difference between urban and rural children's pre-school education, it is undeniable that nearly half of the rural children have pre-school education.

On the other hand, statistically significant difference between urban and rural children's mothers' education level was detected ($p< 0,001$). The percentage of urban children with mothers having high school degree (32,6%) is much more than rural children with mothers having high school degree (17,1%). Statistically significant difference between urban and rural children's fathers' education level was detected ($p< 0,001$). The percentage of urban children with fathers having high school degree (41,9%) is much more than rural children with fathers having high school degree (22,5%).

When it comes to the occupation of the parents, statistically significant difference was found between urban and rural children's both fathers and mothers in the matter of their occupation (respectively $p< 0,01$ and $p<0,05$). The percentage of urban children's fathers' being officer (17,2%) is much more than rural children's fathers' being officer (4,5%). On the other hand, the percentage of rural children's mothers' being not workers (90,1%) is much more than rural children's mothers' being not worker (79,2%). Almost all of the mothers in rural and urban areas were housewives. As for the fathers, they are principally farmer in rural districts and workers in urban districts.

The analysis also showed significant difference when the number of siblings of urban and rural children were compared ($p < 0,001$). Whereas the percentage of urban children's having one sibling (49,5%) is much more than rural children's having one sibling (24,3%), the percentage of rural children's having two siblings (43%) and having three and more siblings (32,7%) is much more than urban children's having two siblings (34,4%), and having three or more siblings (16,1%). It is seen that having own room may lead to less developed semantic network, abstract reasoning and word retrieval owing to the less interaction with the siblings or the family.

Göğüş (1978) suggests that whether the residential area is urban or rural part of the city, whether it is based on agriculture or trade, whether the family is poor or rich, whether there is television, radio at home or not, whether magazines, newspapers are available at home or not and the relationship with the peers are all among the factors having vital role on the language development. Besides, the communication and interaction with other members of the familly, especially with the siblings is influential in the language development (Topbaş, 2003: 75).

Besides these suggestions and considering all the findings of the present study above the significant difference between urban and rural parent's educational background of takes great deal of attention. It is necessary to purify the word association responses from the influence of the parents educational background. With the aim, all the parameters were analyzed according to the parents' educational background.

### 4.1.2. Socio-cultural Activity Questionnaire

Based on the statement: "mental functioning in the individual can be understood only by examining the social and cultural processes from which it derives (Wertsch and Tulviste, 1992: 548), socio-cultural activity questionnaire was given to urban and rural children to examine their social activities and differences between them, hence to get informed about the influence of socio-cultural activities on the language development.

*Table 4: The distribution and comparison of urban and rural children's socio-cultural activities*

| | **URBAN(n=234)** | | **RURAL(n=111)** | | $\chi^2$ | **p*** |
|---|---|---|---|---|---|---|
| | **N** | **%** | **N** | **%** | | |
| Having computer at home | | | | | 14,460 | 0,000 |
| Yes | 207 | 88.5 | 80 | 72.1 | | |
| No | 27 | 11.5 | 31 | 27.9 | | |
| Frequency of using computer | | | | | | |
| Every day | 63 | 32.3 | 33 | 41.8 | | |
| Once/ several in a week | 117 | 60 | 42 | 53.2 | 2,678 | 0,444 |
| Once/several in a month | 15 | 7.7 | 4 | 5 | | |
| Frequency of using internet | | | | | | |
| Every day | 72 | 30.9 | 27 | 24.5 | | |
| Once/several in a week | 109 | 46.8 | 43 | 39.1 | 13.926 | 0,003 |
| Once/several in a month | 14 | 6 | 3 | 2.7 | | |
| Never | 38 | 16.3 | 37 | 33.6 | | |
| Having facebook account | | | | | | |
| Yes | 160 | 68.4 | 52 | 46.8 | 14.73 | 0,000 |
| No | 74 | 31.6 | 59 | 53.2 | | |
| Frequency of watching TV | | | | | | |
| Every day | 182 | 77.8 | 93 | 83.8 | | |
| Once/several in a week | 42 | 17.9 | 15 | 13.5 | 3,649 | 0,291 |
| Once/several in a week | 2 | 0.9 | 2 | 1.8 | | |
| Never | 8 | 3.4 | 1 | 0.9 | | |
| Having own mobile phone | | | | | | |
| Yes | 105 | 44.9 | 11 | 9.9 | 41.234 | 0,000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| No | 129 | 55.1 | 100 | 90.1 | | |
| Frequency of text messaging | | | | | | |
| Every day | 24 | 28.2 | 0 | 0 | | |
| Once/several in a week | 48 | 56.5 | 6 | 85.7 | 2.923 | 0,266 |
| Once/several in a week | 13 | 15.3 | 1 | 14.3 | | |
| The mean number of the books read in a year | | | | | | |
| None | 2 | 0.9 | 3 | 2.7 | | |
| 1-2 books | 27 | 11.5 | 22 | 19.8 | 7.450 | 0,059 |
| 3-5 books | 30 | 12.8 | 17 | 15.3 | | |
| 5 and more books | 175 | 74.8 | 69 | 62.2 | | |
| Going to any course | | | | | | |
| Yes | 108 | 46.2 | 10 | 9 | 46.158 | 0,000 |
| No | 126 | 53.8 | 101 | 91 | | |
| Going to cinema/theatre | | | | | | |
| Once/several in a week | 36 | 15.5 | 1 | 0.9 | | |
| Once/several in a month | 69 | 29.6 | 13 | 11.7 | 76.49 | 0,000 |
| Once/several in a year | 74 | 31.8 | 18 | 16.2 | | |
| Spending time with whom out of school | | | | | | |
| Family | 166 | 70.9 | 79 | 71.2 | | |
| Friends | 66 | 28.2 | 32 | 28.8 | 0,960 | 1.000 |
| Other | 2 | 0,9 | 0 | 0 | | |
| The most common activity with the friends | | | | | | |
| Playing outside | 120 | 51.3 | 58 | 52.3 | 0,028 | 0,866 |
| Spending time at home | 114 | 48.7 | 53 | 47.7 | | |
| Going to the shopping mall | | | | | | |
| Once/several in a week | 110 | 47 | 2 | 1.8 | | |
| Once/several in a month | 87 | 37.2 | 19 | 17.1 | 172.94 | 0,000 |

| | | | | |
|---|---|---|---|---|
| Once/several in a year | 33 | 14.1 | 32 | 28.8 |

*Chi-square **Fisher's Exact test

Statistically significant difference has not been detected out between urban and rural children in term of frequency of using computer, watching TV and writing short message via mobile phone, the number of book read in a year, people with whom time is spent out of school and the most common activity with the friends (p>0,05).

The analysis of the responses given to socio-cultural activities questionnaire has shown statistically significant differences between the percentages of urban and rural children's having computer at home (p< 0,001), using internet (p< 0,01), having facebook account, (p< 0,001), having own mobile phone, going to any course (p>0,001), going to cinema/theatre (p< 0,001) and going to shopping mall (p< 0,001).

When it is elaborated on the percentages of these significant differences, following explanations can be given. The percentage of urban children's having computer at home (88,5%) is much more than rural children's having computer at home (72,1%). The percentage of urban children's frequency of using internet once/several in a week (46,8%), is much more than rural children's frequency of using internet once/several in a week (39,1%). Nevertheles, the percentage of urban children's never using internet internet (16,3%) is less than rural children's never using internet (33,6%). The percentage of urban children's having facebook account (68,4%) is higher than rural children's having facebook account (46,8%). The percentage of urban children's having own mobile phone (44,9%) is higher than rural children's having own mobile phone (9,9%). As all these factors are considered, it can be clearly seen that the children in urban areas use mass media more often when compared to the rural children. The percentage of urban children's going to any course (46,2%), is much more than rural children's going to any course (9%). The percentage of urban children's going to cinema/theatre once/twice in a week (15,5%), going to cinema/theatre once/several in a month (29,6%) and going to cinema/theatre once/several in a year (31,8%) is much more than rural children's going to cinema/theatre once/several in a week (%0,9), going to cinema/theatre once/several in a month (11,7%) and going to cinema/theatre once/several in a year (16,2%). The

percentage of urban children's going to shopping mall once/several in a week (47%), going to shopping mall once/several in a month (37,2%) is much more than the percentage of rural children's going to shopping mall once/several in a week (%1,8), going to shopping mall once/several in a month (17,1%). On the other hand, the percentage of urban children's going to shopping mall once/several in a year (14,1%) is less than the percentage of rural children's going to shopping mall once/several in a year (28,8%). Taking the comparison of all these factors related with the socio-cultural activities into consideration, it can be inferred that urban children spend much time on socio-cultural activities and accordingly they find themselves in social interaction more frequently than rural children. This is one of the factors leading to the developmental shifts in urban children as also can be seen from the word association responses.

Johnson (2010) says:

> Ecological systems theory assumes that child development is the consequence of ongoing resiprocal and spiraling interactions between the child and his/her microsystem (immediate home, school, and community environments).

In parallel, Mead (1934: 191-192) states that language (the content of mind) is only a development and product of social interaction and mind is emergent in "the dynamic, ongoing social process" that constitutes human experience. Almost in parallel with this statement, Mark (1977) argues that "it is not the consciousness of men that determines their existence, but their social existence that determines their consciousness." Begum (2003) emphasizes the importance of social deprivation on cognitive functioning. Among many aspects of deprivation, residential accommodation, physical environment, economic suffering, interaction with the parents and recreational experience are seen to be highly significant factors on cognitive functioning based on Pushpa's study (1980) which investigated the social deprivation and cognitive development of primary school children living in urban, rural and tribal environments and suggested majority of areas of social deprivation were closely related with cognitive functioning. Tüfekçioğlu (2003) argues that deprivation of the physical environment, plays and the toys of the children, the educational level of the parents, the interaction with the neighborhood and also the other people being responsible for the care of the children are included among the factors influencing the language development. Moreover, Aksu Koç (2008) asserts there is a

substantial correlation between reading habit of the children and vocabulary development.

All significant differences between urban and rural children's socio-cultural activities are substantial and in favour of the study because of the fact that these differences all show the rural and urban distinction, that is they are all stem from the facilities in rural and urban life such as exposure to mass media, a variety of physical stimulus in the environment. Naturally, it can be inferred that urban children spend much time on socio-cultural activities and accordingly they find themselves in social interation more frequently than rural children.

Overall, it can be noted that the findings of this study are entirely consistent with Vygotsky (1987) and Wertsch's (1985, 1991, 1992) notion that higher psychological processes have a social origin, developing first on the social and only later developing on the psychological plane. That is to say, it has been claimed that all mental functions, in particular the higher mental functioning in the individual have social origins. The present study underscores the importance of social circumstances in which a child grows up and reveals how these experiences leave their mark on the mental functioning.

Besides all researchers emphasizing the importance of the social interaction and experiences, it can be inferred from all significant differences given above that urban children are exposed to more words in their life by means of social activities, mass media and it is believed that this fact is reflected on their word association behavior.

## 4.2. FINDINGS AND DISCUSSION

The present study aims at investigating the word association behavior among Turkish children living in urban and rural areas to reveal whether the residential locus is significantly influential in lingua-cognitive development of the children. For this study, word association behavior has been investigated via word association task.

This part includes the findings, analysis and discussions of the word association behavior of the children which will be discussed under 4 categories syntagmatic-paradigmatic, clang-semantic, concrete-abstract and response failure respectively.

### 4.2.1. WORD ASSOCIATION BEHAVIOR OF URBAN AND RURAL CHILDREN

4.2.1.1.Response Failure

*Table 5: The comparison of total number of responses of urban and rural chidren to 12 stimulus words*

| | **URBAN (n=234)** | | **RURAL (n=111)** | | |
|---|---|---|---|---|---|
| | **Mean ± SD** | **Median (Min-max)** | **Mean ± SD** | **Median (Min-max)** | p* |
| Total Number of the Response | 41.58±12.55 | 41 (9-60) | 31.46±10.94 | 31 (4-60) | 0,000 |

SD, Standard Deviation, Min; Minimum, Max; Maximum
* Mann –Whitney U test

A statistically significant difference was found out between the total number of responses of the urban children and the ones of rural children to 12 stimuli (p<0,001). Median of the total number urban children's total number of responses (41) is higher than the median of rural children's total responses (31).

As already mentioned, word retrieval is the ability to recall words that are already known and stored in long-term memory (Johnson, 2014). The table above shows that rural children did more response failure than urban children. That is the children living in rural settings had more difficulty in retrieving the words. Based on what Bjorklund (2002) suggests that the simplest indication of children's cognitive development is the number of word they know and use, rural children's responses show a less developed word retrieving ability.

The rural children's word retrieval behavior can be seen among the data in the appendix 4 and can be compared clearly with the urban children's word retrieval behavior as shown in the appendix 5.

4.2.1.2. Syntagmatic and Paradigmatic Associations

*Table 6: The comparison of the number of urban and rural chidren's syntagmatic and paradigmatic responses as first responses to 12 stimulus words*

| | **URBAN (n=234)** | | **RURAL (n=111)** | | |
|---|---|---|---|---|---|
| | **Mean ± SD** | **Median (Min-max)** | **Mean ± SD** | **Median (Min-max)** | p* |
| Number of syntagmatic responses | 3.53±1.69 | 4 (0-8) | 5.39±2.35 | 5 (0-10) | 0,000 |
| Number of paradigmatic responses | 8.25±1.68 | 8 (3-12) | 5.87±2.19 | 6 (2-10) | 0,000 |

SD, Standard Deviation, Min; Minimum, Max; Maximum
* Mann –Whitney U test

A statistically significant difference was detected between the number of syntagmatic responses of the urban children and the ones of rural children to 12 stimuli ($p<0,001$). Median of the number of rural children's syntagmatic responses (5) is higher than the median of urban children's syntagmatic responses (4).

As for the paradigmatic responses, it has been observed that there's a statistically significant difference between the production of paradigmatic responses of the urban children and of rural children to 12 stimuli ($p<0,001$). Median of the number of urban children's paradigmatic responses (8) is higher than the median of rural children's paradigmatic responses (6).

It can be derived from the statistical analysis that the children in both urban and rural children has undergone a shift to paradigmatic responses; both groups have an inclination towards generating more paradigmatic responses than syntagmatic ones. However, rural children have produced a great number of syntagmatic responses compared to urban ones' whereas urban children's responses were rather paradigmatic. Rural children's syntagmatic and paradigmatic responses can be observed at appendix 6. In this data, it can be observed that there are responses showing noun-verb, verb-noun (syntagmatic) associations among rural children's responses. Urban children's syntagmatic and paradigmatic responses can be found at appendix 7. As already mentioned, S-P shift refers to a cognitive phenomenon occurring somewhere between the ages of five and ten as a learner's language matures, and children produce proportionally fewer syntagmatic responses and proportionally more paradigmatic ones (Namei, 2004 in Cui, 2009: 58). That is to say, paradigmaticity imply a higher level of linguistic competence than syntagmaticity which explains why the S-P shift occurs. It is assumed that the shift is largely due an increasing mental age (Cronin et al.,1985). McNeill (1963) asserts that paradigmatic responses go hand in hand with maturity in semantic knowledge. Based on all these suggestions, urban children has undergone S-P shift earlier than rural children.

4.2.1.3.Clang- Semantic Associations

*Table 8: The comparison of the number of urban and rural chidren's clang and semantic responses as first responses to 12 stimulus words*

| | **URBAN(n=234)** | | **RURAL (n=111)** | | |
|---|---|---|---|---|---|
| | **Mean ± SD** | **Median (Min-max)** | **Mean ± SD** | **Median (Min-max)** | p* |
| Number of clang responses | 0.03±1.94 | 0 (0-2) | 0.18±0.47 | 0 (0-2) | 0,000 |
| Number of semantic responses | 11.76±0.76 | 12 (6-12) | 11.10±1.49 | 12 (3-12) | 0,000 |

SD, Standard Deviation, Min; Minimum, Max; Maximum
* Mann –Whitney U test

There are statistically significant difference between the clang responses that urban children and rural children produced ($p<0,001$). In spite of the fact that median of the number of rural children's clang responses is close to the median of urban children's clang responses, mean of rural children's clang response number ($0.18\pm0.47$) is higher than the mean of urban children's clang response number ($0.03\pm1.94$). This shows that rural children significantly produced more clang responses. More specifically, 97.4 % of urban children did not write any clang responses whereas the percentage of children's not giving any clang responses is 85.6 % in rural settings. Rural children's clang responses can be observed among the data in appendix 8 and compare them with the urban children's semantic responses in appendix 9.

It can be understood from the table 7, there is a statistically significant difference between the number of semantic responses urban and rural children produced ($p<0,001$). In spite of the fact that median of the number of rural children's semantic responses is close to the median of urban children's semantic responses, mean of urban children's semantic response number ($11.76\pm0.76$) is higher than the mean of rural children's semantic response number ($11.10\pm1.49$). That is to say, urban children significantly produces more semantic associations. Besides, whereas 85.9 % of urban children produced semantic associations to all 12 stimuli, the percentage of children's producing semantic asssociation is 56.8 in rural settings. The results of this word association test support the following studies' findings. Ervin (1961) suggests that the clang responses which are described as "semantically unrelated but similar-sounding words" (Khazaeenezhad & Alibabaee, 2013: 108) decrease markedly between kindergarten and third grade and score almost zero in grade six. In parallel with this finding, Palermo (1963) asserts that children's word association differs from that of adults in containing more clang responses. Considering the fact clang responses are related to stimuli in phonological terms only, urban children's reponses show a more developed network.

4.2.1.4.Concrete- Abstract Associations

*Table 8: The comparison of the number of urban and rural chidren's concrete and abstract responses as first responses to 12 stimulus words*

| | **URBAN (n=234)** | | **RURAL (n=111)** | | |
|---|---|---|---|---|---|
| | **Mean ± SD** | **Median (Min-max)** | **Mean ± SD** | **Median (Min-max)** | p* |
| Number of concrete responses | 5.62±1.72 | 6 (1-10) | 6.30±1.94 | 6 (2-10) | 0,001 |
| Number of abstract responses | 6.17±1.67 | 6 (2-11) | 4.95±1.89 | 5 (1-9) | 0,000 |

SD, Standard Deviation, Min; Minimum, Max; Maximum
* Mann –Whitney U test

A statistically significant difference was detected between the number of concrete responses of the urban children and the ones of rural children (p<0,01). In spite of the fact that median of the number of rural children's concrete responses is close to the median of urban children's concrete responses, mean of rural children's concrete response number (6.30±1.94) is higher than the mean of urban children's concrete response number (5.62±1.72). It shows that rural children produced more concrete responses than rural children did.

When it comes to the abstract responses, it can be easily understood from the table that there's a significant difference between the responses of the children in urban and rural settings in regard to producing abstract associations (p<0,001). More specifically, median of the number of urban children's abstract responses (6) is higher than the median of rural children's abstract responses which is (5). Rural children's predominant concrete responses can be observed among the data in appendix 10 and urban children's predominant abstract responses can be seen in the appendix 11. In brief, urban children's responses are dominantly abstract while rural children's responses are dominantly concrete. This fact shows that urban children's responses reflect that they are experiencing more complex cognitive processes. In parallel with this inference, Plomin

et al. (2013: 185) assert that abstract reasoning is accepted as more complex cognitive processes. The findings may differ in all categories when the the frequency of words that the children were exposed in urban and rural settings are taken into account.

# CHAPTER 5. CONCLUSION

The purpose of this study was to gain insight into the lingua-cognitive development of Turkish children living in rural and urban children. Thereby, the present study has specified the word association behaviour of rural and urban children aged 11 years old in relation to syntagmatic, paradigmatic, clang, concrete, abstract responses to investigate developmental shifts in middle childhood according to residential area in Turkey.

Although what underlies children's performances are not directly measured, certain aspects of their cognitive behavior and the cognitive processes in their heads can be inferred. Considering cognition is not measured directly, to examine the children's responses in the word association task has provided insight into their lingua-cognitive development.

To talk about pure influence of residential area as much as possible, personal information and socio-cultural activities were presented to the participants. The findings of the analysis has demonstrated that there is a significant difference between rural and urban children in terms of their parents' educational background. To ascertain the influence of residential area on the child development, word association behavior of the children has been examined according to their parents' educational background, too. In accordance with this process, both of the mothers and fathers or one of them with high school degree has been classified as the parents with high level of education whereas the mothers and fathers whose educational level are under the high school degree has been classified as the parents with low level of education. Herewith, parents' educational background has been compared as high level and low level educated people separately living in urban and rural areas and in all parametres as syntagmatic, paradigmatic, clang, concrete, abstract responses and response failure. The analysis again showed that urban children's responses have undergone developmental shifts earlier even when the comparison has been carried out according to the parents' educational background. This consistent precedence of urban children shows that in this study residential factor is more influential factor than educational background of the parents.

This chapter summarizes the findings of the analysis of word association behavior of Turkish speaking children in urban and rural settings, gives the secondary findings and the overall point of the study and discusses implications and recommandations for further studies.

## 4.1. A General Overview

The summary of findings will be presented through the research questions of the study and then secondary findings being detected in the analysis and comparison of the data will be noted, too.

1. *Is there a difference between children living in urban and rural settings in terms of their productivity in word retrieval behavior?*

The study shows that rural children often failed writing associations to the stimuli words, accordingly had much more difficulty in retrieving concepts than the children living in urban settings.

Besides the response failure to all stimulus words, the study suggests that response failure to the words according to their parts of speech and concreteness show significant differences between urban and rural children. To noun, verb, concrete and abstract stimulus words, urban children produced more responses than children in rural settings. On the other hand, sequence of noun, verb, concrete and abstract categories of words also take attention since differences are observed in rural and urban children's responses to noun, verb, concrete and abstract stimulus words. More specifically, both rural and urban children wrote more abstract responses than concrete.

Another striking point observed in the data analysis is that when all the categories are taken into consideration, word categories that both urban and rural children produced can be ranged from more to less as: noun, abstract, concrete and verb. There has been an ongoing debate over which word category children acquire earlier and what factors account for such pattern of acquisition. The position of noun dominance in children's

early word learning has amassed considerable empirical support. Entwisle (1966) suggests that verbs and adverbs develop more slowly than other classes. Gentner (1982) presented data from the speech of German, Japanese, Kaluli, Mandarin Chinese and Turkish children to support the predominance of nouns in early vocabularies crosslinguistically. She suggested that the "noun bias" is indeed cognitive and accordingly universal. As the reason behind this phenomenon, she claimed that it is easier for infants to separate objects from the perceptual-cognitive information of their surroundings. Many later researches also support this universal cognitive view that the noun advantage holds across several languages (Au, Dapretto, & Song, 1994; Bates, Bretherton & Snyder, 1988; Bornstein et al., 2004; Caselli et al., 1995; Dromi, 1987; Kim, McGregor & Thompson, 2000; Ogura, Dale, Yamashita, Murase, & Mahieu, 2006). "Nouns constitute most of children's first words and verbs begin to increase in frequency following the early 'noun spurt'" (Nelson, 1973; Snedecker, Geren, & Shafto, 2007). Herein, it can be concluded that the rural children's responses lagged behind the ones of urban children in regard to word retrieving to noun, verb, concrete, abstract stimuli in the current study may give inspiration and shed light on further studies especially related with the language acquisition.

2. *When the word association behavior of urban and rural children is considered, what is the significance of the results with regard to the following response types:*
   a) *Syntagmatic vs. paradigmatic*
   b) *Clang vs. semantic*
   c) *Concrete vs. abstract*

The study shows that residential area is infleuntial in developmental shifts such as syntagmatic vs. paradigmatic, clang vs. semantic and concrete vs. abstract. Woodraw and Lowell (1916) suggested that the mass media cause the acceleration of linguistic development, which resulted in an early S-P shift. Thus, it is possible to make such an inference that urban children's responses show a more developed semantic network. When syntagmatic and paradigmatic categories are investigated in detail as N-V and V-N and N-N and V-V respectively, it can be observed that urban children produced dominantly more N-N and V-V associations while rural children dominantly produced

N-V and V-N associations. This fact shows the S-P shift phenomenon in more detail. Accordingly, it reveals the consistency within the syntagmatic responses and within the paradigmatic responses. On the other hand, adjective responses also take attention in the way that both urban and rural children produced N-ADJ and V-ADJ association, but a few. Another striking point can be seen when these asssociation categories are evaluated according to the urban and rural settings within themselves. The associations that the rural children made from more to less are respectively as N-N, V-N, V-V, N-V, N-A, V-A. What a conspicuous fact that the urban childrens' associations also follow almost the same line which is N-N, V-V, V-N, N-V, N-A, V-A along with only one change in the sequence which is between V-V and V-N associations. These facts with their differences and similarities may be studied in more detail and may provide an insight for the further studies and the reasons behind these similarities and differences.

Besides the study of syntagmatic vs. paradigmatic responses, the investigation of clang vs. semantic associations also gives clue about the children's semantic development. The present study demonstrates that rural children produced significantly more clang responses than the children in urban settings.

Upon considering the children's lingua-cognitive development in regard to concrete vs. abstract associations in rural and urban settings, the study shows that rural children's responses lag behind in terms of abstract thinking in comparison with the urban children. Because rural children gave less abstract more concrete responses and this phenomenon is adverse in the urban children; they gave more abstract and less concrete responses.

To sum up, rural children are said to develop more slowly in semantic development as concluded from that they gave more syntagmatic and more clang responses and in abstract reasoning as they gave dominantly concrete responses whereas it is clearly seen that urban children have earlier undergone in all developmental shifts such as syntagmatic-paradigmatic, clang-semantic, concrete-abstract and also in word retrieving such as less response failure. It shows the reliability of the study that in all parametres urban children are seen as having constructed more semantic network and applied more abstract thinking.

3. *When the children's syntagmatic and paradigmatic responses are taken into consideration, is it possible to talk about S-P shift phenomenon in Turkish language?*

In addition to the fact that urban children produced significantly more paradigmatic responses when compared with the rural children, both urban and rural children produced dominantly more paradigmatic responses than syntagmatic responses (see the table 6). Accordingly, the present study suggests that Turkish language has S-P shift.

As a conclusion, the study shows that associative behavior of the children demonstrate differences according to their residential areas. The study has demonstrated that factors which are peculiar to urban and rural settings such as mass media, social facilities, educational background are influential in lingua-cognitive development. Thereby, it would not be wrong to claim that not only nature but also nurture is a vital factor in child development.

### 5.2. Implications and Recommendations for Further Studies

This study has been conducted with the use of a relatively large corpus of data and residential areas which have been able to provide sufficient evidence in order to fulfil the aims of the study. However, more studies with larger corpus of word association responses and more urban and rural areas may justify the results of this study.

The data used in the present study comprises the word association responses of rural and urban children in Ankara, the capital of Turkey and a city in the Central Anatolia. A comparative study between Ankara and the cities from different regions of Turkey in relation to word association responses of children and accordingly their lingua-cognitive development may reinforce the results of this study. Given that the present study shows that Turkish language has syntagmatic-paradigmatic shift, further studies carried out in other cities or regions where Turkish language is spoken will show whether S-P shift phenomenon is generalizable to the Turkish language. That is, the findings of this study bring into question the generality of the syntagmatic-paradigmatic shift phenomenon for the Turkish language. Upon considering a few investigations on s-p shift phenomenon in languages and demands of the researchers for further S-P shift studies in other languages,

more studies on S-P shift phenomenon in the world languages are needed before making any generalizations about their nature. Moreover, the findings of the present study may be compared to the identical studies in different cultures and languages in order to reach universal generalizations.

The investigation of community influences on cognitive ability opens a door to a line of investigation in the fields on developmental studies. For example, social isolation and social density have been studied recently in relation to cognitive abiltiy (Hollos & Cowan, 1973; Vatter, 1981, in Bronfenbrenner, Moen & Garbarine, 1984). The present study has provided important insights about the way young children think and how the processes change developmentally in urban and rural communites. In addition to linguistics, neuropsychological, sociological, language teaching studies can take advantage of the findings. In general, the findings open a promising new area in the investigation of environmental influences on cognitive ability given the any thinking involved in any social setting or about any social phenomenon is a potential area of inquiry (Bjorklund, 2012: 399). Further urban and rural studies in relation to child development are suggested for further research. Because, as Hobbs (1994: 149) noted, "Cities have deconcentrated into the countryside, and rural and urban lifestyles have converged under the effects of a mass society with its mass media and mass consumption." That is, day by day it is getting more difficult to talk about the influence of rural life on the development. More studies on the urban rural dichotomy and language development is recommended.

As Deji (2012: 362) suggests interaction is the core of human ecology and has gender differentiation and that "gender perspective of human environmental interaction is necessary for better understanding and adoption of strategies that could enhance sustainable development resulting from the interaction." Furthermore, past research in language development (McCarthy, 1954) has determined there is generally a gender difference in the acquisition of semantic language structure in children and females tend to acquire language before males. That is, besides the influence of the residential area some more studies on the word associations which are produced by different groups such as men and women, or young people and the old, rich and poor people, or bilingual and

multilingual, or second language learners may give impetus to cognition studies evaluated by word association responses. On the other hand, more future studies on the word association responses can enlighten the direct relationship between language and the mind. For example, they could easily include other types of semantic relations such as subordinate, superordinate, coordinate, synonmy, opposition, instrumental, causal, negative, collocational, functional relations.

An attempt for all these further studies is sure to help for a more detailed of description of semantic development and the influential factors on this progress and may provide further impetus and motivation for potential researchers to broaden the scope of word association studies which shed light on human mind.

The results of the word association test show how highly organized the mental lexicon is. This has important implications for language teaching: words are meaningfully connected in the mental lexicon and can therefore be taught in a similar way. As Bahar, Johnstone and Sutcliffe (1999) state teachers can use the word association test before a teaching session to elicit the prior concepts in students' minds, as well as after the teaching session, and the two results can be compared to see the changes in students' learning. As Richards (1991) claims "stored words come to mind according to associative bonds and learning may be facilitated when such bonds are established." Accordingly, the students who can associate the words with each other can expand their vocabulary and choose the right word for the right context. In brief, word association tests can be used as an educational tool for 'seeing inside students' heads', both individually and as a group.

It is important to understand how free associations provide a useful window on this issue and it is expected that this study opens up some new lines of research in this area. Overall, a definite conclusion as Peppard (2007) suggests is that "we have a long way to go before we fully understand the complexities of the mental lexicon."

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## Appendix 1: Word Association Test

**1)** _____ _____ _____ _____ _____

**2)** _____ _____ _____ _____ _____

**3)** _____ _____ _____ _____ _____

**4)** _____ _____ _____ _____ _____

**5)** _____ _____ _____ _____ _____

**6)** _____ _____ _____ _____ _____

**7)** _____ _____ _____ _____ _____

**8)** _____ _____ _____ _____ _____

**9)** _____ _____ _____ _____ _____

**10)** _____ _____ _____ _____ _____

**11)** _____ _____ _____ _____ _____

**12)** _____ _____ _____ _____ _____

## Appendix 2: Personal Information Questionnaire

1. **Cinsiyetiniz nedir?**

   a. ( ) Kız b. ( ) Erkek

2. **Doğum yeriniz neresidir?**

   _____

3. **Yaşamınızı nerede geçiriyorsunuz?**

   a) Kent b) Köy

4. **Ne zamandır burada yaşıyorsunuz?**

   a) Doğduğumdan beri

   b) …….. yaşımdan beri

5. **Daha önce hiç uzun süre köyde/kentte yaşadınız mı?**

   a) Evet b) Hayır

6. **Yaşadıysanız orada kaç yıl kaldınız?**

   a) 1-2 yıl b) 3-5 yıl c) Daha fazla (Belirtiniz _____ )

7. **Evde kendinize ait odanız var mı?**

   a) Evet b) Hayır

8. **Anasınıfına gittiniz mi?**

   a) Evet b) Hayır

9. **Annenizin öğrenim düzeyi nedir?**

   a. ( ) Okur-yazar değil

   b. ( ) İlkokul/ Ortaokul mezunu

   c. ( ) Lise mezunu

   d. ( ) Üniversite veya üzeri

**10. Babanızın öğrenim düzeyi nedir?**

a. ( ) Okur-yazar değil
b. ( ) İlkokul/Ortaokul mezunu
c. ( ) Lise mezunu
d. ( ) Üniversite veya üzeri

**11. Babanızın mesleği nedir?**

_____

**12. Annenizin mesleği nedir?**

_____

**13. Kaç kardeşiniz var?**

_____

**14. Kimlerle yaşıyorsunuz?**

_____

## Appendix 3: Socio-Cultural Activity Questionnaire

1. **Evde bilgisayarınız var mı?**
   a) Evet b) Hayır

2. **Ne sıklıkla bilgisayar kullanıyorsunuz?**
   a) Her gün b) Haftada bir/birkaç kere c) Ayda bir/birkaç kere d) Hiç

3. **Ne sıklıkla internet kullanıyorsunuz?**
   a) Her gün b) Haftada bir/birkaç kere c) Ayda bir/birkaç kere d) Hiç

4. **Facebook adresiniz var mı?**
   a) Evet b) Hayır

5. **Ne sıklıkla televizyon izliyorsunuz?**
   a) Her gün b) Haftada bir/birkaç kere c) Ayda bir/birkaç kere d) Hiç

6. **Kendinize ait cep telefonunuz var mı?**
   a) Evet b) Hayır

7. **Var ise, ne sıklıkla mesaj yazıyorsunuz?**
   a) Her gün b) Haftada bir/birkaç kere c) Ayda bir/birkaç kere d) Hiç

8. **Yılda ortalama kaç kitap okursunuz?**
   a) Hiç b)1-2 kitap c) 3-5 kitap d) 5 ve üzeri

9. **Herhangi bir kursa gidiyor musunuz?**
   a) Evet (Lütfen belirtiniz: _____) b) Hayır

**10. Ne sıklıkla sinemaya/tiyatroya gidiyorsunuz?**

a) Haftada bir/birkaç kere
b) Ayda bir/birkaç kere
c) Yılda bir/birkaç kere
d) Hiç

**11. Okul dışında en çok vakit geçirdiğiniz kişiler kimlerdir?**

a) Aile b) Arkadaşlar c) Diğer (Lütfen belirtiniz: _____)

**12. Arkadaşlarınızla birlikte aşağıdakilerden hangisini daha sıklıkla yaparsınız?**

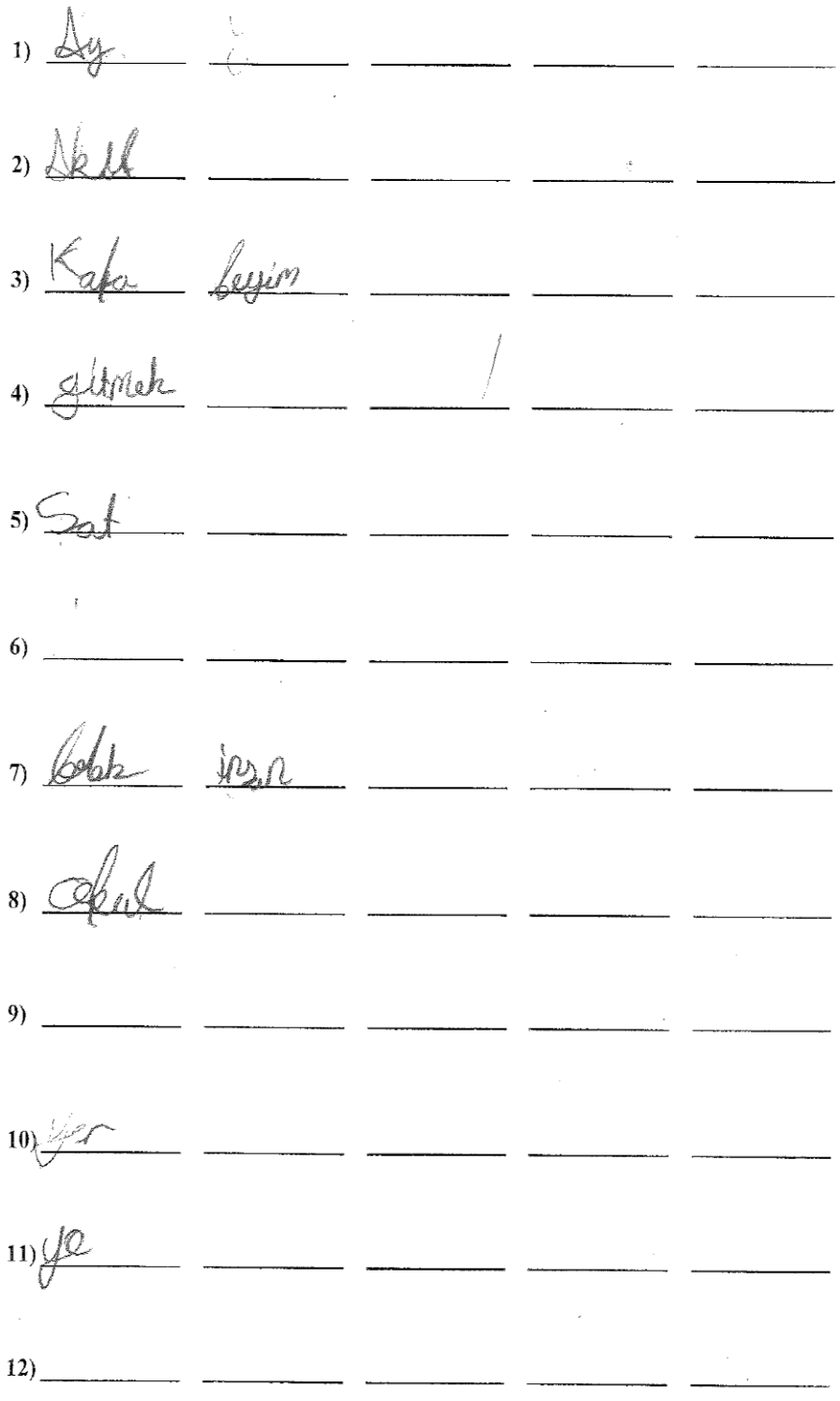
a) Sokakta oyun oynamak
b) Evde vakit geçirmek

**13. Ne sıklıkla alışveriş merkezine gidiyorsunuz?**

a) Haftada bir/birkaç kere
b) Ayda bir/birkaç kere
c) Yılda bir/birkaç kere
d) Hiç

**Appendix 4: Rural children's word retrieval behavior**

**a)**



**b)**

1) _____ _____ _____ _____ _____

2) Sara _____ _____ _____ _____ _____

3) _____ _____ _____ _____ _____

4) _____ _____ _____ _____ _____

5) Vabit Sarat _____ _____ _____

6) Mustilu _____ _____ _____ _____

7) Kuuler _____ _____ _____ _____

8) Elabayekitab _____ _____ _____ _____

9) _____ _____ _____ _____ _____

10) _____ _____ _____ _____ _____

11) Ayla _____ _____ _____ _____

12) gorl _____ _____ _____ _____ _____

**c)**

1) Hafta Sabah _____ _____ _____

2) Düşünmek _____ _____ _____ _____

3) kafa Bahçe Başlangıç _____ _____

4) gel gelme _____ _____ _____

5) Ütü ocak _____ _____ _____

6) Seçmek Selection _____ _____ _____

7) Televizyon _____ _____ _____ _____

8) okumak okudum _____ _____ _____

9) kaçmak kaçtım _____ _____ _____

10) düşündüm _____ _____ _____ _____

11) Ana baba dede bana _____ _____

12) yürüdüm görmedim yazıyorum hasta çalışıyorum

**d)**

1) Həftə Ay Yel _____ _____

2) Sərv Çeşəp _____ _____ _____

3) Göz Saç Kürək Beyin Ağız

4) Çörək _____ _____ _____ _____

5) Ubit Pişik _____ _____ _____

6) Səsçi _____ _____ _____ _____

7) Ailə Baba Ana Qardaş Bacı

8) Yaşmaq Çəmən _____ _____ _____

9) Şidət _____ _____ _____ _____

10) Ağıl _____ _____ _____ _____

11) Apartman Bina Bahçe _____ _____

12) Başmaq _____ _____ _____ _____

**e)**

1) Eglence ogun _____ _____ _____

2) _____ _____ _____ _____ _____

3) _____ _____ _____ _____ _____

4) _____ _____ _____ _____ _____

5) _____ _____ _____ _____ _____

6) _____ _____ _____ _____ _____

7) _____ _____ _____ _____ _____

8) _____ _____ _____ _____ _____

9) _____ _____ _____ _____ _____

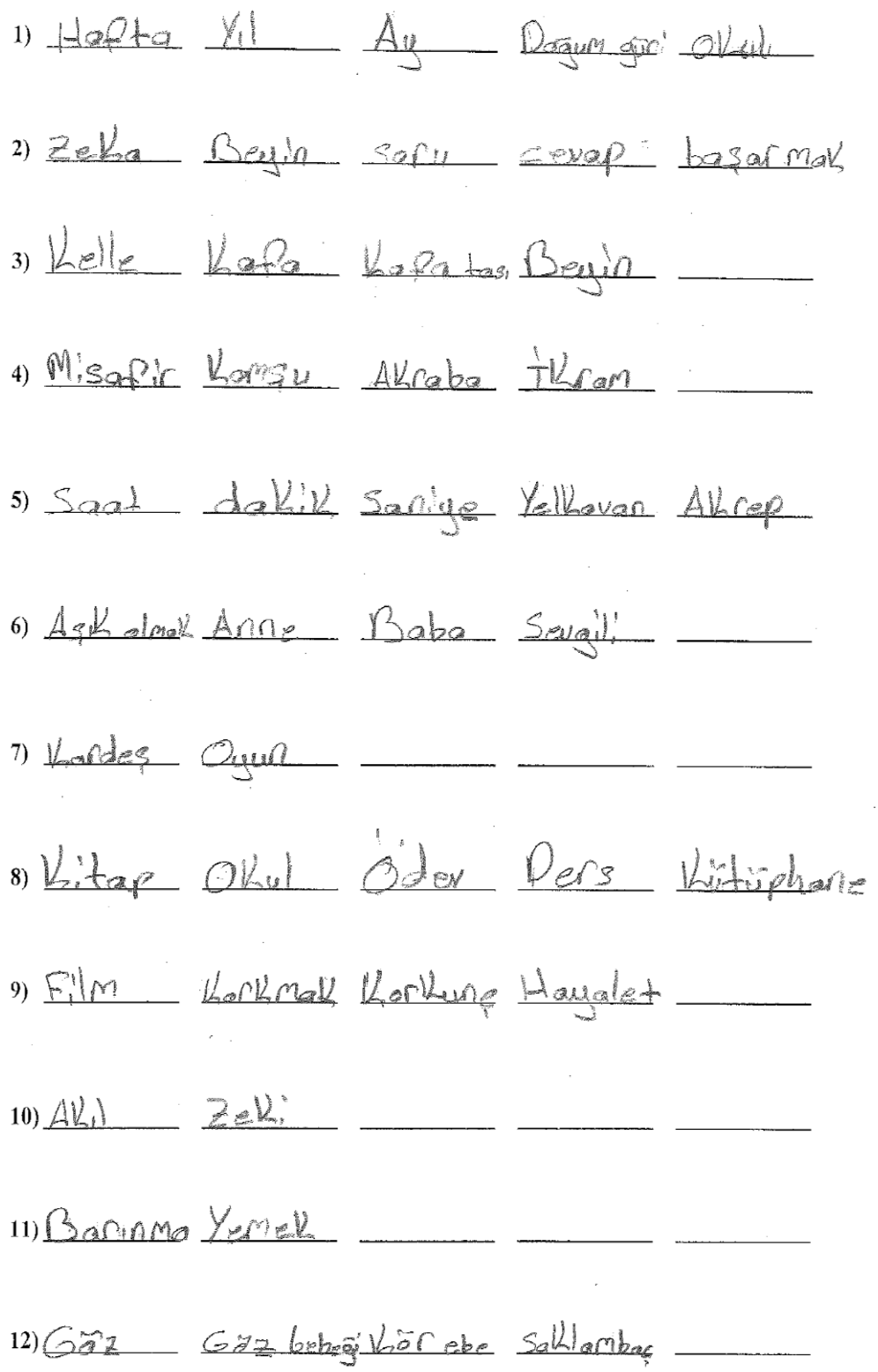
10) _____ _____ _____ _____ _____

11) _____ _____ _____ _____ _____

12) _____ _____ _____ _____ _____

**Appendix 5: Urban children's word retrieval behavior**

**a)**



**b)**

1) Saymak Ay yıl Tatil hafta

2) Düşü yapmak kazanmak Sınıf Sınav

3) Kafa Saç Akıl Beyin Burun

4) yarmak Atlamak gitmek Mutfak ev

5) Saat dakika Sabah gece erken

6) Aşk es Sevgili Anne Baba

7) küçük kuş Bebek Abi Abla

8) öğrenci Biloji kitap Sayfa Bilmek

9) konuşmak koşmak Film _____ _____

10) Akıl Bulmak Baş Kafa Beyin

11) Sığınmak konuşmak ısınmak kapı kalkan

12) Göz görülemez Bakmak _____ _____

**c)**

1) yaşam eğlence hayat gezmek olay

2) öğrenmek başarı yanıt bilgi soru

3) önce kafa ilk zirve başkan

4) gitmek ağırlamak ulaşmak yol mesafe

5) vakit süre dakika saniye saat

6) Beğenmek Hoşlanmak Hayran Sevgi Mutluluk

7) eğlence oyun sevgi yardım Paylaşım

8) öğrenmek hikâye masal fabl şiir

9) film macera aksiyon dehşet cinayet

10) Hayal Düş Düşünce Rüya Derlemek

11) konut sığınma yaşama barınma huzur

12) göz bakmak öğrenmek resim görsel

**d)**

1) Yaşam | Yeni bir yaşam | | | |

2) Öğrenmek | Sevmek | Yapmak | | |

3) Kafa | Saç | Göz | Burun | Kulak

4) Gitmek | Yapmak | Uyumak | Gelebilmek | |

5) Saat | Saniye | Dakika | Haftalık | |

6) Hoşlanmak | Arkadaş | Dost | | |

7) Bebek | Küçük çocuk | Büyük çocuk | Annenin oğlu | |

8) Kitap | Ders | Defter | | |

9) Korkak | Korkmak | Cesur | Dehşet | |

10) Düşünce | Konuşmak | Gitmek | Üzülmek | Sosyolojik

11) Bacanmak | giyinmek | yemek | | |

12) Göz | Gözle görmek | | | |

**e)**

1) Okula gitmek yemeğe gitmek Evde top oynamak Oyun oynamak _____

2) Geleneksel Akıllı yapmak _____ _____

3) Kafa beyin göz 5 duyu organımız saç

4) Eğlenmek yemek yemek _____ _____ _____

5) Saat Dakika Saniye _____ _____

6) Aşık olmak bağlılık kopmamak bırakmamak _____

7) bebek ağlamak okula gitmek _____ _____

8) Okula gitmek Geleneksel kitap defter Hikaye kitabı

9) Düşmek Sinirlenmek _____ _____ _____

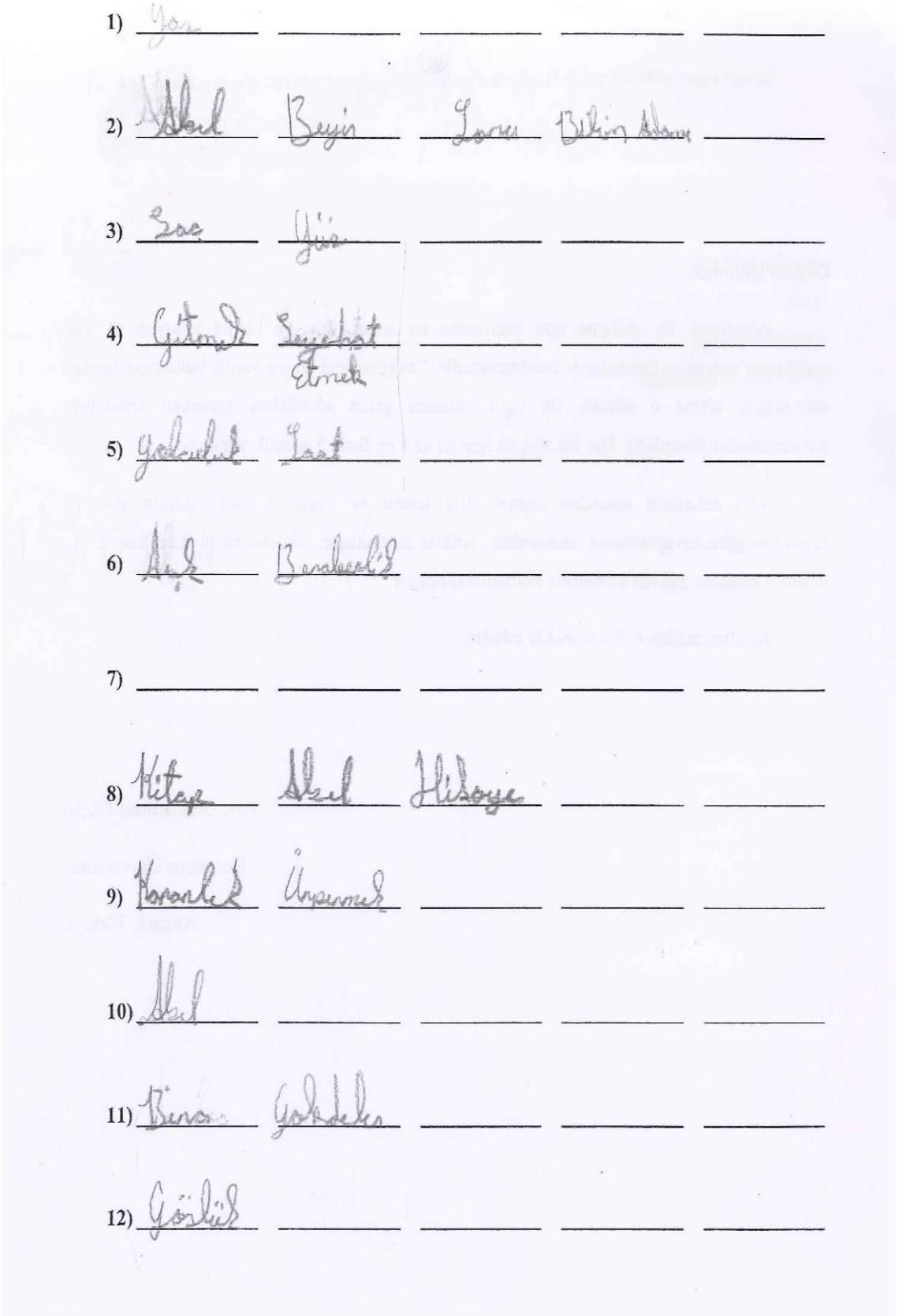
10) Akıl _____ _____ _____ _____

11) Konut odalar Beyaz eşyalar _____ _____

12) GÖZ _____ _____ _____ _____

**Appendix 6: Rural children's syntagmatic and paradigmatic responses**

**a)**



**b)**

1) Sabah ____ erken ____ ____ ____ ____

2) Cevap ____ Soru ____ öğrenmek ____ ____ ____

3) Kafa ____ zihin ____ akıl ____ ____ ____

4) geçmek ____ ____ ____ ____ ____

5) Saat ____ geçmek ____ ____ ____ ____

6) güzel ____ ____ ____ ____ ____

7) insan ____ ____ ____ ____ ____

8) Hikaye ____ öykü ____ yazmak ____ ____

9) ülke ____ kaçmak ____ Kaçmak ____ ____

10) Soru ____ ____ ____ ____ ____

11) yuva ____ kulübe ____ ____ ____ ____

12) Göz ____ gözlük ____ ____ ____ ____

**c)**

1) Oynamak Dansetmek Şarkı söylemek Enerji Keşfetmek

2) Zeki olmak

3) Beyin Zeka

4) Arkadaş Aile Öğretmen

5) Gezmek Keşif etmek

6) Ders Arkadaş Aile Öğretmen

7) Aile Mutluluk Sevinç

8) Kitap Merak Göz

9) Ağlamak Üzülmek

10) Fikir Sesizlik Sakinlik

11) Aile Mutluluk Sevinç Şevkat

12) Keşfetmek tanımak Merak etmek

**d)**

1) Hafta Ay Yıl _____ _____

2) Soru Cevap _____ _____ _____

3) Göz Saç Kulak Beyin Ağız

4) Çiftçi _____ _____ _____ _____

5) Ubit Yazı _____ _____ _____

6) Sevgi _____ _____ _____ _____

7) Aile Baba Anne Kardeş Kuzen

8) Yazmak Çizmek _____ _____ _____

9) Sıcak _____ _____ _____ _____

10) Akıl _____ _____ _____ _____

11) Apartman Bina Bahçe _____ _____

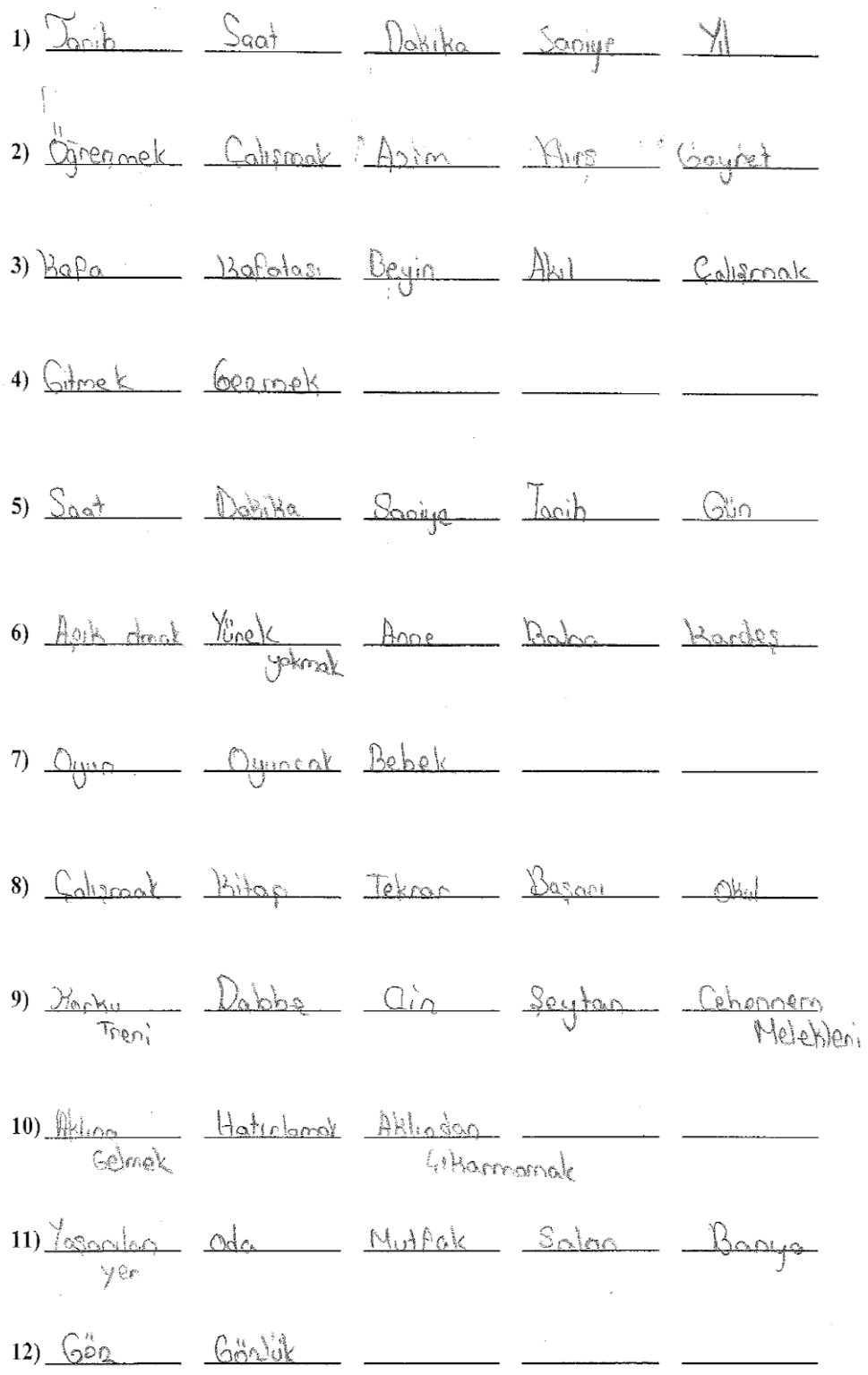
12) Bakmak _____ _____ _____ _____

**e)**

| | | | | | |
|---|---|---|---|---|---|
| 1) | Sak | Parantesi | Cuma | Paran | Cansonder |
| 2) | Bilgi | Akıl | Bilim İnsan | | |
| 3) | Koku | Soy | | | |
| 4) | Gitmek | | | | |
| 5) | Saat | Gece | Gündüz | | |
| 6) | Aşk | Hoşlanmak | | | |
| 7) | Bebek | Emzik | | | |
| 8) | Kitap | | | | |
| 9) | Kabus | | | | |
| 10) | Problem | | | | |
| 11) | Çatı | Yuva | | | |
| 12) | Gözlük | Göz | | | |

**Appendix 7: Urban children's syntagmatic and paradigmatic responses**

**a)**



**b)**

1) Okul, yılmak, günler, öğlen, _____, _____

2) öğrenmek, çalışmak, anlamak, _____, _____

3) Akıl, beyin, zeka, en iyi, _____

4) gitmek, yürümek, yapmak, _____, _____

5) gelecek, Geçmiş, saat, _____, _____

6) değişmek, sevilmek, sessiz, mutluluk, _____

7) bebek, öğrenci, Arkadaş, _____, _____

8) okumak, bilmek, yormak, düşünmek, öğrenmek, _____

9) Kahvaltı, yatılı, dalabe, _____, _____

10) kelime, Anlamak, Kapalı alan, _____, _____

11) yazın, açmak, nese, anne baba, Dadaş

12) anlamak, deremek, kelime, araştırmak, _____

**c)**

1) Aylar yıllar 24 Saat günler haftalar

2) bulmak Bilmemek öğrenmek akıl

3) koko başın cesetler atın akıl

4) gitmek yürümek

5) vakit Saat dakika Saniye Saliçe

6) aşk Sevmemek Sevilmek

7) bebek 0–18 Yaşarasındadır hiç insan

8) yazmak kelimeler harfler cümleler okuyamamak

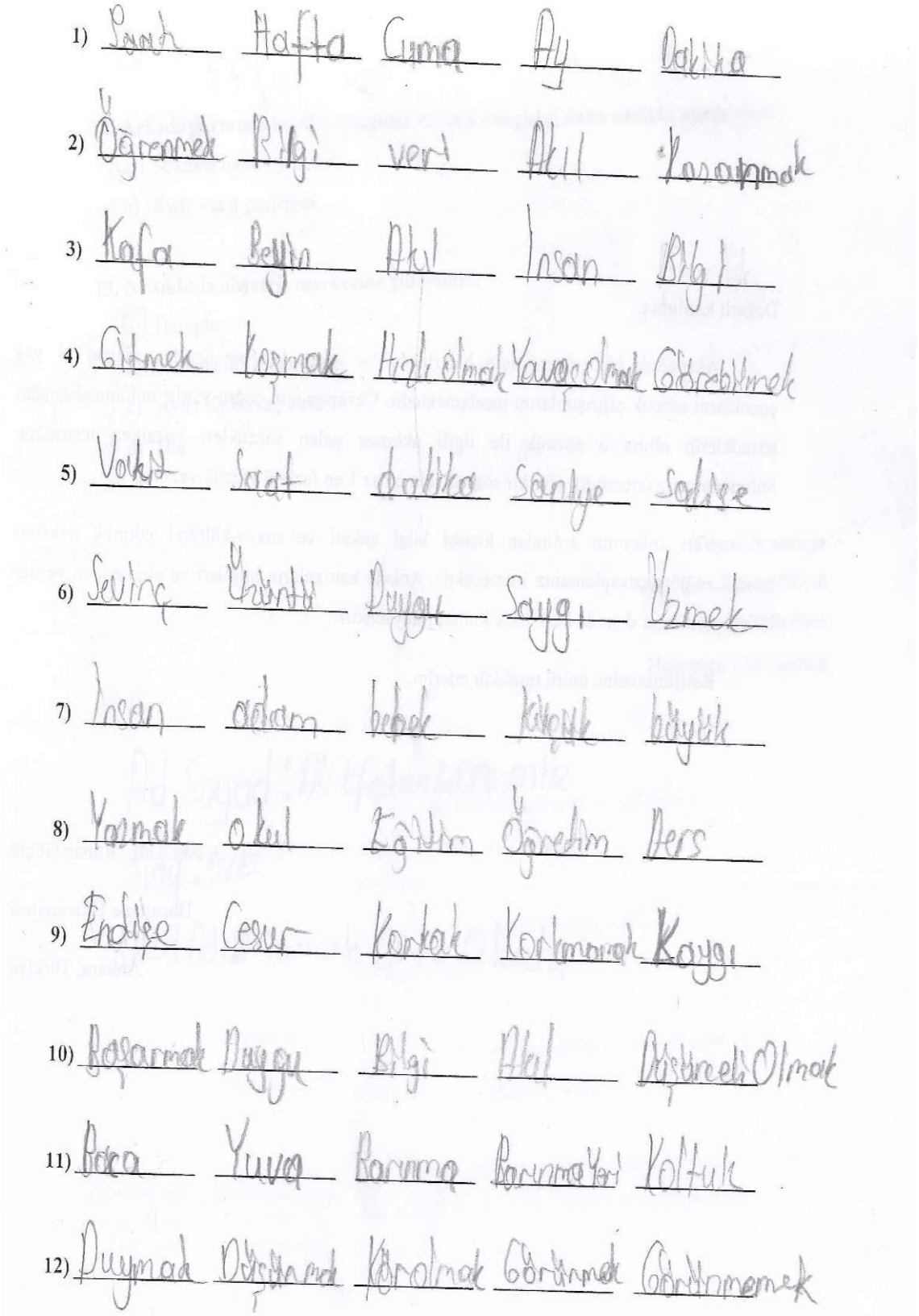
9) mutluluk üzüntü Sağlamak gül Korkmamak

10) düşünmek akıl başın bulmak bilmek

11) Barınmak okumak yatmak yatmak adalar

12) Gözlük göz gözbebeği doğa bakmak

**d)**


1) Saat Hafta Cuma Ay Dakika
2) Öğrenmek Bilgi veri Akıl Yaratmak
3) Kafa Beyin Akıl İnsan Bilgi
4) Gitmek Koşmak Hızlı olmak Yavaş olmak Görebilmek
5) Vakit Saat dakika saniye Saniye
6) Sevinç Üzüntü Duygu Saygı Üzmek
7) İnsan adam bebek Küçük büyük
8) Yazmak okul Eğitim Öğretim Ders
9) Endişe Cesur Korkak Korkmamak Kaygı
10) Başarmak Duygu Bilgi Akıl Düşünceli Olmak
11) Baca Yuva Barınma Barınma Yeri Koltuk
12) Duymak Düşünmek Körolmak Görünmek Görünmemek

**e)**

1) Yıl Ay tarih _____ _____

2) öğrenmek dinlemek okumak çalışmak _____

3) insan Akıl vücut zeka _____

4) yürümek gitmek koşmak _____ _____

5) saat dakika vakit gün _____

6) Saygı gönül Arkadaş Dost _____

7) Yetişkin büyümek gelişmek zeka _____

8) öğrenmek görmek dinlemek çalışmak _____

9) Heyecan Şaşırmak _____ _____ _____

10) Hayal Rüya Düş _____ _____ _____

11) Barınma sığınak Aile birey _____

12) Hastalanmak düşünmek _____ _____ _____

**Appendix 8: Rural children's clang and semantic responses**

**a)**

1) Gurluk _____ _____ _____ _____

2) Bilek Bileklik _____ _____ _____

3) Baslik _____ _____ _____ _____

4) Gelinlik _____ _____ _____ _____

5) Zanali zanasiz _____ _____ _____

6) Sevimek _____ _____ _____ _____

7) Cocuklu _____ _____ _____ _____

8) okulu _____ _____ _____ _____

9) Kakmak _____ _____ _____ _____

10) dusuncali _____ _____ _____ _____

11) eli _____ _____ _____ _____

12) Guvumek _____ _____ _____ _____

**b)**

1) Gül Güneş Ay Köy Ankara

2) Bilek Soru Cevap Öğretmen öğrenci

3) Kaka Başlık Beşin

4) Gitmek Misafir Kaynar

5) Dakka Suriye Salise Sert

6) Sevinmek Ach Baba Anne

7) Ali Anne Baba Kardeş Kuran

8) Okul Kitap öğrenci Öğretmen Defter

9) Hoşgeldin Şaşırmak Sevmek Üzülmek Sevinmek

10) Soru Cevaplar Öğrenmek Öğretim

11) Bahçe Ağaç Meyveler Kavanoz

12) Görünmek Engelli Kavanoz Cevaplar

**c)**

1) Gül Günler Haftalar gülmek güzel

2) Bildim Bilgi Birlik Bilmek Birey

3) Başlık Başarmak Başar Bulmak Babamak

4) Geldim gitik gülüşük günlük gül

5) Tembak yıl ay ton hafta

6) yazdım yazgi bilgi sim bildim

7) Kardeş oyun Arkadaş Kola okuma

8) Okudum okul okuma Oku Öğretmen

9) Korkmak Korktum Korkunç Korkak Korkuluk

10) Düşük Düş Hayal Düşmek Dünya

11) Anne Baba Kahkaa Televizyon Teknoloji

12) Göbeklik Göbeğinde tüyü Görmek Görme Göz

**Appendix 9: Urban children's clang and semantic responses**

**a)**



**b)**

1) Pazartesi Salı Cuma Perşembe Cumartesi

2) Çalışkan anlamak Çabalamak Öğrenci okul

3) Vucud kafa İnsan Beyin Düşünce

4) Yönetmek İletmek geçişte bırakma Yasmak Utaşmak

5) Saat vakit Öğle Akşam Sabah

6) Duygu Üzülmek Anne Arkadaş Sevgili

7) Kardeş Arkadaş Bebek Yakın Akrabalık

8) Bilgi edinme Kitap Kütüphane Sınıf Okul

9) Üzüntü Duygu Tir tir titremek Ağlamak Film

10) Zihin Ders çalışmak Beyin Baş Vücud

11) Yuva Aile Yurt Kardeş Mutluluk

12) Duygu organ Göz Kişi yastık gömmek Organ

**c)**

1) Yaşam Okul Eğlence Ev Aile

2) Öğrenmek Bilgi sahibi olmak Öğretmen Okul Tekrar etmek

3) Kafa Sağlık Hastane Anne-baba Doktor

4) Misafir Bayram Okul Ev Telefon

5) Işın Vakit Zaman ölçüleriyle Araç Süre

6) Hoşlanmak Okul Aile Araçla Gezeç Arkadaş

7) Park Hastalanmak Anne-baba İstanbul Şimarık

8) Öğretmek Kurdele Okul Aile Para

9) Film Karanlık Zorunlu gereç Sağlık Araçlar

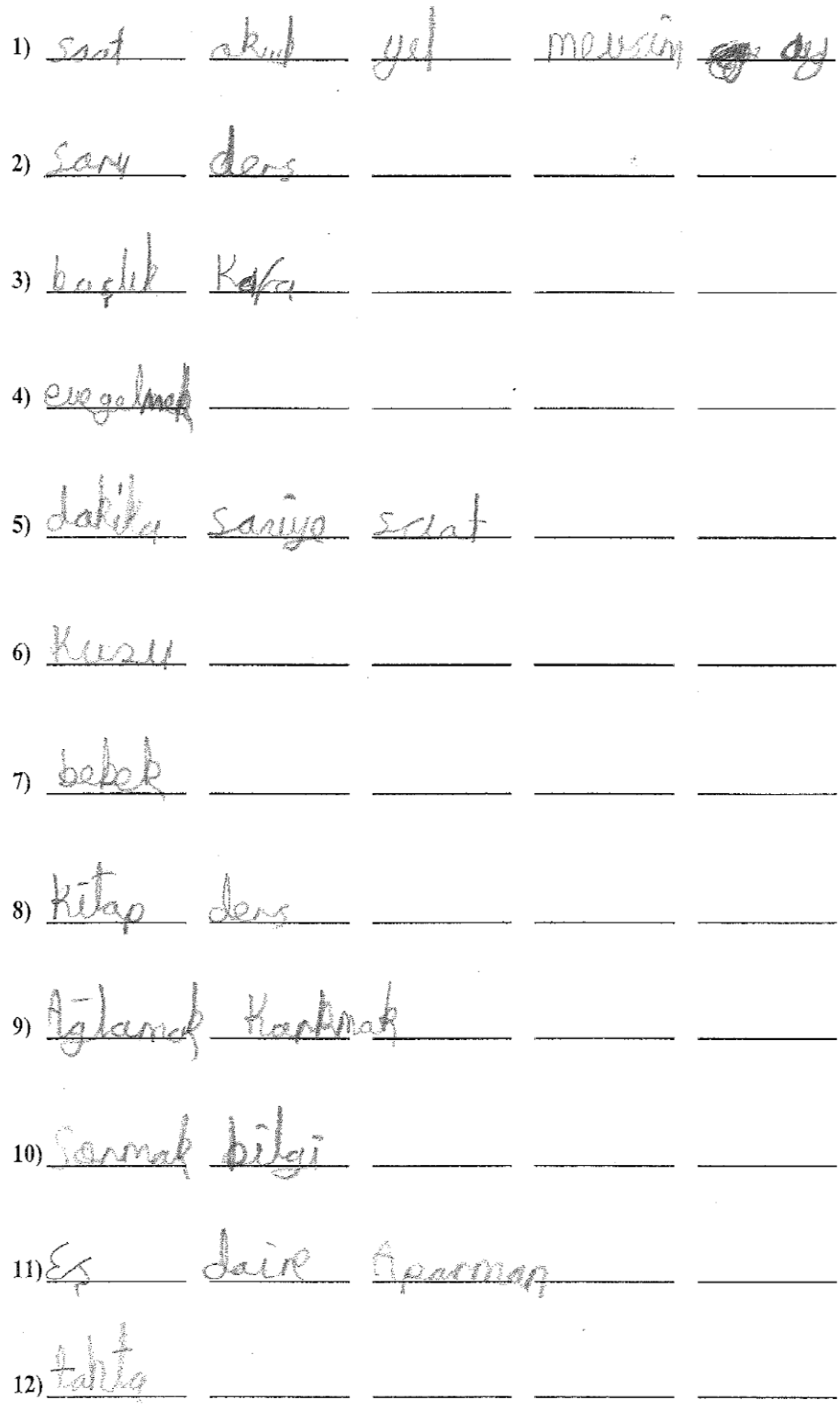
10) Fikir Yaratıcı Üretmek Söylemek Ödev

11) Bırakmak Yuva Aile Para Huzur

12) Engelliler Yaşlılar Bakmak Hastane Sağlık

**Appendix 10: Rural children's concrete and abstract responses**

**a)**



**b)**

1) kahve oyun _____ _____ _____

2) Saat çözmek parabolen _____ _____

3) basurus _____ _____ _____ _____

4) Okul Ev Sınıf _____ _____

5) Saat _____ _____ _____ _____

6) babam anne kaba aki _____

7) Ben arkadaş. _____ _____ _____

8) Kitap defter hikaye _____ _____

9) hayalet ev _____ _____ _____

10) Saat çözüm _____ _____ _____

11) Okul Ev balkon _____ _____

12) çicek sabah okul ev sıra

**c)**

1) Oğlan Güneş Sabun akşam yağmur

2) Sarı sıcak kağıt

3) değil Dikkat hafa

4) akıl el

5) ay yıl

6) sevgi

7) oyun yavaşlık öğrenci

8) Sınıf ders ödeme sinema bitap

9) kavanoz değişim

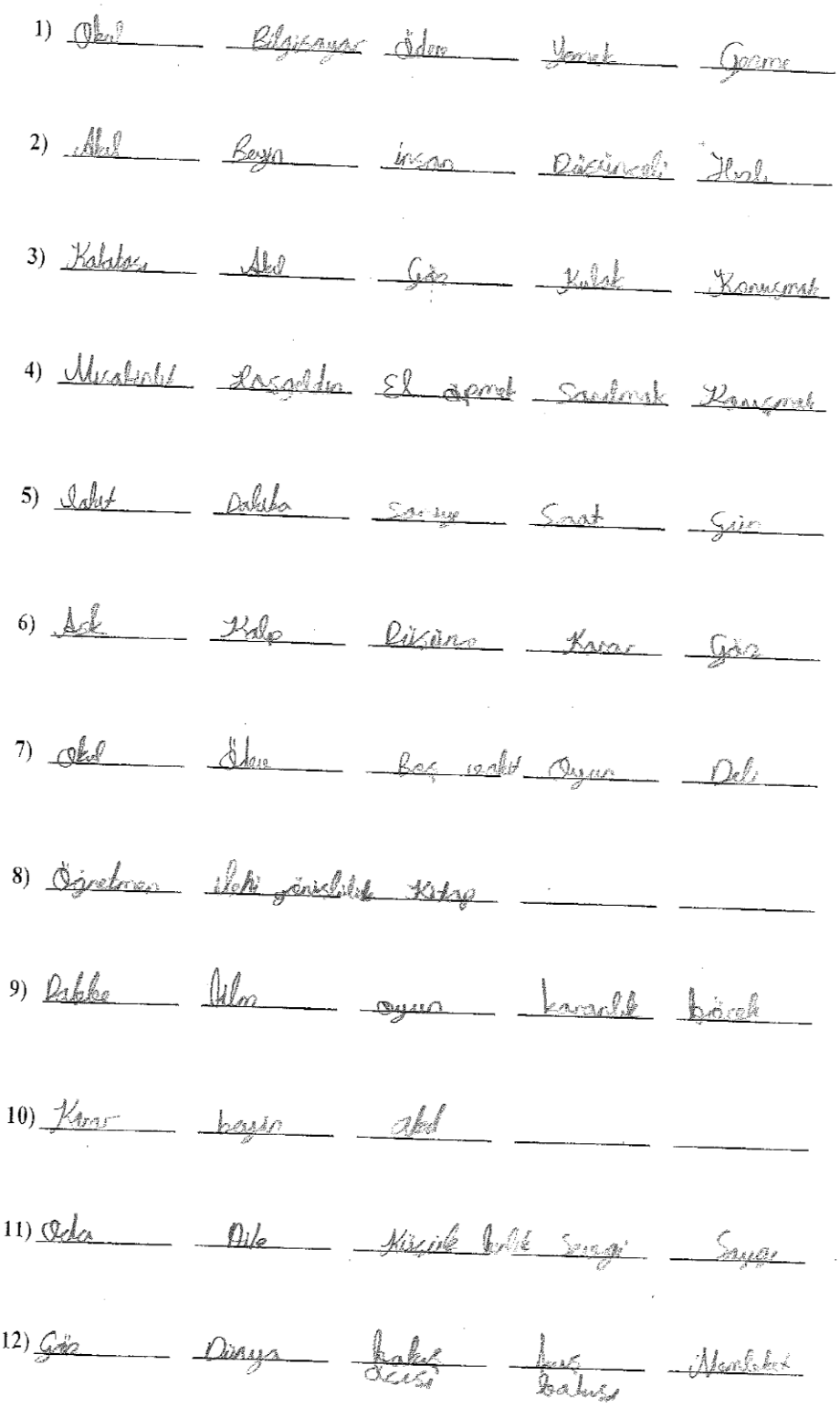
10) Akıl

11) dile yaprak

12) göz

**Appendix 11: Urban children's concrete and abstract responses**

**a)**



**b)**

1) Saat Tahsin Önemli günler Dakikalar Saniye

2) Öğrenmek çalışmak Asım Hüsn Pes etmemek

3) Kale Beşir Akıl Kafatası çalışmak

4) Bir yer Yere gitmek, gelmek Yürüyüş Yürümek Gitmek

5) Tahsin Saat Yüzyıl Tarih Dakika

6) Acık olmak Dostluk arkadaş lık yürek yakmak Kardeş

7) İnsan Eğlence akıl Bebek İhtiyaçlar

8) Kitap Yaz Sınıf atlamak Okul Başarı

9) Endişe Korku Silah Gariplik Korku arası

10) Akıl Baş İlgi Birşey hakkında ilgi, düşünce Beşir

11) Yaşam Hayat Barınak Temel ihtiyaç İhtiyaçlar

12) Düşünce Göz Görlük İlgisiz lik Duyu organımız

**c)**

1) kahve oyun _____ _____ _____

2) Saat çöpçü masalar _____ _____

3) kasırga _____ _____ _____ _____

4) Okul Ev Sınıf _____ _____

5) Saat _____ _____ _____ _____

6) babam anne kaba aki _____

7) Ben arkadaş. _____ _____ _____

8) Kitap defter hikaye _____ _____

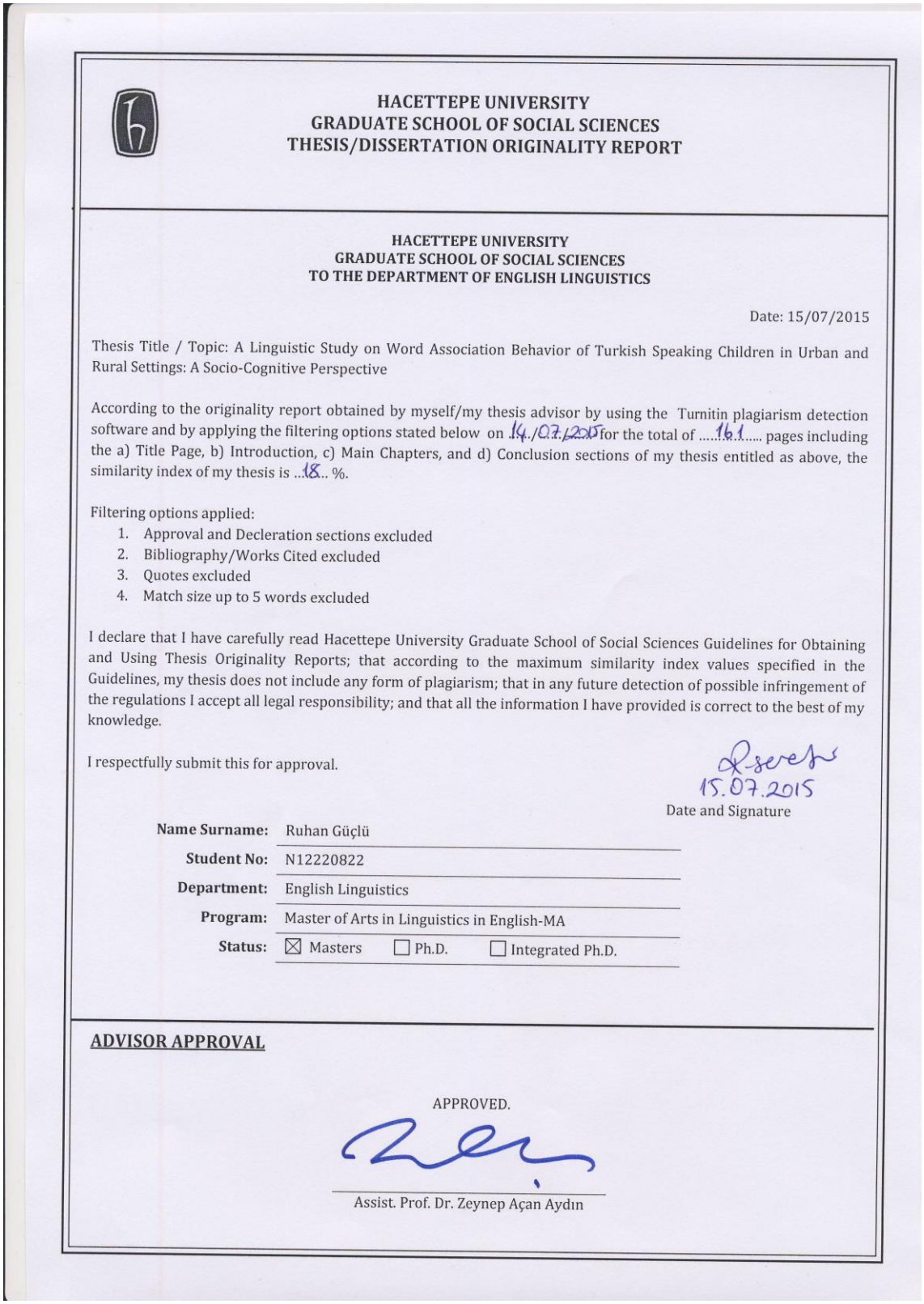
9) hayalet el _____ _____ _____

10) Saat çöpçü _____ _____ _____

11) Okul Ev balkon _____ _____

12) çiçek rahat okul ev Sınıf

Appendix 12: Originality Report



**HACETTEPE UNIVERSITY**
**GRADUATE SCHOOL OF SOCIAL SCIENCES**
**THESIS/DISSERTATION ORIGINALITY REPORT**

**HACETTEPE UNIVERSITY**
**GRADUATE SCHOOL OF SOCIAL SCIENCES**
**TO THE DEPARTMENT OF ENGLISH LINGUISTICS**

Date: 15/07/2015

Thesis Title / Topic: A Linguistic Study on Word Association Behavior of Turkish Speaking Children in Urban and Rural Settings: A Socio-Cognitive Perspective

According to the originality report obtained by myself/my thesis advisor by using the Turnitin plagiarism detection software and by applying the filtering options stated below on 14./07./2015 for the total of .....161..... pages including the a) Title Page, b) Introduction, c) Main Chapters, and d) Conclusion sections of my thesis entitled as above, the similarity index of my thesis is ...18.. %.

Filtering options applied:

1. Approval and Decleration sections excluded
2. Bibliography/Works Cited excluded
3. Quotes excluded
4. Match size up to 5 words excluded

I declare that I have carefully read Hacettepe University Graduate School of Social Sciences Guidelines for Obtaining and Using Thesis Originality Reports; that according to the maximum similarity index values specified in the Guidelines, my thesis does not include any form of plagiarism; that in any future detection of possible infringement of the regulations I accept all legal responsibility; and that all the information I have provided is correct to the best of my knowledge.

I respectfully submit this for approval.

15.07.2015
Date and Signature

**Name Surname:** Ruhan Güçlü
**Student No:** N12220822
**Department:** English Linguistics
**Program:** Master of Arts in Linguistics in English-MA
**Status:** ☒ Masters ☐ Ph.D. ☐ Integrated Ph.D.

**ADVISOR APPROVAL**

APPROVED.

Assist. Prof. Dr. Zeynep Açan Aydın

**HACETTEPE ÜNİVERSİTESİ**
**SOSYAL BİLİMLER ENSTİTÜSÜ**
**YÜKSEK LİSANS/DOKTORA TEZ ÇALIŞMASI ORJİNALLİK RAPORU**

**HACETTEPE ÜNİVERSİTESİ**
**SOSYAL BİLİMLER ENSTİTÜSÜ**
**İNGİLİZ DİLBİLİMİ ANABİLİM DALI BAŞKANLIĞI'NA**

Tarih: 15/07/2015

Tez Başlığı / Konusu: Kentsel ve Kırsal Kesimlerde Anadili Türkçe olan Çocukların Sözcük Çağrışımları üzerine Dilbilimsel bir Çalışma: Toplum-Bilişsel bir Yaklaşım

Yukarıda başlığı/konusu gösterilen tez çalışmamın a) Kapak sayfası, b) Giriş, c) Ana bölümler ve d) Sonuç kısımlarından oluşan toplam 161 sayfalık kısmına ilişkin, 14/07/2015 tarihinde şahsım/tez danışmanım tarafından Turnitin adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı % 18 'tür.

Uygulanan filtrelemeler:
1- Kabul/Onay ve Bildirim sayfaları hariç,
2- Kaynakça hariç
3- Alıntılar hariç/dâhil
4- 5 kelimeden daha az örtüşme içeren metin kısımları hariç

Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü Tez Çalışması Orjinallik Raporu Alınması ve Kullanılması Uygulama Esasları'nı inceledim ve bu Uygulama Esasları'nda belirtilen azami benzerlik oranlarına göre tez çalışmamın herhangi bir intihal içermediğini; aksinin tespit edileceği muhtemel durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

Gereğini saygılarımla arz ederim.

15.07.2015
Tarih ve İmza

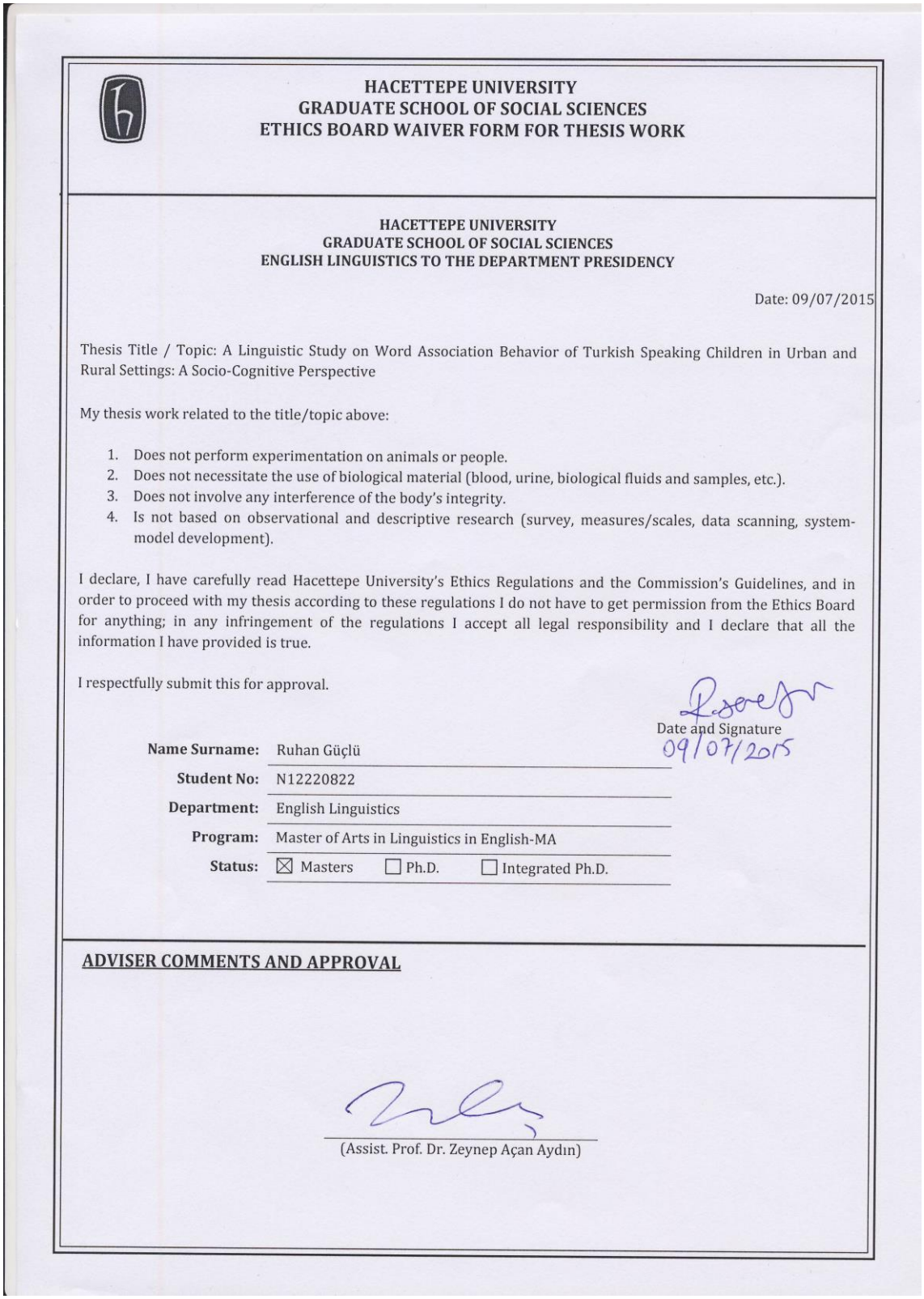
**Adı Soyadı:** Ruhan Güçlü
**Öğrenci No:** N12220822
**Anabilim Dalı:** İngiliz Dilbilimi
**Programı:** Tezli Yüksek Lisans
**Statüsü:** ☒ Y.Lisans ☐ Doktora ☐ Bütünleşik Dr.

**DANIŞMAN ONAYI**

UYGUNDUR.

(Yrd. Doç. Dr. Zeynep Açan Aydın)

Appendix 13: Ethics Board Waiver Form



**HACETTEPE UNIVERSITY**
**GRADUATE SCHOOL OF SOCIAL SCIENCES**
**ETHICS BOARD WAIVER FORM FOR THESIS WORK**

**HACETTEPE UNIVERSITY**
**GRADUATE SCHOOL OF SOCIAL SCIENCES**
**ENGLISH LINGUISTICS TO THE DEPARTMENT PRESIDENCY**

Date: 09/07/2015

Thesis Title / Topic: A Linguistic Study on Word Association Behavior of Turkish Speaking Children in Urban and Rural Settings: A Socio-Cognitive Perspective

My thesis work related to the title/topic above:

1. Does not perform experimentation on animals or people.
2. Does not necessitate the use of biological material (blood, urine, biological fluids and samples, etc.).
3. Does not involve any interference of the body's integrity.
4. Is not based on observational and descriptive research (survey, measures/scales, data scanning, system-model development).

I declare, I have carefully read Hacettepe University's Ethics Regulations and the Commission's Guidelines, and in order to proceed with my thesis according to these regulations I do not have to get permission from the Ethics Board for anything; in any infringement of the regulations I accept all legal responsibility and I declare that all the information I have provided is true.

I respectfully submit this for approval.

Date and Signature
09/07/2015

**Name Surname:** Ruhan Güçlü
**Student No:** N12220822
**Department:** English Linguistics
**Program:** Master of Arts in Linguistics in English-MA
**Status:** ☒ Masters ☐ Ph.D. ☐ Integrated Ph.D.

**ADVISER COMMENTS AND APPROVAL**

(Assist. Prof. Dr. Zeynep Açan Aydın)

**HACETTEPE ÜNİVERSİTESİ**
**SOSYAL BİLİMLER ENSTİTÜSÜ**
**TEZ ÇALIŞMASI ETİK KURUL İZİN MUAFİYETİ FORMU**

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**İNGİLİZ DİLBİLİMİ ANABİLİM DALI BAŞKANLIĞI'NA**

Tarih: 09/07/2015

Tez Başlığı / Konusu: Kentsel ve Kırsal Kesimlerde Anadili Türkçe olan Çocukların Sözcük Çağrışımları üzerine Dilbilimsel bir Çalışma: Toplum-Bilişsel bir Yaklaşım

Yukarıda başlığı/konusu gösterilen tez çalışmam:

1. İnsan ve hayvan üzerinde deney niteliği taşımamaktadır,
2. Biyolojik materyal (kan, idrar vb. biyolojik sıvılar ve numuneler) kullanılmasını gerektirmemektedir.
3. Beden bütünlüğüne müdahale içermemektedir.
4. Gözlemsel ve betimsel araştırma (anket, ölçek/skala çalışmaları, dosya taramaları, veri kaynakları taraması, sistem-model geliştirme çalışmaları) niteliğinde değildir.

Hacettepe Üniversitesi Etik Kurullar ve Komisyonlarının Yönergelerini inceledim ve bunlara göre tez çalışmamın yürütülebilmesi için herhangi bir Etik Kuruldan izin alınmasına gerek olmadığını; aksi durumda doğabilecek her türlü hukuki sorumluluğu kabul ettiğimi ve yukarıda vermiş olduğum bilgilerin doğru olduğunu beyan ederim.

Gereğini saygılarımla arz ederim.

09/07/2015
Tarih ve İmza

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| **Öğrenci No:** | N12220822 |
| **Anabilim Dalı:** | İngiliz Dilbilimi |
| **Programı:** | Tezli Yüksek Lisans |
| **Statüsü:** | ☒ Y.Lisans ☐ Doktora ☐ Bütünleşik Dr. |

**DANIŞMAN GÖRÜŞÜ VE ONAYI**

(Yrd. Doç. Dr. Zeynep Açan Aydın)

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