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THE DEVELOPMENT
OF
MEAN LENGTH OF UTTERANCE, WORD ORDER, AND SUBJECT-VERB
AGREEMENT AMONG TURKISH PRESCHOOLERS

116736

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES

OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

DEMET BUYURGAN

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN THE DEPARTMENT OF PSYCHOLOGY

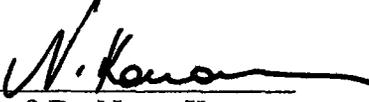
AUGUST 2002

**T.C. YÜKSEKÖĞRETİM KURULU
DOKÜMANTASYON MERKEZİ**

Approval of the Graduate School of Social Sciences


Prof. Dr. Bahattin Akşit
Director

I certify that this thesis satisfy all requirements as a thesis for the degree of Master of Science.


Prof. Dr. Nuray Karancı
Head of Department

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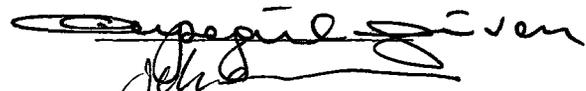

Assist. Prof. Dr. Sibel Kazak Berument
Supervisor

Examining Committee Members

Assist. Prof. Dr. Sibel Kazak Berument

Assoc. Prof. Dr. Ayşe Gül Güven

Dr. Zehra Uçanok


ABSTRACT

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OF

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VERB AGREEMENT AMONG TURKISH PRESCHOOLERS

Buyurgan, Demet

M. Sc. , Department of Psychology

Supervisor: Assist. Prof. Sibel Kazak Berument

August 2002, 137 pages

This study was designed to investigate the development of mean length of utterances, word order, and subject-verb agreement among Turkish preschoolers. Total number of subjects included in the study was 96 of which 48 were girls, and 48 were boys and all participants were speaking Turkish as a first language. There were equal numbers of children whose mothers were either primary or secondary and high or university graduates. There were 8 groups and each group was compared on the basis of on the basis of their performances in story generation, story telling and structured play tasks. Performances of these groups were compared with each other also to investigate whether there was a developmental change. The first conclusion was that

2.00-2.05 year-olds had significantly lower MLUs than all other groups. Moreover 2,06-2,11 age group also performed less well than all groups except 3,00-3,05. The other finding was that length of utterance did not differ among 3.00-3.05; 2,06-2,11; 3,06-3,11; 4,00-4,05; 4,06-4,11. On the other hand 3.00-3.05 age group produced lower MLUs than 5,00-5,11, and 6,00-6,11 age groups. Furthermore It was found that age was related with MLU that is MLU increases as the child gets older. The second finding was that all children as young as 2 years were able to use subject-object-verb (SOV) order successfully and all age groups showed similar superior performance in all tasks. Another conclusion the present study was that children were sensitive to both person and number agreement from very early on like as young as 2 years of age.

KEY WORDS: Mean Length of Utterance, Word Order, Subject-Verb Agreement

ÖZ

2 - 6 YAŞ ARASINDAKİ TÜRK ÇOCUKLARINDA ORTALAMA SÖZCE UZUNLUĞU, CÜMLENİN SİRALANIŞI VE ÖZNE-YÜKLEM ARASINDAKİ UYGUNLUĞUN GELİŞİMİ

Buyurgan, Demet

Yüksek Lisans., Psikoloji Bölümü

Tez Yöneticisi: Yrd. Doç. Dr. Sibel Kazak Berument

Ağustos 2002, 137 sayfa

Bu araştırma 2-6 yaş arasındaki Türk çocuklarında ortalama sözce uzunluğunun, cümlenin sıralanışının ve özne-yüklem uygunluğunun gelişimini araştırmak amacıyla tasarlanmıştır. Araştırmaya 48'i kız 48'i erkek anadili Türkçe olan toplam 96 çocuk katılmıştır. Çocuklar anne eğitimine göre (ilkokul, ortaokul ve lise, üniversite) eşit olarak dağıtılmış ve yaşa bağlı olarak toplam 8 grup oluşturulmuştur. Bu gruplar hikaye anlatma, hikaye üretme ve yapılandırılmış oyun görevlerindeki performanslarına göre değerlendirilmiştir. 2.00-2.06 yaş grubu bütün görevlerde diğer gruplardan anlamlı derecede düşük ortalama sözce uzunluğuna (OSU) sahiptir. 2.06-2.11 yaş grubu ise, en küçük yaş grubuna benzer biçimde anlamlı derecede düşük OSU'ya sahiptir. Fakat, bu yaş grubundaki çocuklar 3.00-3.05 ile benzer OSU'ya sahiptir. Araştırmanın bir diğer

sonucu şöyledir, 3.00-3.05 yaş grubundaki çocuklar 5.00-5.11 ve 6.00-6.11'den düşük OSU'na sahipken diğer tüm gruplarla benzer sözce uzunluğuna sahiptir. Ortalama sözce uzunluğunun yaş ile ilişkili olduğu ve çocuk büyüdükçe sözce uzunluğunun da arttığı bulunmuştur. Cümle öğelerinin sıralanışı ve özne-yüklem uygunluğu diğer araştırma konulardır. Bütün yaş grupları cümlenin öğelerinin sıralanışı, özne ile yüklem arasındaki kişi ve sayı uygunluğunu Türkçe'de beklenen şekilde kullandıkları ve 2 yaşından itibaren oldukça başarılı oldukları bulunmuştur.

ANAHTAR KELİMELER: Ortalama Sözce Uzunluğu, Kelimelerin sıralanışı, Özne-Yüklem Uygunluğu



To My Parents

Cemile and Mehmet Ali Buyurgan



ACKNOWLEDGEMENTS

In the first place, my candid thanks go to my supervisor Assist. Prof. Sibel Kazak-Berument for her excellent supervision. I would also like thank to Assoc. Prof. Dr. Ayşe Gül Güven for comments and guides. Moreover, I want to thank Dr. Süer Eker. He supported my research with his wide Turkish knowledge. Also I would like thank Dr. Zehra Uçanok. I started this research with five team researchers and I would like thank them: Binhan Koyuncuoğlu, Şükran Kılıç, Arzu Baykara, Özlem Kocabaş and specially İpek Kaleli for unconditional support.

I wish to express my special thanks to my family for their understanding of my enthusiasm with psychology, for their patience and caring love.

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CHAPTER I

INTRODUCTION

Language acquisition is a major interest for developmental psychologists. In the 1930s, first descriptive linguistic studies were performed by Franz Boas, Edward Sapir and Leonard Bloomfield. In the 1960s, the contemporary literature began to appear with Harris, Fries, Nelson, Hockett and Gleason studies (Eldemir, 1980) but only during the 1970s and 1980s language emerged as a strong area of inquiry. The study of child language sits at an interface among linguistics, developmental psychology, sociology, anthropology, and education after 1970s (Rice, 1989).

Following the theory of Noam Chomsky who proposed that children are born with a language acquisition device (LAD) and all that is necessary for language acquisition is exposure to speech (beginning in the 1950s) the field of developmental psycholinguistics emerged. Many developmental psychologists today agree on an integrationist viewpoint. General tendency of developmental psycholinguistics is to study the inter play between language, cognitive, and social development (Bjorklund, 1995).

One of the traditional milestones of a child's life is the day child produces his or her first word. When parents are asked why this event has such an importance,

they usually say something like this: “Well, my child was not a baby anymore, he was a real person.” or they will say, “Suddenly we felt like we knew her as a person.”

Most psycholinguists and cognitive developmentalists consider like parents and they define possession of language as the key element of our humanness as if infant-to-human transformation occurs by means of a language. According to them it is the foundation of human unique form of intelligence. Also this ability helps to explain ourselves, to solve problems that have not yet happened, and to benefit from the experiences of others who lived generations before or worlds away from us.

The present study was conceived to explore the degree of relationship between chronological age and MLU, development of mean length of utterance (MLU), word order, and subject-verb agreement among Turkish children aged from 2 to 6 years. All these topics have very conflict results in the literature like many other topics. For example; Miller and Chapman (1981) found that age was highly correlated with MLU whereas Klee and Fitzgeralds (1985) proposed the opposite results. Similar situations are also valid for word order and subject-verb agreement.

The introductory chapter of this thesis is about the acquisition of language, definitions and dimensions of language, and the course of language development. Its relation with cultural differences and socio-economic status differences were also considered.

The second chapter covers the mean length of utterance (MLU). Firstly definitions and calculated formula of MLU were given. Then counting rules, Brown's approach and developmental stages of MLU were discussed. Furthermore its use of MLU in the literature criticisms and association with socio-economic status, parental manner and gender were also emphasised.

Definitions, and theoretical approaches toward word order were given in the third chapter. General tendency and frequencies of different orders in the world languages, crosslinguistic results and order rules of Turkish were also explained.

In the fourth chapter subject-verb agreement strategies, definitions, some conflicting approaches and their foundations were given. Then possible causes of agreement errors were considered in detail. Some crosslinguistic studies were also included.

CHAPTER II

ACQUISITION OF LANGUAGE

2.1. Definitions of Language

In the literature various definitions have been suggested for language but foundation of them are almost the same. For example Owens (1996) defined language as a socially shared code that enables users to transmit ideas and desires to one another or conventional system for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols. According to Santrock (1997) language is used to communicate with others and it is a system of symbols. All languages have their own unique symbols and rules for symbol combination (Owens 1996).

Following is the American Speech-Language-Hearing Association definition of language. Language is used in different modes for thought and communication and it is complex and dynamic system of conventional symbols. Historical, social and cultural contexts are evolved by language. (Bjorklund, 1995). As rule-governed behaviour, language is described by at least five dimensions—phonologic, morphologic, syntactic, semantic, and pragmatic. These dimensions are called communicative competence.

2.2 Dimensions of Communicative Competence

Dimensions of language come together under following titles: phonology, morphology, semantic, syntax, and pragmatics. Languages differ in their relative dependence on the dimensions that is languages have structural differences. (Owens, 1996).

First dimension is phonology. The knowledge of how words are pronounced is called as phonology. Language comprises basic sounds, or phonemes. Morphology is second area of linguistics. It is the research of the rules for combining morphemes. That is morphology relevant with the internal organization of words (Owens, 1996; Santrock, 1997). Every word contains at least one morpheme or may have several morphemes as in happiness (de Villers & de Villiers, 1976; Schirmer, 1989; Lung & Duchan, 1988). (Santrock, 1977).

Developmentalists would say that by acquiring their first words, children have mastered the first steps of semantics. Semantics defined as the system of meanings of words and groups of words. Other component of language is the syntax. It is the knowledge of sentence formation, grammatical rules and the arrangement of words to represent relations between them (Rice, 1989; Bock, Nicol & Cutting, 1999). These rules specify word order, sentence organization, and the relationships between words, word classes, and other sentence elements. Syntax is specified as which word combinations (sentence) are acceptable, or grammatical, and which are not (Owens, 1996). Final language sets of rules involve pragmatics, the knowledge of

how language can be adjusted to fit various circumstances (Rice, 1989). All of these dimensions define language.

2.3. The Course of Language Development

2.3.1 Language in Infancy

The purpose of the baby's earliest communication is to attract attention from parents and others in the environment. Infants keep the attention of others by making or breaking eye contact, by vocalizing sounds, or by performing manual actions such as pointing. At approximately 6 to 9 months, infants begin to understand their first words. (Santrock, 1997). At this age children are capable of understanding much more words and ideas than they can express (Bjorklund, 1995). Differences in the ability to understand and to produce bring the distinction between productive language, the language that children can actually produce, or speak; and receptive language, the language that children can understand. Receptive language surpasses productive language, and this distinction begins early in infancy (Golinkoff, Hirsh-Pasek, Cauley, & Gordon, 1987).

Depending on the criteria established, different ages are noted for the appearance of the first word. However, the range ten to thirteen months includes most of the recorded observations (McCarthy, 1954. cited in Bjorklund, 1995). The early utterances are only one word long and generally refer to important people (dada), and objects (ball). The words are simple in pronunciation and clear in meaning (Santrock, 1997; Gleason, 1985). At times it is hard to tell what these one-

word utterances mean. One possibility is that they stand for an entire sentence in the infant's mind. Possibly only one word comes out instead of the whole sentence because of the infant's limited cognitive or linguistic skills. (Santrock, 1997)

By the time children are 18 to 24 months of age they usually produce two-word utterances. Telegraphic speech is characteristic of young children's two-or three-word combinations. It is the use of short and precise words to communicate; so, grammatical modifications such as articles, prepositions, inflections, connectives are usually omitted (Santrock, 1997 & Gleason, 1985) and some words are more likely than others to appear in the child's sentences (de Villiers and de Villiers, 1976). The child's speech can include such things as "That kitty," meaning "That is kitty," and "Mommy milk," meaning "Mommy, give me my milk"(Gleason, 1985).

Examinations of children's two-word utterances was conducted in many different language communities and shown that everywhere in the world children at this age are expressing the same kinds of thoughts and intentions in the same kinds of utterances (Gleason, 1985). Again, the words they know are important to them, such as familiar people and objects (de Villiers & de Villiers, 1976).

2.3.2 The Preschool Years

From age 2 to 5, children increase their vocabularies and their languages develops from baby talk to adultlike communication (Bjorklund, 1995). Number of vocabulary averages 200 to 275 words by the age of 2. As the infants develop, children's utterances grow longer and become more complex and number of

grammatical errors decreases (Clark & Clark, 1977). It's unclear whether decrease of grammatical errors reflects an increase in memory ability (Bjorklund, 1995).

2.3.3 The School Years

By school age, children know between 8,000 and 14,000 words (Bjorklund, 1995) and nearly all of the basic grammatical rules of language such as form of plurals, negatives, and past tenses, and able to produce questions, and use passive sentences. By the time children are 6 or 7 years old, the structure of their language is very similar to an adult. For example "The man who fixed the house went home" and "I do not want you to use my bike" (Santrock, 1997).

2.4. Cultural and Social-Class Differences

Studies indicate that parental goals and models of infant care differ across cultures and within cultures (Dale, 1976). Some cultures attach importance to physical nurturance and protection such as agricultural societies but for some other cultures the acquisition of skills such as language is the major parental concern. The amount of talking to babies is a reported difference across the two types of cultures (Murray et al., 1990)

Social class itself can hardly be a direct cause of language development or retardation. Some of the many variables that are correlated with social class, such as the speech heard by the child or child rearing practices, may affect language development. However the data available on social class differences in language

development are surprisingly ambiguous. A number of social class differences in the syntactic development were supported by some research (Loban, 1963, Stodolsky, 1965, Kirk 1969, Dewart, 1972; cited in Dale, 1976). However the poor performance of children from poverty environments appears to be limited to vocabulary because of poor practice of speech hearing but not syntactic development. No differences were observed between the social-class groups up to age 3; 6 (Santrock, 1997). Thereafter differences emerge, and it becomes sizable by the age of five years. Thus finding of no difference are probably more common than finding of differences (Dale, 1976).



CHAPTER III

MEAN LENGTH OF UTTERENCE

For a developmental study some criterion measure is necessary to match the subjects. Usually procedures are designed according to subject variables such as gender, chronological or mental age. These criterion measures are generally crucial for psychological research but for psycholinguistic data they seem to insufficient. Many developmental progresses display themselves when children are compared on the basis of a better index of development. In language development literature for this purpose mean length of utterances (MLU) is used as a measure to summaries the child's linguistic maturity (Harris, 1983).

In the following sub-sections some relevant questions are discussed. For instance; Why mean length of utterance is used? What does MLU constitute of? What are the criticisms from other researchers? What are the factors that may affect length of utterances?

3.1. Definition of Mean Length of Utterance

Widely held practices in many studies of child language development and disorders have been to study an easily calculated numerical metric, mean length of utterance

measured in morphemes (Klee & Fitzgerald, 1985). MLU is used to determine the child's language development stage.

MLU is calculated by dividing the number of morphemes in a sample of child's language by the total number of utterances (Brown, 1973). The formula is very simple (Owens, 1996):

$$MLU = \frac{\text{Total number of morphemes}}{\text{Total number of utterances}}$$

Counts of average utterance length have been used to index language development since Nice (1925, cited in Hickey, 1988), but it have re-popularised by Brown (1973). MLU has often been based on the number of words, in recent work the number of meaningful elements has been found more useful. These meaningful elements may be words, such as "see", but they are often smaller than words. The word "cats", for example, consist of two such elements "cat" and the plural indicator "s". These smallest meaningful elements are called morphemes.

3.2. Computing MLU

Brown (1973) formulated the original rules for calculating MLU and reported that children's early language development could be usefully organized into stages based on length of utterances.

In general, to generalize about a speaker's overall production, 50 to 100 utterances are considered as a sufficient sample. An utterance may be a sentence or a shorter unit of language that is separated from other utterances by a drop in the voice, a pause, and/or a breath that signals a new thought (Owens, 1996).

Compound words, proper names, ritualized reduplications (e.g., "trick" or "treat", "thank you"), irregular past, and internal word changes to indicate plural (e.g., feet, people) are counted as single morphemes. Auxiliaries, plural (s), possessive (s), third-person singular present indicative (s), regular past (ed), present progressive (ing), contractions, participles and gerunds (ing), and comparative forms (er, est) are counted as separate morphemes (Brown, 1973; Schirmer, 1989). Once transcribed, each utterance is analyzed by morphemes and the total sample is then averaged to determine the speaker's MLU (Owens, 1996).

3.3. MLU and Stage of Development

To identify quantitative change or qualitative variation of linguistic organization, linguistic data have been blocked on the basis of either chronological age (Dromi, Leonard & Adam, 1999) or MLU. Roger Brown (1973) reported that children's early language development could be usefully organized into stages based on mean length of utterance in morphemes rather than chronological age. Because while the rate at which children acquire language has been found to be highly variable. He has proposed, "MLU is an excellent simple index of grammatical development because almost every kind of knowledge increases in length. The stages are not known to be true stages in Piaget's sense; that is they may not be qualitative

changes of organization forced on the investigator by the data themselves. The original equidistant samples based on MLU were simply a device for sampling the data; a discontinuous sampling imposed upon more continuous data. My division I to V were rather like a sociologist's imposition of arbitrary dividing points on continuous distribution of income." (Brown, 1973; p: 58).

Other researchers have detailed Brown's original division of language development into five stages. They introduced equal interval (0.5 morpheme) stages from value of 1.00 to values greater than 4.50 morphemes (Miller & Chapman, 1981).

Children whose mean length of utterance is the same tend to do the same things with the morphemes they use (Schirmer, 1989). Other aspects of the Brown's stages include an age range, characteristics, and typical sentences (Santrock, 1997). These stages are presented in Table 1.

Table 1. Characteristics of Brown's Stages of Language Development

Stage	MLU	Approximate Age	
		(months)	Characteristics
I	1.00-2.00	12-26	Linear semantic rules
II	2.00-2.5	27-30	Morphological development
III	2.5-3.0	31-34	Sentence-form development
IV	3.0-3.75	35-40	Embedding of sentence elements
V	3.75-4.5	41-46	Joining of clauses

Source: (Santrock, 1997).

3.4. Elaboration of Brown Stage:

3.4.1. Stage I

Stage I, occurs from 12 to 26 months of age (Santrock, 1997). At the beginning of this stage, only one-and two-word sentences are produced and gradually MLU increases (Dale, 1976). At this stage MLU is 1.00 to 2.00 but typically around 1.5 (Santrock, 1997; Dale, 1976). Vocabulary consists mainly of nouns and verbs, with several adjectives and adverbs. The inflections are omitted. These observations give rise to the descriptive term “telegraphic speech”. Instead, relations are signalled primarily by word order. (Dale, 1976). An example to typical sentence may be “Mommy bye-bye” (Santrock, 1997).

Stage I language is very much the same all over the world but there are no information about similarity about other stage at other languages. As Slobin wrote, “If you ignore word order and read through transcriptions of two word utterances in the various languages we have studied, the utterances read like direct translations of one another” (cited in Dale, 1976, p: 20).

3.4.2. Stage II

In stage II, occurring from 27 to 30 months, MLU ranges from 2.00 to 2.5 (Santrock, 1997). The major achievement of Stage II is marked by the appearance of grammatical morphemes (Owens, 1996). Plurals are correctly formed, past tense is used, be is used, definite (the) and indefinite (a, an) articles are used, and so are some

prepositions. Typical sentences are “Dolly in bed.” “Them pretty”, and “Milk’s all gone” (Santrock, 1997).

3.4.3. Stage III

In stage III, occurring from 31 to 34 months of age, MLU ranges from 2.50 and 3.00. The child exhibits simple sentence forms, and she begins to modify these forms to mirror more adultlike forms for different sentences (Owen, 1996). To illustrate, yes-no questions appear, wh-questions (who, what, where) proliferate, negatives (no, not, non) are used, and so are imperatives (commands or requests). Typical sentences are “Daddy come home?” and “Susie no want milk” (Santrock, 1997). Four-word utterances appear, for example, I take truck home, which is of the form agent-action-object-location.

3.4.4. Stage IV

In stage IV, occurring from 35 to 40 months, MLU ranges from 3.00 to 3.75. Stage II is characterized by the beginning of embedding of phrases and clauses within a sentence. (Owens, 1996). Typical sentences include, “I think it’s red,” and “Know what I saw”. (Santrock, 1997 ; Owens, 1996).

3.4.5. Stage V

In stage 5, occurring from 41 to 46 months, MLU ranges from 3.75 to 4.50 (Santrock, 1997). This stage is characterized by conjoining or by compound

sentences. For example, “ I went to Bob’s and had ice cream”(Owens, 1996).

Although each stage has some characteristic linguistic modifications, it should be noted that other, less obvious change are also occurring (Owens, 1996).

3.5. Uses of Mean Length of Utterance in Research

As it was introduced before chronological age is not a good indicator of language development. Researchers seems to agree that children vary greatly in their rate of development (Dale, 1976; Schirmer, 1989) and for that reason they need more reliable and more sensitive measures like MLU.

MLU has been used in the service of two research paradigms to study child language development. First, it has been used as an independent variable for the purpose of separating normal children into experimental groups. These groups are typically differentiated on the basis of MLU. Intervals 0.5 morphemes in length have been referred as periods or stages of language development. Descriptions of the child’s language across these “stages” of language development have been discussed (Brown 1973). Secondly MLU has been used as a matching variable to compare groups of linguistically normal children with groups of language-impaired children (Harris, 1983; Rondal, 1987). The assumption here is that children, who are linguistically similar, or at least grammatically similar, will be homogeneously grouped. However groups demonstrating different MLU values are assumed to be linguistically different from one another (Klee & Fitzgerald, 1985).

3.6. Criticism of Mean Length of Utterance

Despite its wide use and general acceptance, MLU is not without its critics. Among these criticisms stages of MLU especially beyond II, can be listed relation between age and MLU and methodological problems such as validity can also be stated.

3.6.1. Stages

The basic question is “What in fact does MLU measure?”. This question has motivated Brown (1973). In this study Brown included three normal children, in which two children were matched based on their MLUs. These two children had the same level of constructional complexity and same chronological age. Brown characterized three children’s (Adam, Eve and Sarah) linguistic development as Stage I (approximate age 12-26 months) and Stage II (approximate age 27-30 months) (1973). However Rondal et al. (1987, p: 433) suggested, “despite its wide use and general acceptance, MLU has been the subject of little evaluative research”. It was suggested that the relationship between productive complexity and MLU is largely unpredictable past the one-word stage (Rondal, 1987; Klee & Fitzgerald 1985) that is utterance length is a valid predictor of syntactic complexity up to MLU 3.00. Beyond Stage II, there is not any empirical evidence for the validity of using MLU to predict the profile of the child’s grammatical system. For example; what can be said about child’s level of grammatical state if his/her MLU greater than 3.0. It is suggested that the relationship between complexity and length cannot be estimated past the single word stage (Crystal, 1979. cited in Conant, 1987). This criticism was

supported by Klee (1985) and Scarborough (1986) as well. Klee's (1985) study assessed the grammatical performance and MLU of 18 normally developing children aged in the 24- to 48- month range. Scarborough et al. (1986) closely replicated Miller and Chapman's study (1981) in two new research samples. Miller and Chapman (1981) studied the MLU in sample of 123 normally developing, middle- to upper middle-class children from Madison, Wisconsin, between 17 and 59 months of age. Strong positive correlation between age and MLU was found ($r = .88, p < .001$). On the other hand Scarborough et al. (1986) found that 48- and 60-month-olds' MLUs were so much lower than children from Madison sample. For older children MLU was found very problematic. Both Klee et al.(1985) and Scarborough et al. (1986) concur with Miller and Chapman (1981) that MLU increases as the child get older but there was no predictable relation between MLU and age particularly beyond the age of 36 months (stage III and early V).

3.6.2. Relation Between Age and MLU

Relationship between MLU and age is another contradictory topic. As mentioned above Miller and Chapman (1981) studied the MLU in sample of 123 normally developing children from upper and middle class, between 17 and 59 months of age. Strong positive correlation between age and MLU was found ($r = .88, p < .001$). The evidence that supports Brown's claim lies mainly in his study (1973). Ege et al. (1998) studied 95 Turkish children. Their sample ranged from 17-59 month of age. They found that MLU was increased with age and highly correlated ($r = .83$) with each other in Turkish children. However, Klee and Fitzgerald (1985) report rather low correlation (0.26) between MLU and age. They found that MLU increases

predictably as the child gets older, but strong, positive relationship is not consistent over the entire stage or age range. Specifically, there is no predictable relationship between MLU and age in the 2; 0 to 4; 0 range (Klee et al. 1985). Miller & Chapman's (1981) study and Klee & Fitzgerald's (1985) study were compared by Conant because of their inconsistent results. Conant (1981) explained differences as a function of sample: Low correlation between age and MLU was found at homogenous sample that is participants were only from low society (Klee & Fitzgerald, 1985) and high correlation was found at heterogeneous sample (Miller & Chapman, 1981). That means characteristics of participants affected relationship between MLU and age.

3.6.3. Methodological Problems

Brown did not adequately make the operational definitions of either an utterance or a morpheme. Therefore, it is not reliable computation of the grammatical index and many research's decisions might be incorrect because of Brown's incomplete counting rules (Griffiths, 1974 & Crystal, 1974, cited in Klee & Fitzgerald, 1985).

Furthermore, reliability of the MLU measures is also questioned. MLU like any other language measure is task-and situation-dependent in the sense that it will vary according to the speech-task used (free-play, story-telling, descriptive speech, etc., Rondal 1988), the setting (home, laboratory, clinic) and the persons involved, etc. (Krame, James & Saxman 1979, cited in Rondal 1988). In other words length of utterances may change depending on the research condition. To avoid this problem

and to increase the reliability of MLU speech sample should be gathered from different conditions (Ege, Acarlar, Gülerüz, 1998).

3.7. Factors Related With Mean Length of Utterance

Many factors thought to be associated with MLU. To illustrate social class differences, mother's education and gender can be listed. However a few researchers focused on these factors. Because general aim of MLU research is to find whether or not age is related to MLU or stage of MLU. Therefore, in the literature very little evidence is found on these issues.

There is also evidence for the impact of mother's speech on later language development. When adults speak to each other, MLUs average 8 to 10, however, when adults talk to young infants (from 0 to 4 in age) or animals, MLUs average 3.6 to 4.0 (Hirsh-Pasek & Trieman, 1982). That means adults communicate their infants with lower length of utterance.

Furrow, Nelson & Benedict (1979, cited in Murray, Johnson, J. & Peters, 1990) found that mother's MLU was negatively correlated with child's expressive language development. They claimed that simple language by the mother facilitated language growth, whereas complex language prevented language development. However their study have some methodological problems which make the differences in finding. For example, subjects were matched both for age and expressive language level. But the children varied in comprehension abilities so child

characteristics may have been the cause rather than the consequence (Murray, Johnson, J. & Peters, 1990).

It was also emphasized that social class differences do have an effect on MLU (Ege, Acarlar, Güleriyüz, 1998). That means children from different social class may have different length of utterances. A linear relationship between chronological age and MLU was announcement for preschool children by Miller and Chapman (1981) but Klee et al. (1989) criticized this finding because of social class effect. According to Klee (1989), Miller and Chapman's study (1981) included children from high social class so results cannot generalize to all children. In this reason Klee et. al. (1989) studied with 24 children from low social class. They found correlation between age and MLU but decrease was observed (from $r = .88$ to $r = .75$).

As a result, one of the open questions for MLU literature is how or whether social class, gender and parental manner differences influence the length of utterance for children. Although there are a few studies, researcher must be careful about the effect of these factors.

CHAPTER IV

WORD ORDER

To transform thought into language is one of the central problems in speaking. A major component of this problem is the noticeable difference between thought and language in their potential for simultaneity. Although thoughts have the capacity to capture many features and relations at the same time, spoken languages expose them to segments that must be uttered one at a time. This explanation makes word order an important device for conveying information in language (Bates, MacWhinney, Caselli, Devescovi, Natale & Venza, 1984).

In the following sections studies on how and when word order develops will be reviewed.

4.1 Definition of Word Order

Natural languages use grammar as a major device to indicate the relations among people, objects and events: the sequencing of phrasal constituents with the clause (word order) (Akthar, 1999; Dale, 1972). Word order term refers not to single words but to order of phrases so a better term is constituent order. Subject (S), object

(O) and verb (V) are three major constituents in a transitive clause (Lung & Duchan, 1988) and six orders are possible. Generally, director of word order is the position of the verb (Mills, 1985). If the orientation is a semantic one rather than grammatical relations, the strategy is described as order of agent (refers to subject), action (refers to verb), and object (refers to object) (Lung & Dunchan, 1988).

4.2 Theoretical Approaches Toward Word Order

4.2.1. Parameter Setting- Data-Driven

Some theorists place more emphasis on linguistic input (data) and on the active role of children acquiring grammatical relation (Sampson, 1989). According to these authors, children's acquisition of grammar involves a slower process of inducing general patterns from specific examples. This theoretical approach can be identified as invoking some form of data-driven learning (Pine & Martindale, 1996).

Nevertheless, other theorists describe acquisition of word order as the setting of parameter: that is, it is one of those aspects of language that does not have to be learned but rather is triggered by environmental input. It captures the systematic differences among the world's languages. (Gibson & Wexler, 1994).

It has been emphasized that the acquisition of word order may be accomplished very rapidly (triggered). Children have to learn parameter value of their language whether head-first, as in English, or head-last, as in Japanese. This is very simple task for children. They can do that by paying attention any sentence in their parents'

speech whether a verb comes before or after its object (Pinker, 1994, cited in Akthar, 1999). Thus, children learn word order at once and make a mistake merely. According to parameter setting model to learn dozens or hundreds of rules is not necessary, children are only setting a few mental act. This model would help to solve the mystery of how children's grammar takes a progress into adultlike complexity in such a short time, (Akthar, 1999).

Proponents of parameter setting comes from the fact that children do appear to acquire basic word order vary rapidly as soon as they begin to produce full sentence (Pinker, 1984). Bloom (1993) proposed that 2-year-olds who expose to English have the same competence as adult speakers. Children's utterances contain subject-verb-object sequence in very early years. This fact about acquisition might seem to support parameter-setting model rather than data driven.

According to some other researchers such as Akthar (1999) there is some methodological error and because of these error parameter setting model seem to look correct. He emphasized that all existing studies of word order comprehension and production have examined verbs, which are familiar by children. Therefore, very young children might understand word order with some verbs but not with others. Roberts (1983) showed that comprehension of word order by young toddler- from 23 to 31 months- is verb specific. The verb "tickle" was used correctly in transitive sentences by them but not a similar sentence containing the verb "hug". Older children were able to enact transitive sentences containing a wider scope of verbs. Consequently, it is not possible to study the word order with familiar verbs because

these verbs cannot distinguish between general knowledge of word order and verb specific knowledge of word order with using familiar verbs (Akthar, 1999).

Akthar believe that there is only one suitable way to test for general knowledge is the use of novel (unfamiliar) verbs. When children can use and comprehend word order correctly with verb they have never heard before, then their understanding is probably general. This was the rationale for the Akthar's studies (1997 and 1999). One of his studies (1997) included three-year-old children and they were taught novel transitive verbs with experimentally controlled argument structures. The younger children neither used nor comprehended word order with these verbs; older children comprehended and used word order correctly to mark agents and patients of the novel verbs. Akthar (1999) also examined 12 children and taught them novel verbs, one in each of three sentence position: SVO, SOV and VSO. The younger age groups (two and three -year- olds) did use the non-SVO orders with novel verbs. On the other hand these children did not use non-SVO order when a familiar verb was presented. These results support the hypothesis that acquisition of word order is a gradual process. In the light of given results Akthar (1999) and some other researchers such as Roberts (1983) claimed that parameter setting model do not fit the development of word order. Children's early grammatical development is data-driven.

4.2.2. Subject Before the Verb

The tendency found in many and diverse languages are to place the subject before the verb. In this aspect there are at least three major approaches to the word

order argument. They make predictions both about word order in early speech and propose that it is relatively easy to acquire word order in different types of languages (Slobin, 1982, cited by Hickey, 1990). One of these approaches claimed that SVO languages are consequently easier to acquire because the concept of agent-action-object-recipient helps the child to grasp the linguistic meaning of appropriately ordered sentences (Bruner, 1975). Second approach is argument that simple cognitions have an SVO structure so it appears the predominance of SVO languages (Osgood & Tanz, 1977, cited by Hickey, 1990). The last arguing from a model of sensorimotor cognition which claim that actor (subject) take part before action (verb) because the speaker experiences his/her plan or idea to act before carrying out the action (Hickey, 1990).

Based on this explanation it is said that SOV and SVO languages would be acquired earlier than non-subject-initial languages (McNeill, 1975, cited by Hickey, 1990). This hypothesis is supported by many studies. One of them is Hickey's (1990). He examined the development of word order patterns in Irish which is a strict VSO language. Although the children's word-order strategy appeared to be very sensitive to the order of elements in their input, results showed that children used subject-initial utterances significantly more frequently than VSO rule sentences despite their parents VSO inputs. Children show tendency to place the subject before the verb (Hickey, 1990).

4.2.3. Memory and Word order

The simplest hypothesis about ordering is focused on memory and word order that relate order directly to retrieval from memory. Word order in speech is a complex product of factors that reflect language structures and factors that reflect the retrievability of information from memory and general knowledge. (McDonald, Bock & Kelly, 1993). According to this hypothesis short words (because of phonological simplicity) and animate expressions (because of their centrality to human thought) are recovered or assembled quickly (Bock, 1992). May be the same words that appear early in sentence are readily recallable in many setting (McDonald, Bock & Kelly, 1993). This identification displays word order as a simple picture but is complicated by the sentence production process (Bock, 1978; Dell, 1986; Garrett, 1988; cited in McDonald, Bock & Kelly, 1993). Word order is mediated by assignment to grammatical relations in languages such as Turkish, and English. As a result, the subject is often (not always) comes first in a sentence and have priority in production.

Hypothesis of conceptual accessibility (meaning-based) is related with retrievability from memory. Transient priming within a semantic network is a candidate source of this retrievability. This possibility was investigated by Bock (1985) with priming words. Priming words are related semantically and phonologically to other words that could serve as either the subjects or objects of sentences. The speakers produced these sentences as description for pictured actions, after the presentation of the primes. While semantic priming was presented, the primed words were produced as subjects more often than as objects. On the other

hand with phonological priming, there was no significant difference between primed and unprimed words to appear as subjects (McDonald, Bock & Kelly, 1993).

Bock and Warren (1985) examined conceptual accessibility with concrete words. Their study included sentences, which differed in concreteness and serial but shared the same grammatical roles. If conceptual accessibility affects word order, more concrete word should tend to be produced before the less concrete one. However, concreteness had no effect and no preferences for word orders in which more concrete words precede less concrete words. (Bock & Warren, 1985).

Lexical accessibility (form-based) is another memorial aspect contained frequency and length of word. Brown and McNeill (1966. cited in McDonald, Bock & Kelly, 1993). reported that shorter words have been found to be more recallable than longer ones both in long-term memory (Calhoon, 1935. cited in McDonald, Bock & Kelly, 1993) and immediate recall tasks (Baddeley, Thomson, & Buchanan, 1975. cited in McDonald, 1993). On the other hand effect of word length on word order was not found in some other studies (McDonald, Bock & Kelly, 1993). The results of McDonald et. al. (1993) did not support the length hypothesis. That is shorter words did not appear earlier than longer words.

4.2.4. Word Order and Semantic

The importance of word order is seen most clearly in a reversible sentence, in which the meaning of sentence cannot be determined on the basis of lexical items alone (Hakuta 1982; Akthar & Tomasello, 1997). Semantic factors play a larger role

than the grammatical factor of word order. (Dale, 1976). Pairs of sentences such as “The ball hit the boy” and “The boy hit the ball” are not subject to the same amount of bias. In the world of a preschool child, it must seem equally plausible for balls to hit people as it is for people to hit ball (Bates, McWhinney, Caselli, Devescovi, Natale & Venza, 1984)

According to Bloom (1993) children are sensitive to word order from a very early age both in production and comprehension. In a number of studies it was found that comprehension of word order preceded its production (Fraser et al., 1963; Huttenlocher, 1974; Lovell & Dixon, 1967. cited in Roberts, 1983). In subsequent studies, however, production of word order was found to precede comprehension. Children in Brown’s early Stage I (MLU = 1.00-1.50) did not use word order information in comprehension. However, by late Stage I (MLU = 1.50-2.00) children were correct on 75% of the test sentences, suggesting a moderately general control of word order. Stage I children observed appropriate word order in spontaneous preceded comprehension, comprehension not appearing until late Stage I (deVilliers & deVilliers, 1976). However opposite results were found by Robert (1983). Their results appear that an understanding of word order in active sentences is present in early Stage I.

To understand development of word order strategy Bever (1970) studied with American children with probable and improbable sentences in the active and the passive voice. He suggested that 3-year-olds rely initially on semantic strategies while 4-year-olds make primarily use of word order (cited in Bates et all, 1984). Based on the performance of 45 American children 2-5 years of age with probable or

simple reversible actives, Strohner and Nelson (1974) found that all children in their study, even at 2 and 3, control basic order of English (SVO). However, they also proposed that until 4-5 years, this word order expectation is completely overcome by semantic strategies. Major disagreement between Bever (1970) and Strohner and Nelson (1974) studies involves the age of the first appearance of word order strategies. Both studies found that word order ultimately predominates over semantic strategies and that semantic strategies are stronger than word order strategies at first.

4.3. Relationship Between Age and Word Order

Evidence from production and comprehension indicates that children are sensitive to word order from a very early age as young as 16 months (Akthar & Tomasello, 1997). From the time they start to combine words, they relatively rarely make word order errors in production (Brown, 1973). To illustrate, in spontaneous speech, young children generally tend to place agents before, and patients after, transitive verbs that is first noun of a sentence is merely assigned the agent by children. (Akthar & Tomasello, 1997).

As it was mentioned above there are some methodological criticisms. General claim is that the syntactic and morphological properties of verbs are learned on a verb-by-verb basis (Tomasello, 1992, cited in Akthar & Tomasello, 1997) and children younger than 3 years have most probably learned the appropriate use of word order on this way (Roberts, 1983). The main conclusion is that children were not able to use word order to mark agent and patients with novel verbs until 3 years 6

months. Nevertheless, there are a lot of studies, which showed that acquisition of word order happens in very early ages.

4.4. General Tendency and Variations of Word Order on the World

The world's languages split evenly amongst the six possible orders, which are chosen depending on pragmatic factors such as focus and the topic of the sentence. Given the three constituents S, O and V, there are six logically possible variations. All six orders do occur as the basic order amongst the languages of the world: SVO (Hebrew, Spanish, Northern Sotho, English, French, German), SOV (Turkish, Japanese, Hungarian), VSO (Irish, Welsh), VOS (Gilbertese), OVS (Apalai), and OSV (Aurina) (Tallerman, 1998).

Two major generalizations about constituent order in the world's languages emerge from the statistics. First, the vast majority of languages have subject-initial order (SVO, SOV), between them covering around 80 per cent to 90 per cent of the world's languages (roughly equal split), and even if subjects are not absolutely clause-initial, they generally precede objects (SOV, SVO, VSO) (Tomlin 1986, cited in Tallerman, 1998). In one large language sample 96 per cent of the languages have subjects before objects. Subjects appear to be more salient than objects. Subjects that typically initiate the action expressed by the predicate, are often agents of that action or at least in control of it. Furthermore subjects are often the topic of the clause, while objects are less typical as topics. Second, the majority of languages place V next to O (in either order): again, over 90 per cent of a typical sample of languages. VSO is the only other major group, covering perhaps 9 per cent to 12 per cent of

languages, including Celtic, Semitic, and Polynesian languages. (Tallerman, 1998). Languages with the basic order VOS are much rare, covering around 3 per cent of the total. Many verb initial languages have both VSO and VOS as basic patterns. Both OSV and OVS were recently thought not to exist, and in particular the OSV order is extremely rare.

In some languages, it is not easy to decide on a basic constituent order because of two reason: First, two orders may be unmarked- both equally basic and neutral. It is not clearly definable as which order are frequent. (Tallerman, 1998). To illustrate; VSO and SVO are both observed in simple clauses in standard Arabic. Both orders are used approximately equally (Koopman & Sportiche, 1991). Second, some languages have a different order in main clauses and in subordinate clauses such as Swedish. Third, in languages, which are strongly head marking the verb, always has subject and object markers, and there are typically very few clauses with both subject and object noun phrases, so it is difficult to tell what the order of S, O and V might be. The constituent (basic) order depends more on the theoretical basic of the linguist than on any properties of the language but generally order is defined by linguistics. (Tallerman, 1998).

Another important point in languages is that saying a language has a certain basic word order does not mean that it never has any other orders. For instance, English has basic SVO order, but to permits OSV order as informal English such as “Egg creams I like” and VOS order such as “Really gets on my nerves, that guy” (Bates, MacWhinney, Caselli, Devescovi, Natale & Venza, 1984). All of these orders can be used in spontaneous speech whereas English have rigid order. An order

like this to focus on a constituent is known as a marked (non-basic) order. (Tallerman, 1998).

Languages differ in the extent to which they rely on order. Some languages permit free order because they use inflections to a much greater extent. For illustrate; word of Latin sentence may replace with each other. Sentence such as “Vir mordet canem“ may said three other order on Latin and meaning of sentence do not change; Mordet canem vir, Canem mordet vir, Vir canem mordet all mean, approximately “Man bites dog”. The inflections, in this example, suffixes at the end of the words, make the sentence intelligible. The subject is marked by the nominative case ending (in the example, no suffix at all), the object by the accusative case ending (in the example, em), and the verb by suffixes convey number, tense and other information. Therefore, the order of words does not require for determination of structure. It only seems to be important when serves purposes of emphasis. Turkish and some other languages such as Slavic languages Polish and Russian, which have clearly basic order, are completely different from Latin or Mohawk free or very unrestricted word order in the most literal sense. In these languages change in order reverses the meaning (Dale, 1976 & Tallerman, 1998). Compare “ Adam köpeği ısırđı (Man biten a dog) ” with “ Köpek adamı ısırđı. (Dog bitten a man)”. Thus, importance of word order displays variation in word languages.

4.5. Cross Linguistic Studies

There are a lot of languages in the world. They are collected usually around two points: SOV and SVO. In the linguistic literature language studies are very

limited except English and U.S samples. Therefore, existing data is not compared with the data which belong to another culture. Some cross-linguistic studies and some characteristics of word order in different languages are mentioned below.

Hakuta (1982) compared Serbo-Croatian and Turkish. Serbo-Croatian is a language in which word order is relatively free but not as free as Turkish in which inflections are highly regular and obligatory. In all six possible orders of S, O, and V were studied specially SOV and OSV order. Comparisons of results demonstrate that Turkish children have no problems with order from the very young age of 2, but Serbo-Croatian children show considerable difficulty with the OSV sentences. Superior performance on both orders in Turkish children is due to the highly regular inflections and as well as all possible orders are used in Turkish. (Hakuta 1982)

German has richer verb morphology and has more complicated word order rather than English. German's verb-second property, which require the subject to move from its usual preverbal position if the sentence begins with another constituent such as an adverbial like yesterday. In Germanic languages, the presence or absence of overt object shift is often diagnosed by the relative position of an object to negative and adverbial elements. German speaking children with specific language impairment (SLI) performed more word order errors and use fewer verb agreement inflections than do MLU controllers (Grimm & Weiner, 1990). On the other hand, English speaking children with SLI more word order error but greater use of comparable verb agreement inflections (Roberts & Leonard, 1997. cited in Dromi, Leonard, Adam, 1999)

It is extremely difficult to make use of such a constituent test in Japanese because of flexible word order (Kishimoto, 2000). The canonical word order SOV, OSV is also possible (Clancy, 1985). In particular, scrambling can move virtually any constituent and it can be reconstructed with no semantic effect as in (1);

(1) Taroo-ni-wa sinseki-ga ikutu-tu-mo iru.

Taroo-ni sinseki-ga nan-nin-mo iru.

(Taroo has many relatives)

(From Kishimoto, 2000)

In Japanese, the comprehension of active and passive sentence in the SOV and OSV orders in children between 2 and 6 year old were examined by Hayashibe (1975), testing 30 children from 3;0 to 5;11 years old (cited in Clancy, 1985); Hakuta (1982) who tested 48 children between 2;3 and 6;2 years old; and Sano (1977), who studied 80 children between 3;3 and 6;8 years. Children showed strong priority for the SOV order for the active sentences. However, for passive sentences children deviated from basic word order.

Clancy (1985) compare these finding with Slobin's (1982) study on Turkish children. Unlike Japanese children, from the age of 2 years, Turkish children are able to comprehend sentence with all six possible orders of subject, object and verb. According to Clancy (1985) Turkish is quite free for word order and inflections are obligatory. Thus inflections provide a more consistent cue than in Japanese. Also, children are forced to rely primarily upon inflections to interpret sentences because

of variable word order. In these reasons Turkish children showed superior performance than Japanese both passive and active sentences.

Finnish is an agglutinative language with mixed word order, although head-initial structures (SVO) predominate, especially in the verbal domain (Vainikka & Levy, 1999). In simple declarative sentences the verb occurs in the second position, preceding the temporal adverb position and following the subject as in example (2):

(2) Pekka muistaa yleensä vastaukset.

(Pekka usually remembers the answers)

(From Vainikka & Levy, 1999)

Hebrew is an SVO language. There are some constrictions such as the verbal gerund in which the VSO order is found, as a residue of the basic VSO order in Classical Hebrew (Vainikka & Levy, 1999). In terms of basic syntax, Hebrew and Finnish are quite similar. Both have basic SVO word order. Some differences exist such as gender marking (In Finnish, there is none) and the residual VSO order in Hebrew as compared with the residual SOV order in Finnish (Vainikka & Levy, 1999).

4.6. Word Order in Turkish

Turkish is an Altaic language and exhibiting classic features of a subject-verb language (Nilson, 1991 & Greenberg, 1966; Lehman, 1978. cited in Aksu-Koç &

Slobin, 1985). Component of Turkish sentence and SOV order may be explained as in figure 1:

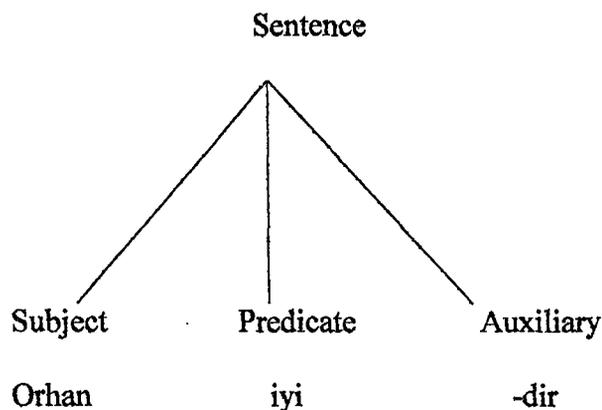


Figure 1. Component of Turkish Sentence

(From Underhil, 1980)

The sentence “Orhan iyidir” (Orhan is well) contains three elements. These are three basic elements of the Turkish sentence. In every sentence in Turkish, each of these three components must be presented. These are: subject (Orhan), predicate (iyi), and what it may be called an auxiliary (-dir) (Underhil, 1980). Person and number of subjects are marked on the verb so usually subject pronouns are not used as in example 3:

- (3) Gel -me -di -n
come NEG PAST 2SG
You did not come.

Also much word order variations are possible in Turkish for pragmatic purposes. Erguvanlı (1979) suggested that three sentence positions. They are sentence position for topicalization, the immediately preverbal position for focussing and the postpredicate position for backgrounding (Nilsson, 1991). "Subjects and adverbials are placed after the verb in conversation, performing pragmatic functions relating to topic continuity and turn-taking. Also, questions words normally seen in preverbal position" (Aksu-Koç & Slobin, 1985, p: 842).

According to Sezer (1980) to accept Turkish as SOV order language is a contradiction with linguistic observations in Turkey. He claimed that speech between adults shows different orders. One of the articles of Nurullah Ataç who is the famous writer in Turkey was investigated by Sezer. He found that % 44 of his sentences contained other order than SOV. Basically verb-final, subject and adverbials are frequently placed after the verb in conversation (Aksu-Koç & Slobin, 1985). Another relevant study came from Aksu-Koç and Slobin (1985). It was decelerated only 48% of adult speech in a broad sample of input to preschoolers. Only 47% of the sentences were found SOV order in a 500 adult sample utterances to a child as in example:

Child: Ben onu koyayım mı?

(Should I put it (in)?)

Adult: Koy! Onu da koy bakalım.

(Put it in! Let's see you put that one in too.)

Child: Onu da koyayım mı?

(Should I put that one in too?)

Adult: Koy bakalım onu da.

(Let's see you put that one in too.)

(From Aksu-Koç & Slobin, 1985).

Slobin and Bever (1982) reported that Turkish children as young as 2;0 correctly interpret all six possible orders of subject (e. g. The horse kicks the cow), whereas children acquiring a fixed word-order language like English do not correctly interpret noun-verb-noun sequences until 2; 6. Thus Turkish children do not use word-order structures in sentence comprehension. Other studies also support these findings in preschool children. Children were given a picture book and asked to tell a story. They found that children use sentence initial position for topic, immediate preverbal position for focus, and postpredicate position for background information (Aksu-Koç, 1994. cited in Küntay & Slobin, 1999). As a result Turkish children use on case inflections as signals of grammatical relations instead of word order strategies (Slobin & Bever, 1982).

CHAPTER V

SUBJECT-VERB AGREEMENT

Subject-verb agreement phenomena are very widespread in the world's languages. Understanding the workings of agreement may be one key to understanding the relationship between thought and language. However, phenomena have only recently begun to be investigated by psycholinguistic research (Pealmutter, Garnsey, & Bock, 1999). Therefore there are many open questions, which are not clear yet.

To comprehend subject verb agreement in the following sections components and structures of different languages relevant to agreement were discussed.

5.1. Definition of Subject-Verb Agreement

The term agreement consists a relation between two or more elements such as subject, gender, and person in a sentence. Subject-verb agreement refers to the grammatical relation between the subject of a sentence and the verb (Vigliocco, Butterworth, & Garrett, 1996). According to Chomsky (1993) "agreement is purely formal checking relation between a head noun and an element in its specified position" (cited in Baltin, 1998).

It is difficult to give a satisfactory definition of “subject”, because all subjects does not share one property (Tallerman, 1998). It is usually described as the initial noun phrase in a clause and indicates what the sentence is about. Subjects tend to control the syntax in a number of ways. Other component of agreement is verb. It conveys information about what is happening, what has happened, or what will happen. A verb can be about an action, an occurrence, or a state of being. A complete sentence must have both a subject and a verb (Vigliocco, Butterworth, & Garrett, 1996)

Whatever its semantic relations to the verb, the subject determines agreement with the verb (Dale, 1976). Subject must agree grammatically with its verb in number and person. This subject and verb combination is called subject-verb agreement. Agreement errors have been observed in spontaneous speech as well as experimental studies (Bock & Cutting, 1992.). Without any conscious awareness agreement or agreement error occur during grammatical encoding. That is speaker usually focus on their meaning of message and not to the grammatical form including whether their subject nouns and verb agree (Eberhard, 1999). Bock & Miller (1991) and Bock & Cutting (1992) reported that grammatical encoding of subject-verb agreement is independent from its meaning in spoken English.

5.2. Why Agreement Errors Occur?

5.2.1. The Principle of Proximity and Notional Concord

Grammatical concord is related with plurality agreement. The rule according to grammatical concord is a singular subject requires a singular verb and a plural subject requires a plural verb like in Turkish (Vigliocco, Butterworth & Garrett, 1996) and English. In addition, subject of the clause determine the form of the verb. To illustrate; the key is lost but the keys are lost (Eberhard, 1997). But it was also noted that “Difficulties over concord arise through the occasional conflict between this (grammatical concord) and other two principles: the principle of proximity and concord” (Quirk et al., 1972, p. 757. cited in Vigliocco et. al, 1996).

The rule of proximity also termed as attraction (Bock & Miller, 1991). This effect may be defined like this; the verb agrees in number with proximal or local noun phrase rather than the more distant head noun (Bock & Miller, 1991). Subject noun and verb are often separated by intervening phrases. For example; the key to the green filing cabinets is lost. These long distance sentences are interesting because may be the agreement processes is effected by number. Both naturally occurring and experimentally occurred agreement errors show a consistent asymmetry in the occurrence of singular versus plural verb-agreement errors (Bock & Cutting, 1992; Bock & Eberhard, 1993; Bock & Miller, 1991)

Notional concord refers to an agreement of a verb with the subject according to notion of number. The critic point is that notion of number is most important than actual grammatical marker on the subject. To illustrate in British English, collective nouns such as government is treated as notionally plural but it grammatically singular in sentence as in (4) (Bock and Miller 1991; Vigliocco, Butterworth & Garrett, 1996).

- (4) The government has / have broken all its /their promises.

(From Quirk et al., 1972, p. 757. cited in Vigliocco, Butterworth & Garrett, 1996)

Agreement errors like mentioned above are not only feature of English. Of course in many other languages the same error respectively show such as Turkish (5), French (6), Italian (7) and Japanese (8):

- (5) Sınıf sessizce öğretmeni dinliyorlardı.

(Class were listening the teacher very carefully).

(6) Le préjugé que nos habitudes morales fait peser sur la pureté de leurs amour enlève quelque chose à leur noblesse d'âme.

(The prejudice that our moral habits influences their love elevate something to their noble spirit).

(From R. Davril, Le drame de John Ford, 1954, p. 254. cited in Vigliocco, Butterworth & Garrett, 1996).

(7) La spiegazione di questi risultati sono complessi.

(The explanation of these results are complex)

(From Vigliocco et al., 1995).

(8) Kooen-ni kodomo-ga aru.

(The children are in the park / There are children in the park.)

(From Kishimoto, 2000)

One another relevant study with notional concord was made by Bock and Eberhard (1993) with undergraduate English student. They manipulated different features of the local nouns, which can be semantically and morphologically singular (e.g. The job for the choir). No effect of collective nouns, which are semantically plural, was found. When the local nouns were grammatically marked plural attraction errors were observed (e. g. he job for the choirs were...) (Eberhard, 1997).

Bock and her colleagues (Bock and Miller, 1991; Bock and Eberhard, 1993.) examined experimentally the role of proximity concord and notional concord in speech production. Researchers wanted participants to produce a full sentence starting with preamble as in examples (9) and (10).

(9) The picture on the postcards...

(10) The road to the lakes...

In these experiments, significantly more agreement errors were most common when the subject noun (picture or road) and the local noun (postcards and lakes) were mismatched in number. This is an effect of “proximity concord”. Vigliocco et al. (1995) worked on Italian and they replicated role of proximity with Bock and her colleague’s methods.

(11) L’etichetta sulle bottiglie (The label on the bottles)

(12) Il viaggio verso le isole (The journey to the islands)

(Vigliocco, Butterworth & Garrett, 1996)

They found more errors in (11), where a multiple token reading was preferred, than in (12), where a single token reading was preferred. They hypothesized that structural differences between two languages (English and Italian) could be caused the contrasting results. One difference is that, the subject of the sentence can be either pre-or post-verbal in Italian. That is verbs may be uttered before their subject so it is possible that the verb form has to be selected before the subject noun phrase has been worked out. A second relevant difference is that the subject can be omitted altogether. If there is no subject, possibility of error rate increase. According to Vigliocco et al. (1995), the last difference between Italian and English is that the verb form is marked for person and number in every conjugation in Italian like Turkish. In English person and number in the third person singular is marked in the present tense for regular verbs and in the past tense only for the verb “to be” (Vigliocco, Butterworth & Garrett, 1996).

The finding of Vigliocco et al. (1995) in Italian was replicated for the distributivity effect in Spanish speakers. These two languages are very similar both in syntactical and in lexical structure. For Spanish speakers, agreements error rate was influenced by distributivity. That is for Spanish speakers, a sentence begin like this “ la etiqueta sobre las bottellas (the label on the bottles), which is usually interpreted indicator of several labels. So that there were more agreement errors than preambles that normally denote a single entity (Vigliocco, Butterworth & Garrett, 1996). On the other hand, English speakers were not sensitive to this distributivity effect according to Bock and Miller (1991).

5.2.2. Mismatch Asymmetry Effect

Recent psycholinguistic research (Bock & Miller, 1991; Bock, Nicol, Cutting, 1999; Eberhard, 1997; Pearlmutter, 2000) on this topic has focused on production processes. That work demonstrated a clear finding; processing difficulties can arise in sentence structures containing a singular subject (head) noun followed by a plural noun as in:

(13a) The key to the cabinets ARE missing.

(13b) The keys to the cabinet IS missing.

In both cases, the number mismatch between the subject head noun key and the innerving noun cabinets in (13a) leads to difficulty (Pearlmutter, 2000). Errors are much common when the two noun mismatch in number. That is a singular

subject noun (head) is modified by a plural “distractor (non-head)” noun (13a). This is called mismatch asymmetry effect or errors of attraction that the non-head noun attracts agreement away from the true head of the phrase (Quirk et al., 1972, p: 755. cited in Vigliocco, 1996).

The explanation came from Bock and Eberhard (1993) and Eberhard (1993). They have proposed that because of differences in the underlying representations of singular and plural nouns this asymmetry exists. That is the singular is unmarked with respect to number, but the plural is marked. Generally, plural heads transmit their plural feature to the verb, but singular heads do not. Thus the verb is marked as plural or remains unmarked. If the verb is unmarked it is interpreted as singular. Nouns are by default singular and are specified as plural only by the addition of a plural number feature. Therefore, lacking any overt marking for number, singular distractor noun are unlikely to violate the agreement process while plurals are readily able to do so. Consequently, The number feature of nonhead is transmitted to the verb and an agreement error occurs. Since errors occur only when the nonhead is plural (Nicol, Forster & Veres, 1997).

Alternative hypothesis is memory account, which assumes that the number of the subject noun must be maintained in working memory until the verb is retrieved (Eberhard, 1997). The number of the subject noun must be maintained in working memory until the verb is retrieved. Agreement errors occur because intervening phrases exhaust the limited recourses of working memory. That is as the quantity or complexity of an intervening phrase increases the likelihood of an agreement error

also increases. Because of plural local nouns' greater semantic or morphological complexity, the asymmetry in attraction errors can be attributed to increases of agreement error.

Bock and Cutting (1992) demonstrated evidence against this alternative. They compared the incidence of agreement errors following mismatching local nouns. They were constituents of either post-modifying prepositional phrases like (14) or postmodifying clauses like (15).

(14a) The actor in the blockbuster films...

(14b) The actors in the blockbuster film...

(15a) The actors who directed the films...

(15b) The actors who directed the film...

More errors occur above clauses because of their complexity. However, Bock and Cutting's results demonstrated the opposite effect: more errors occur phrase (14) than clauses (15) (Eberhard, 1997; Bock & Miller, 1991.). Further, in both conditions, more errors followed plural local nouns (14a and 15a) than singular local nouns (14b and 15b). Taken together, these finding suggested that the complexity of the intervening linguistic material is not the primary factor in the occurrence of agreement errors. Also the primary factor appears to be whether the intervening material contains a mismatching local noun that is marked for number (Eberhard, 1997).

5.2.3. Syntactic and Semantic Factors

It would not be too surprising to find that in languages, subject-verb agreement is not always computed during sentence comprehension. In fact, experiments have shown that subject-verb agreement does not go unnoticed by comprehenders. For example, sentence matching times were found slower for sentences containing subject-verb agreement error (Freedman & Forster, 1985., cited in Nicol, Forster & Veres, 1997).

Production and comprehension systems show significant overlap in their operations. One reason might be reasonably assumed that the two processes are so specialized and efficient at solving the problems in their particular domains that their operations have little in common. The computational operations and processing routines are indeed likely to be different. However, the working memory representations might be the same and error in computing or maintaining the representation is likely to emerge in both comprehension and production (Nicol, Forster & Veres, 1997).

Bock and Miller (1991) and Pearmutter and colleagues (1999) proposed that agreement in English was almost governed by syntactic factors, with semantic and phonological factors being invisible to the process. For example; the use of plural words ending with an /s/ or /z/ sound in the distractor noun position failed to elicit any agreement errors at all (e.g. The player on the course...), showing that low level phonological cues were not driving the agreement process (Bock and Miller (1991).

They investigated the possible effects of conceptual actors in agreement by comparing single and distributed referent noun phrases as in (16) and (17):

(16) Single referent: The key to the cabinets...

(17) Distributed referent: The label on the bottles...

In a sentence such as (17), the label represent multiple tokens. The head noun is grammatically singular but notionally plural. In the other hand, in a sentence such as (16) the key refers to single token and one key could be associated with multiple cabinets.

Nevertheless, further research has made the case for agreement as a syntax only process (Barker, Nicol, Garret, 2000). Bock & Cutting (1992) demonstrated that conceptual factors could indeed affect the agreement process under certain conditions. Error rates were found higher for sentences such as (18) than (19).

(18) The jury for the trials...

(19) The judge for trials...

Example (18) contains singular collective head nouns and example (19) contained singular count nouns. Proportion of error taken as evidence that conceptual factor can sometimes control the agreement process (Barker, Nicol, Garret, 2000). Vigliocco and colleagues studied conceptual effect in Italian (Vigliocco, Butterworth & Semenza, 1995), Spanish (Vigliocco, Butterworth & Garrett, 1996) and Dutch

(Vigliocco, Hartsuiker, Jamera & Kolk, 1996). Prior difficulty in demonstrating this effect in English was explained as being related to the concreteness and imaginability of the distributed referent noun phrases (Eberhard, 1999 & Barker, Nicol, Garret, 2000). As a result agreement process could be affected by conceptual factors almost all languages.

5.2.4. Conceptual Factors in Subject-Verb Agreement

Subject verb agreement depends strictly on grammatical number in English. For example, denote a single object but are grammatically marked as plural, require a plural verb such as binoculars or scissor. However, as mentioned above, the conceptual feature of the subject controls agreement. Collective nouns as it is shown example (4) and (20) can take either singular or plural verbs in English also in French. However some other languages such as Turkish rule of collective nouns more strict than English. In Turkish collective nouns can only have singular verb as in (21):

(20) The faculty wants / want a raise

(From Vigliocco, Butterworth & Garrett, 1996)

(21) Hükümet verdiği sözlerden döndü.

The government has broken all its promises.

(From Quirk et al., 1972, p. 757. cited in Vigliocco, Butterworth & Garrett, 1996)

However example (20) does not mean that the subject is unspecified for number. Agreement with a reflexive still depends on the number implied by the verb. Pollard and Sag (1988, cited in Vigliocco et. al., 1996) were investigated this issue. They presented sentences to their participants, as in 22:

- (22) The faculty is voting itself a raise
The faculty are voting themselves a raise.
The faculty is voting themselves a raise
The faculty are voting itself a raise.

(From Vigliocco, Butterworth & Garrett, 1996)

They concluded that the number of the subject depends on the specification of a referential parameter. Taken together these finding suggested that the number of objects described by the subject (NP) (Vigliocco, Butterworth & Garrett, 1996).

“If we consider other languages, a whole range of partially syntactic, partially semantic agreement patterns emerges. Tzotzil, Hungarian and Turkish allow comitative constructions in which an understood plurality of reference rather than plurality of any plausible subject constituent seems to determine verb number, as in example (23) in Tzotzil.

- (23) Libabototik xchi?uk liXune
went-1p,P with DEF Xun

(I went with Xun or we went with Xun)

(From Aissen, 1989, p. 519., cited in Vigliocco, Butterworth & Garrett, 1996)

In this example there is a first person plural verb, but the usual understood reading is that the “ I ”, the speaker, went with the (singular person) Xun. There is a no surface nominal constituent which has one of its components and the NP containing the proper name Xun as the other. Since Tzotzil is a null-subject (or pro-drop) language, this deep constituent can inherit the plural feature from the dropped pronoun. An alternative might be for the referent, Xun and me, to donate the plural feature directly to the verb.” (Vigliocco, Butterworth & Garrett, 1996).

In English and in Spanish, with their potential completions in square brackets, were used sentence preambles by Vigliocco et al. (1996)

(24) John together with Mary [was / ? were going to the beach]

(25) Juan junto con Maria [? Va / van a la playa]

Juan together with Mary ? goes / go to the beach.

5% of plural verbs was produced by English speakers, 60% of plural verbs was produced by Spanish speakers. It seems clear that languages differ in their preferences agreement pattern for certain constructions: syntactic and semantic agreement in English and in Spanish.

5.3. Agreement in Word Languages and Crosslinguistic Studies

The syntactic position of subject-verb agreement feature differs crosslinguistically and even within a language (Vainikka & Yonata, 1999). For

example, Swedish lacks person and number marking whereas Russian personal and number marks are very rich. On the other hand some languages show similarity aspect of agreement with each other. Hebrew agreement morphology is parallels with Finnish. That is they reflect the typical syntactic position of the person and number features.

Logically, a verb may agree (a) with none of its arguments such as person, number, and gender, (b) with some but not others, or (c) with all its arguments, and in fact all of these possibilities occur. First, then, there are languages with no verb agreement, for example Swedish, Japanese, and Chinese. The verb has the same form no matter what the person and number of the subject pronoun. Generally tendency is that one element controls agreement in all of the languages (Nicol, Forster & Veres, 1997). The simple rule of subject-verb agreement (or concord) is that a singular subjects takes a singular verb and a plural subjects takes a plural verb.

Within the Indo-European family it is common for the verb to agree only with the subject, as for example in Italian, French, Spanish, German, Dutch, and English. Subject-only agreement also occurs in Turkish and other Altaic languages, in Tamil and Dravidian languages, and in Finnish and other Uralic languages (Tallerman, 1998).

Hebrew, The general pattern is that number agreement precedes gender agreement, masculine agreement precedes feminine marking. By the end of the third year, children generally mark subject-verb agreement correctly (Berman, 1985).

English has a rather minimal overt agreement system. All nouns are clearly marked for singular versus plural number. Gender marking, common in Germanic and Romance languages, is identifiable only in the pronominal system such as she, him. Unlike Romance languages, adjectives and propositions are not marked for number and gender. Verbs are marked only for number and only in third person present tense forms. *Be* is only exception. It is marked in both first and third person and in present and past tense forms (Pearmutter, Garnsey & Bock, 1999). According to Bock and Eberhard (1993) agreement have received relatively little attention in English speaking children. Perhaps this is consequence of fast and trouble free developmental progression.

Spanish as well as other Romance languages has poor verbal morphology and pre-verbal language. The verb is always marked for tense, person and number. Third person plural are always differently marked in Spanish whereas in English, third person singular is marked in the present tense, while third person plural is always unmarked. The unambiguous presence of subject's feature such as number and person (sometimes gender) in the verb phrase seems to be the general feature of Romance languages such as Spanish. In most sentences of Spanish, the subject pronoun is dropped (Givon, 1976., cited in Vigliocco, Butterworth & Garrett, 1996). The speaker has to encode the verb in sentence absents of a subject (Vigliocco, Butterworth & Garrett, 1996). Spanish-speaking children simply have to add a final *-s* to all nouns and to feminine articles *-la*. Therefore, agreement errors are rare in Spanish children (Clark, 1985).

In French, basic agreement rule which singular subject takes singular verb, plural subjects take plural verb is valid but this direct relationship is lacking in different linguistic constructions, such as expression of collectivity, which can allow either singular or plural agreement (Barlow & Ferguson, 1988. cited in Kail & Bassano, 1997). Furthermore, between article and noun, noun and adjective also agree. In French, verbal agreement is determined by the number of the subject, in some constructions and by its gender (Kail & Bassano, 1997). Person is marked directly in the verb like Turkish and these forms emerge by age 2 or 2 ½ (Frontali, 1943. cited in Clark, 1985). Number agreement errors are not as common as person errors in French-speaking children. According to Clark (1985) there has been little analysis of the agreement errors children make with person and number.

German is verb second (V2) language like Swedish. The grammatical person and number of the subject are marked on the finite verb. Subject-verb agreement is highly related with verb-second (Clahsen & Martina, 1999). German speaking children with specific language impairment (SLI) performed more word order errors and use fewer verb agreement inflections than do MLU controllers (Grimm & Weiner, 1990; Rice et al., 1997).

In Italian the subject of the sentence can be either pre-or post-verbal position can be omitted altogether. If there is no subject, possibility of agreement error rate increase. The verb form is marked for person and number in every conjugation in Italian like Turkish unlike English. (Vigliocco, Butterworth & Garrett, 1996). Italian children between the ages of 1; 10 and 2;00 (and for some children as early as 1; 8)

have productive subject-verb agreement. Further, they tend not to use many plural subjects at this age (Hyams, 1983. & Schaeffer, 1990. cited in Hyams, 1992). Valian (1990) emphasised a similar phenomenon in English. Young English children use only singular pronouns (cited in Hyams, 1992). English speaking comprehenders tended to rely on word order (Bates, E., MacWhinney, B., Caselli, C., Devescovi, A., Natale, F., & Venza, V. 1984), whereas Italian and German speaking comprehenders tended to rely on more agreement constrain.

Errors in agreement of number were found to be more common in Dutch, French, Italian, and Spanish. This indicating that agreement can be influenced by languages (Vigliocco, Butterworth, & Garrett, 1996). However conceptual numerosity effect has not been reported in English (Bock & Miller, 1991).

In Japanese, agreement is obligatory. However in a possessive sentence, the possibility of agreement differs depending on the choice of verb. *Aru* (inanimate) and *iru* (animate) are locational verbs of Japanese. If the inanimate verb *aru* is used transitively, agreement does not obtain. However, it may be forced agreement by other factors. It is clear that the possessive ver *iru* must agree in animacy with its nominative phrase. On the other hand, the possessive *aru*, by kontras, allows both animate and inanimate nouns to stand as nominative phrases Kishimoto (2000) as in example (26);

(26) a. Taroo-ni kodomogo-ga aru.

(Taroo has children)

b. Taroo-ni kodomogo-ga aru.

(Taroo has fields)

(From Kishimoto, 2000)

5.4. Subject-Verb Agreement in Turkish

Subject and verb must be agreed according to number and person in Turkish (Ergin, 1995).

5.4.1. Number Agreement in Turkish

In Turkish, as in English and in a number of other languages, the simple rule of the subject-verb agreement is that a singular subjects takes a singular verb and a plural subject takes a plural verb. That is they completely agree with each other (Banguoğlu, 1990). Turkish has no grammatical gender like Chinese and Hungarian. That is there are no distinction between “he”, “she”, and “it”. The pronoun “o” serves for all three (Underhil, 1980).

In a sentence pronoun such as (Ben) iyiyim “ I am well ” the pronoun ben is unnecessary for Turkish sentence. Because suffix indicates the person and number of the subject adequately such as –yim. “İyiyim” is a grammatical sentence by itself (Underhil, 1980).

Inanimate subject's agreement rules are very clear In Turkish (Sezer, 1978).
When subjects are plural animal names, plant or inanimate object name, part of the body and the subject of the sentences are numeral and undefined adjectives the verb must be in a singular form. To illustrate:

(27) Çiçekler sulandı.

Flowers were irrigated.

Although the subjects are plural verb indicating presence (var) and absence (yok) must be singular. To illustrate:

(28) Bahçede çocuklar var.

There are children in the garden.

(From Ergin, 1995)

Plural rules change for pragmatic purpose. If plural subject is wanted to define as by one by verb should be plural but if plural subject is wanted to define as group verb should be singular.

(29) Onlar çorbayı içip bitirdi.

(They drunk soup and finished)

(Kemal, Y. cited in Ergin, 1995)

5.4.2. Personal Agreement in Turkish

Another principle related to subject-verb agreement is personal agreement. When there is only one subject in a sentence, this indicates a complete agreement between the subject and verb. It means that a singular subjects takes a singular verb and a plural subjects takes a plural verb (Banguoğlu 1990, & Ergin, 1995). According to this rule, in Turkish conjugation may become six different personal number suffixes (Hengirmen, 1997). To illustrate; ben geldi-m; sen geldi-n; o geldi; biz geldi-k; siz geldi-niz; onlar geldi-ler.

If there is more than one subject, the form of the verb differs. If the subjects are second and third persons, verb should be in the form of the second person plural. If the subjects are first, second or third persons, the verb should be in the form of first person plural. If the subjects are singular or plural personal pronouns, the verb must have a first person plural ending. If all the subjects are singular or first, second, and third person pronoun, verb must have a first plural person ending.. If one of the subjects is third person pronoun, the verb must have a plural third person ending (Ergin, 1995; Hengirmen, 1997). This rule is accepted optional according to some other linguistics (Sezer, 1978) as in example:

(30) Çocuklar geldi.

Çocuklar geldiler.

(From Sezer, 1978)

In Turkey, a study related with subject-verb agreement was not be conducted both children and adult. In world literature, situation is not different because agreement was noticed recently by researcher. Existing studies generally were made with adults who were usually undergraduate students. Therefore, it is very indefinite topic for children even for adults.



CHAPTER VI

PRESENT STUDY

6.1. Introduction

Young children acquire the major components of their native language in a short time. In recent years studies focused on language processing, especially the syntactic system. Many researchers have described syntactic development in terms of stages. The best known of these schemes is that of Roger Brown (1973). He claimed that MLU is a better predictor of the younger child's syntactic production than chronological age. Brown's guidelines for computing MLU are followed by most clinicians and researchers who use this measure. Despite the findings by Brown (1973) and Miller & Chapman (1981), which indicated a limited relationship between chronological age and MLU for normally developing children; there have been attempts to compare MLU to age as a measure of language development (Lung & Dunchan, 1988). Klee & Fitzgerald (1985) evaluated the grammatical performance and MLU of normally developing 2- and 3 year-old children. In Klee & Fitzgerald (1985) study, MLU did not discriminate children's profiles of grammatical development, nor did it correlate significantly with age. In the light of the literature, it is claimed that the use of MLU as a general index of grammatical development appears to be not useful.

Another important syntactic development for linguistics is order of phrase that is word order. Word languages can be classified as languages with free word order such as Warlpiri which is used in Australia by aboriginal and languages with word order rules such as subject-object-verb (SOV), subject-verb-object (SVO) (Goodluck, 1986. cited in Owens 1996). General tendency of the any languages is that subject comes before the verb (Bock, 1982. cited in McDonald et. al, 1993).

Subject-verb agreement is a very recent and controversial topic. It was related with both semantic and syntactic acquisitions like word order. The operations that occur during grammatical encoding typically occur rapidly and without conscious awareness. That is, speakers usually attend to the meaning of their message and not to the grammatical form it takes, including whether their subject nouns and verb agree (Eberhard 1999).

Languages use agreement in number, grammatical gender, animacy, and other feature to signal which of the individual words and phrases of an utterance should be interpreted together. Basic rule for many languages is singular subjects take a singular verb and plural subjects take a plural verb (Bock & Nicol & Cutting, 1999).

The present study was designed to investigate relation between age and MLU and developmental changes of mean length of utterance, word order, and subject verb agreement in Turkish preschoolers aged from 2 to 6. Performances of children were compared according to tasks (story generation, story telling and structured play), which were used to get speech samples.

6.2. Pilot Study

The pilot study was conducted with six middle class children to define some structures of the study. Children were 4, 5, and 6 years old, and three of them were girls and three of them were boys. Each child seen by a different researcher at the Middle East Technical University Speech and Perception Laboratory.

The aim of the pilot study was to define the timing of tasks, to find out whether the instructions were useful or not, to decide about the play section structure (such as free or structured) and to determine the presentation and portion of the materials. There were three tasks without any time limitation. Also all tasks were both audio and video recorded. Firstly, each child was informed about study and observation of other researchers.

In story generation, six story pictures were represented to the child. Researcher gave them one by one and side by side with similar instructions. However, numbers of story pictures were thought to be a lot so one of them, which was very neutral for the story, was not included in the actual study. Also, presentation of the pictures was changed as presented in Figure 2 (p: 72).

The story telling section was started with the following instruction; “I want you to tell me a story that you know or make up of your mind”. However some children told a story but others not. Therefore some story names such as Snow White (Pamuk Prenses), Little Red Ridinghood (Kırmızı Başlıklı Kız) were added to the instructions to remind them about the stories that they may know.

In the play section children were given a toy box including a variety of toys and researcher said; “Now, Let’s play a game with you. You can play with them however you want. I want you tell me what happens while you are playing.” Children were excited about the toys, they played with them one by one without talking. It was very difficult to end the session. Task lasted for a long time. Therefore, based on the observations researchers decided to carry out a short structured play section instead of free play with twenty-minute time limitation.

Consequently, based on the pilot study changes were done for the procedures of the present study.

6.3. Method

6.3.1 Participants

The participants of the study were composed of children from preschools, kindergartens and homes in Yüzüncü Yıl, Balgat, Eryaman, , Çankaya, Yenimahalle, Keçiören, Dikmen, Bahçelievler, Emek, Kızılay in Ankara. Ages ranged from 2 to 6 years. Total number of subjects included in the study was 96 of which 48 were girls, and 48 were boys and all participants were speaking Turkish as a first language. There were equal numbers of children whose mothers were either primary or secondary and high or university graduates.

2 years old children were chosen with the criterion that they must be producing multiword utterances (minimum ten utterance), all children required to have no known or suspected sensory, intellectual, speech, hearing, language or learning deficits at the beginning of testing, as assessed by mother and teacher reports. Some participants were excluded, because their mother or teacher reported them to have a history of speech-language problems such as delayed speech, or they were not native speakers. Moreover, for all children, parental permission (see appendix A) and demographic information (see appendix B) were taken. Children who had illiterate mothers were also excluded from the study.

For developmental comparisons, the participants were divided into eight groups. Within each group, there were 12 children (six males and six females) at each of eight age levels: 2, 2 ½, 3, 3 ½, 4, 4 ½, 5, and 6. The children's ages varied within half-year mark. Table 2 shows the number, gender, and mother educational level of participants in each of the eight groups.

Table 2. Distribution of sample in each group according to their age, gender, and mothers' educational level.

<u>Gender and Mother Educational Level</u>	<u>Age Groups</u>								Total	
	2-2.05	2.06-2.11	3.00-3.05	3.06-3.11	4.00-4.05	4.06-4.11	5.00-5.11	6.00-6.11		
<u>Gender</u>										
Male	6	6	6	6	6	6	6	6	6	48
Female	6	6	6	6	6	6	6	6	6	48
<u>Mother Education</u>										
P.school	4	4	4	4	4	4	4	4	4	32
Secondary	4	4	4	4	4	4	4	4	4	32
University	4	4	4	4	4	4	4	4	4	32
										N = 96

6.3.2. Materials

Story Pictures:

18 X 24 cm coloured and wordless five picture cards (see appendix C) drawn by a professional artist were used to get speech samples. The story is about some potential and conflicting situations that can occur in a little boy's birthday party. The story was developed by the researchers.

Toys:

The play situation allows the children to comment on their own actions, to speak about real or imaginary events. The materials appropriate for age of the children involve small plastic versions of four characters (two adult figures, two children figures), three animal figures (one dog, one horse, one cow), plants (one flower and one tree), one car, eleven pieces of furniture (one table, two chairs, three armchairs, one bed, one bathtub, one lampshade, one television and its' tripod, and the kitchen cupboard), hedge and wall (separated garden and garage from room), the floor of a home (divided into four part: living room, bedroom and kitchenette, garden and the garage). All the toys except human figures were fixed to the floor.

6.3.3.Procedure

Speech samples were collected by one of the six team member (The Middle East Technical University Language Development Team) through 3 tasks which took

place in a quiet room in the child's home or kindergarten and were audio recorded using a SONY professional recorder. Although most of the children were seen individually few of them tested while mother or teacher was present. If the child wanted to take a break, task was stopped for few minutes.

Period of tasks was not limited with time except structured play section which is limited to 20 minutes. Total period of tasks were change from 30 to 45 minute for all the participants.

Before starting to the tasks researcher introduced herself as a student and told the child that they are doing this for schoolwork. Also children were told that audio recording was going to be used to remind the researcher what the child told to her. This short conversation allowed the children to become familiar with the researcher and to create positive atmosphere.

Tasks:

Story Generation

To elicit a story five pictures were represented to each subjects. All of the picture material depicted a scene about a birthday party. Each child was told the following instructions: "Now, we're going to play a game, telling a story from pictures, with you. Initially, I'm going to tell, and then I want you to continue to the story. Are you ready?" Researcher then began the story with first picture, indicating the drawing that corresponded to the details of the story. "This child has a birthday

party. They had started to make preparations in the early morning. While his father was hanging up the ornaments in the sitting room the child was helping to his father via blowing up balloons. His mother was preparing the dining table and bringing the fruits.” The description of the first picture, at predetermined point, researcher paused and put the second picture on the top of the first one.

Then, the researcher asked to a child to continue: “Now I want you to continue. I’m going to show you four pictures and I want you tell me what happens in these pictures? Did you understand what you are going to do; if you’re ready we can begin. Here’s the first picture. Would you tell me what happens here?”. When the child started to tell the story, the researcher avoided any verbal interventions. Only predetermined feedbacks such as “very good”, “hi hi” were used. When child finish telling a story about a presented picture, researcher put the following picture in front of the child and gave the necessary instructions at each time.

For the story generation task several probes were used. Three probes were used for all the children and for all story pictures during the task. They were “Well what else?”, “According to you what are they doing?”, “What else is going on?”. Also, researcher sometimes repeated the last utterances of the child to show her attention. In addition to these there were specific probes for each picture.

For the first picture; “This is our first card. What is going on in this picture in your opinion?” or “This is our first card. What do you think this family is doing?”

For the second card; “Well now what do you see here? What are these people/children doing?”

For the third card; “You are doing very well. Well done. Now let’s look at this picture. What is going on in this picture for you?”

For the fourth card; “This is the last one. Now let’s look at this picture. What do you see in this picture?”

When a child had difficulty to start, the researcher asked, “What happens in these pictures?” or the researcher started to talk about the first picture in one or two sentences and asked the child to continue. This allowed the child to become familiar with the task. Beside, if the child started to tell a story but she/he stoped several utterances later, the researcher encouraged him/her to continue by saying; “ Keep going, keep going, you are telling very nice. I really want to heart he story” and the last utterances of the child was repeated by the interviewer.

The story pictures were demonstrated in the following: After talking about the first picture, researcher put following picture (first one for the child to talk about) to the side of it. Once the child finished with the first presented card researcher placed it on the top of the first card that she explained. Third picture was put next to the second one and forth picture was put in under of the second and fifth picture was put under the third picture. After putting all pictures, they shaped like a big square as in figure 2:

First and Second picture	Third picture
Fourth Picture	Fifth Picture

Figure 2: Place of Story Pictures

This task finished when the child completed to tell his/her story about pictures.

Story Telling

Researcher instructed each child as: "I want you to tell me a story that you know or make up of your mind. Are you ready?" After the child started to tell a story researcher did not give any instruction only predetermined backchannelling and acknowledgements such as "uh-huh", "very good", and "hı hı" were used.

If the child gave no response and said, "I can not", researcher repeated the instruction. As a way of helping to children to remember to create any story, predetermined alternative story names were given: "Look, there are lots of stories like Snow White (Pamuk Prenses), Little Red Ridinghood (Kırmızı Başlıklı Kız), Pinokyo, Sleeping Beauty (Uyuyan Güzeli) or Cinderella (Sinderella). You can choose one of them, or you can tell any other story that comes to your mind. Let's start if you are ready. I am listening to you."

When the child did not extend the story, the children were asked to tell more about what happened. Verbal reinforcements were given to the child such as “Well done, I really like that story”, and “ You did a good job” when the child completed his/her story.

Structured Play Section

The structured play situation allows the children to comment on their own actions, to speak about real or imaginary events.

To begin the task, family house was put in front of the child and researcher gave the following instruction: “You told the story very well, Let’s play with you. This house belongs to this family. You can play with them however you want. I want you tell me what happens while you are playing. You have time until this apple on the clock comes here (20 minute). Did you understand? Have you got any question?”.

When the child asked questions about toys or game, for example;” What is this/that? , What is he/she doing?” researcher given a neutral answer, for instance; “Think about that a little”, “This is your game, I don’t know”. Special attention was given to avoid any directive talk or interruptions.

At the end of the tasks, researcher said, “You have done very well. I like to give this sticker to you for your helping my study”

6.3.4.Data Gathering and Coding

Although, data were collected from 144 children due to the time restrictions data from randomly selected 96 children were analysed. Each researcher transcribed 16 of the 96 audio records verbatim.

For each session, if phonological errors occurred in the production, it was scored as correct provided that it was clear that the response was an attempt at the appropriate form (e.g. araba, which might be ayaba).

Three measures of each child's language were computed for each session: (1) Mean Length of Utterance (MLU)- a count of the total number of morphemes in complete and intelligible utterances, indicating the syntactic complexity of speech (2) Word order- SOV order for Turkish- (3) Subject-verb agreement- number and personal for Turkish.

For each child, one data-coding sheet (see appendix D) was filled in. Number of morphemes, utterances and mean length of utterances, number of SOV and other aspects like word order, number of personal agreement, number of number agreement and other uses aspect of subject-verb agreement, number of one word sentences, number of full sentences and number of total sentences (one word sentence + full sentence) were included data coding sheet.

For all children, utterances that were unintelligible, not complete, rote, or self-repetitions to coder and more than 20 minutes for the third task were transcribed but they were not included in the analyses.

Counting MLU:

MLU is computed by dividing the total number of morphemes in a sample of language by the total number of utterances (Brown, 1973). In this study Brown's (1973) original morpheme counting rules was used and some modifications were added. Transcription judgments about utterance boundaries were based on grammatical form, pauses, and speaker turns. According to these criteria, for example, if the child says even one word the utterance was accepted as finished. When the speech turn to child another utterance begins. Similar to this, increasing or decreasing intonation indicates the end of the utterance so speech sample may involve a few utterances.

The most important point is whether children know all rules and structures whatever they said. In this phase, "productivity" should be taken into account. If a child can use one morpheme with different actions correctly and appropriately, this morpheme becomes productive. It means that this morpheme has been learned by the child. In this study, the morphemes which are memorized and used in a predetermined way but they are not productive was not accepted as being acquired by the child and they will not be taken into account in the MLU counting. The principle of productivity is important both in the MLU counting and in the

composition of some items in Appendix E. Therefore, items that are based on memorization were not counted.

Another principle that was taken into account in language development and the preparation of Appendix E is the principle of “consistency”. One important thing is whether the child using a morpheme in a productive manner can use it consistently as well. If the child does not use a morpheme in a consistent manner this will indicate that the morpheme is not properly acquired. However, when the used morpheme is used in a correct and productive way, it will be evaluated in the MLU counting. Under some conditions although children did not have acquired any morpheme or had very low MLU’s, they may create an expression by putting nouns or adjectives together. For example; the child said that “ I have red, green, and yellow t-shirt”. This chain (red, green, yellow) can expand of the child’s MLU and if they are added to the counting they. Same part of sentence such as object in a sentence can be used consecutively as can be seen in the sixth item in Appendix E. For example; a child said;

Anne, baba, Didem, anneanne geldi.

Mommy, daddy, Didem, grandma came.

In this example only one of the subjects was counted. Under some conditions the nouns are separated with the conjunction and (this means that it represents a different syntax order) so the nouns at both sides of the conjunction was counted. When a suffix is used together with these nouns only one of the suffixes was

counted. In the example below, both of the nouns at sides of the conjunction were counted.

I love my mommy, my daddy, Didem, and my grandma.

Annemi, babamı, Didem'i ve anneannemi seviyorum.

Coding of Word Order:

When producing a sentence, the speaker needs to place phrase of words in linear order. In many languages such as English to become a sentence phrase of words are necessary. In the contrary, only one word can become a sentence in Turkish. For instance; Gitti (He/She went) or Mutluyum (I am happy). Sentence like this contain subject and action/situation but study of word order is not possible. In this reason, sentence, which compose of group of words, were included in the analysis of SOV order but one word sentence were not included such as geldi.

The basic word order in Turkish is subject-object-verb (SOV). Subject should be at the beginning and main verb should be at the end of the regular sentence (Ergin, 1995; Banguoğlu, 1990). All of the sentences used by child were coded SOV order or non-SOV order. For example;

“Çocuklar televizyon izliyor” (SOV order)

“Televizyon izliyor çocuklar.” (non-SOV order)

(Children are watching TV)

Coding of Subject- Verb Agreement:

The term *subject-verb agreement* indicates that the subject of a sentence and its verb agree in number, or that the subjects and verb are both singular or both plural (Ergin, 1995; Banguoğlu, 1990). In this study subject-verb agreement was be investigated two aspects; singular-plural agreement and personal agreement. To illustrate:

- (a) Odada altı çocuk var. (agreement of number)
Odada altı çocuk varlar. (disagreement of number)
There are six children in the room.
- (b) Ben ve Ali geç saatte eve geldik. (agreement of number)
Ben ve Ali geç saatte eve geldim. (disagreement of number)
(Ali and I came to home late hour.)

Criteria of word order and subject verb agreement were determined based on the Banguoğlu (1990) and Ergin (1995).

Moreover all word order analysis were conducted on the percentage values which were calculated by means of number full sentences. All subject-verb agreement analyses were performed percentage values which were calculated by means of number of total sentences.

6.1. Reliabilities

Interrater reliabilities were obtained on sixteen complete transcripts chosen randomly and representing 15% of the data. All 16 transcripts were coded by the author and an independent linguist. Since the data were not categorical Kappas could not be calculated. A series of correlations were computed. Results were as follows-
mean length of utterance: story generation .89, story telling .87, structured play .87, total .88; word order: story generation .95, story telling .96, structured play .92; personal agreement: story generation .91, story telling .96, structured play .94; number agreement: story generation .95, story telling .95, structured play .97.



CHAPTER VII

RESULTS

7.1. Mean Length of Utterance

Repeated measures analysis of variance (ANOVA) (8 X 3) was conducted to evaluate the developmental changes in the mean length of utterances in 3 contexts. Context was treated as within subject factors with 3 levels (story generation, story telling and structured play) and group as between subjects factor with eight age levels (2, 2 ½, 3, 3 ½, 4, 4 ½, 5, and 6) was computed as between subject factor and dependent variable was the MLU score.

The result of the repeated ANOVA indicated a significant age main effect, $F(1, 88) = 16,779, p = .000$. The source of significant was the fact that, MLU changed with age. ANOVA results were reported in Table 3.

Table 3: Analysis of Variance for Mean Length of Utterance

<u>Source</u>	<u>df</u>	<u>Eta Square</u>	<u>F</u>	<u>Sig.</u>
		between subject		
Age	1	.572	16.779	.000
Error	88			
		within subject		
MLU	1	.96	2.585	.081
Error	87			
MLU*Age	1	.83	1.118	.345
Error	174			

Tukey tests were calculated for post hoc comparison. Post hoc comparison revealed that:

2.00-2,05 age group performed significantly worse than all other age groups ($M = 2,62$, $p = .004$), that is 2 year olds' MLUs were significantly shorter than all other age groups.

Furthermore, at 2,06-2,11 age group's MLUs were significantly less than all age groups ($M = 4,16$, $p = .004$) except 3,00- 3,05. MLU of these two groups showed similarity.

MLU of 3.00-3,05 age group significantly shorter than 5,00-5,11 and significantly better than 2,00-2,05. It was not differ from other groups.

On the other hand, context main effect was not significant, $\Lambda = .944$, $F(1, 87) = 2,585$, $p = .081$ and age x task interaction was also not significant, $\Lambda = .842$, $F(1, 174) = 1,118$, $p = .345$. That means mean length of utterances did not differ in different contexts and there was no change in performances of different age groups depending on the specific tasks. Group means of mean length of utterances seen in table 4 and minimum-maximum values were presented in appendix F.

Pearson product-moment correlations were computed to measure the degree of relationship between the child's chronological age and total MLU. Significant correlations were found of .64, $p < .001$ for age and MLU, indicating that MLU increases, as the child gets older.

Table 4: Group Means of Mean Length of Utterances

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>		Context Means
	<u>MLU</u>	<u>MLU</u>	<u>MLU</u>	<u>MLU</u>	<u>MLU</u>	<u>MLU</u>	
2,00-2,05	2.55	2.32	2.99	2.62			
2,06-2,11	4.05	4.43	4.01	4.16			
3,00-3,05	4.83	4.88	4.59	4.77			
3,06-3,11	5.08	5.62	5.48	5.39			
4,00-4,05	5.58	5.74	5.33	5.55			
4,06-4,11	5.60	5.87	4.97	5.48			
5,00-5,11	6.37	6.29	5.60	6.09			
6,00-6,11	5.93	6.20	5.74	5.96			
Age Means	4.99	5.17	4.84	5.00			

MLU: Mean Length of Utterances

7.2. Word Order

Repeated measures analysis of variance (ANOVA) (8 X 3) was conducted to evaluate the developmental changes in word order in 3 contexts. Context was treated as within subject factors with 3 levels (story generation, story telling and structured play) and group as between subjects factor with eight age levels (2, 2 ½, 3, 3 ½, 4, 4 ½, 5, and 6) was computed, dependent variable was the word order score.

The results showed that there was no main effect of age, $F(7, 88) = 1.087$, $p = .379$, that is, groups did not differ in terms of word order. Furthermore, to analyze the data in three tasks, multivariate criterion of Wilks' lambda (Λ) was used. The results of the ANOVA indicated not significant task effect, $\Lambda = .944$, $F(1, 87) = 2.599$, $p = .08$ and also non significant word order x age interaction effect, $\Lambda = .854$, $F(1, 174) = 1.017$ $p = .438$. These results show that the three contexts were contributing equally. ANOVA results were reported at Table 5.

Table 5: Analysis of Variance for Word Order

<u>Source</u>	<u>df</u>	<u>Eta Square</u>	<u>F</u>	<u>Sig.</u>
between subject				
Age	7	.080	1.087	.379
Error	88			
within subject				
Word Order	1	.056	2,599	.080
Error	87			
Word order*Age	1	.76	1.017	.438
Error	174			

The usages percentages of SOV order that were calculated by means of number of full sentences in each context by the children with eight age groups were provided in Table 6 and group minimum and maximum values of SOV order were presented at appendix G. Furthermore, group means of full sentences and percentages of other orders were presented appendix H and their minimum-maximum values were represented appendix I. To show tendency of children for using one-word sentence and full sentence appendix J was prepared. All percentages in this table were calculated by means of number of total sentences. Moreover, minimum-maximum values of them were presented appendix K.

Table 6: Group Means of Percentages of Subject-Object-Verb Order

Groups Means	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	PSOV	PSOV	PSOV	PSOV	PSOV	Context
2,00-2,05	92.12	91.19	92.18	91.83		
2,06-2,11	93.26	83.08	85.74	87.36		
3,00-3,05	87.40	84.62	85.73	85.92		
3,06-3,11	92.77	89.76	87.62	90.05		
4,00-4,05	85.97	86.80	89.26	87.34		
4,06-4,11	88.19	85.08	87.96	87.07		
5,00-5,11	91.20	90.37	85.62	89.06		
6,00-6,11	90.81	92.64	88.28	90.58		
Age Means	90.21	87.94	87.79	88.65		

PSOV: Percentage of subject-object-verb order

7. 3. Subject-Verb Agreement

7.3.1. Personal Agreement

Repeated measures analysis of variance (ANOVA) (8 X 3) was conducted to evaluate the developmental changes in personal agreement in 3 contexts. Context was treated as within subject factors with 3 levels (story generation, story telling and structured play) and group as between subjects factor with eight age levels (2, 2 ½, 3, 3 ½, 4, 4 ½, 5, and 6) was computed, dependent variable was the personal agreement score.

Results showed that age main effect was not significant, $F(1, 88) = 1.53$, $p = .168$, presented in Table 7. That is personal agreement does not change with age. Moreover, effect of tasks and age x task interaction were nonsignificant for all groups. To show task effects and interaction effects multivariate criterion of Wilks' lambda (Λ) was used. Task effect values were $\Lambda = .983$, $F(1, 87) = .741$, $p > .05$ for personal agreement. Age x task interaction effects were also not significant, $\Lambda = .872$, $F(1, 174) = .878$, $p > .05$. These results indicate that the three contexts were contributing equally to both personal and number agreement. Group means of percentages of personal agreement was presented in Table 8 and minimum-maximum values were shown in attachment. L. Other related means which are percentages of disagreement for person in respect of number of sentences was represented in attachment M and related minimum-maximum values were presented in attachment N.

Table 7: Analysis of Variance for Personal Agreement

<u>Source</u>	<u>df</u>	<u>Eta Square</u>	<u>F</u>	<u>Sig.</u>
between subject				
Age	7	.080	1.087	.379
Error	88			
within subject				
Personal Agreement	1	.056	2.599	.080
Error	87			
Personal Agreement*Age	1	.76	1.017	.438
Error	174			



Table 8: Group Means of Percentages of Personal Agreement

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>		Context Means
	PPA	PPA	PPA	PPA	PPA	PPA	
2,00-2,05	96.91	97.42	97.42	99.10	97.81		
2,06-2,11	100	100	100	100	100		100
3,00-3,05	99.71	98.79	98.79	99.96	99.49		99.49
3,06-3,11	99.77	100	100	100	99.22		99.22
4,00-4,05	100	99.81	99.81	99.86	99.89		99.89
4,06-4,11	98.94	97.50	97.50	97.47	97.97		97.97
5,00-5,11	96.95	95.33	95.33	93.82	95.37		95.37
6,00-6,11	99.51	99.44	99.44	97.98	98.98		98.98
Age Means	98.97	98.54	98.54	98.52	98.68		98.68

PPA: Percentage of personal agreement

7.3.2. Number Agreement

Repeated measures analysis of variance (ANOVA) (8 X 3) was conducted to evaluate the developmental changes in personal agreement in 3 contexts. Context was treated as within subject factors with 3 levels (story generation, story telling and structured play) and group as between subjects factor with eight age levels (2, 2 ½, 3, 3 ½, 4, 4 ½, 5, and 6) was computed, dependent variable was the personal agreement score.

For number agreement, similar ANOVA results were found, $F(7, 88) = 1,42$, $p = .207$. Analyse showed that there was no significant age main effect, that is, groups did not differ in terms of number agreement. Effect of tasks and age x task interaction were not significant for all groups. To show task effects and interaction effects multivariate criterion of Wilks' lambda (Λ) was used. Task effect values were $\Lambda = 1,00$, $F(1, 87) = .021$, $p > .05$. age x number agreement interaction effects were also not significant. For number agreement $\Lambda = .850$, $F(1, 174) = 1,050$, $p > .05$. These results indicate that the three contexts were contributing equally to number agreement. ANOVA results were shown in Table 9 and relevant group means for number agreement were shown in Table 10. Related minimum-maximum values for personal agreement were represented in attachment O. Number of total sentences and percentages of number disagreement were presented attachment P and their minimum-maximum values were shown in attachment R. All percentages were calculated by means of number of total sentences.

Table 9: Analysis of Variance for Number Agreement

<u>Source</u>	<u>df</u>	<u>Eta Square</u>	<u>F</u>	<u>Sig.</u>
		between subject		
Age	7	.101	1.420	.207
Error	88			
		within subject		
Number Agreement	1	.000	.021	.979
Error	87			
Number Agreement*Age	1	.078	1.050	.407
Error	174			



Table 10: Group Means of Percentage of Number Agreement

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>		Context Means
	PNA	PNA	PNA	PNA	PNA	PNA	
2,00-2,05	99.91	97.34	99.47	98.91	99.47	98.91	98.91
2,06-2,11	100	100	99.72	99,91	99.72	99,91	99,91
3,00-3,05	99.30	99.46	99.92	99.56	99.92	99.56	99.56
3,06-3,11	98.91	97.40	100	98.77	100	98.77	98.77
4,00-4,05	99.29	100	99.80	99.70	99.80	99.70	99.70
4,06-4,11	97.93	97.50	97.12	97.52	97.12	97.52	97.52
5,00-5,11	96.26	95.33	93.43	95.00	93.43	95.00	95.00
6,00-6,11	98.22	99.05	97.09	98.12	97.09	98.12	98.12
TOTAL	98.35	98.25	98.31	98.30	98.31	98.30	98.30

PNA: Percentage of Number Agreement

CHAPTER VIII

DISCUSSION

8.1. Discussion of Mean Length of Utterance

The average length of child's spoken utterances is frequently used as a measure of linguistic studies because of two reasons. On the one hand, from what might be termed a normative perspective, that is means and distributions of MLUs at every age are focal concern. This kind of information can contribute as standard against to compared child's language development. On the other hand, from what can be called a developmental perspective, age related changes in MLU are of greatest interest aspect of this view. That means MLU provides clear estimate of wide range of different linguistic skill so relationship of utterance length to age may bring to light information about the developmental course of language acquisition (Scarborough, Wyckoff, & Davidson, 1986).

The first issue addressed in the present study was to compare the developmental function of MLU in a linguistically normal Turkish speaking children aged from 2 to 6. Finding demonstrated that there was a relationship between the age and MLU and some of the groups differed from each other.

Results showed that during all tasks 2.00-2.05 age group they produced significantly lower MLUs than other groups and they had the lowest MLU means in all tasks. Performance of 2.06-2.11 age group, also less performed than from all age groups except 3.00-3.05. These two groups showed similar MLU level. The other finding is that length of utterance was not differ among 3.00-3.05; 2.06-2.11; 3.06-3.11; 4.00-4.05; 4.06-4.11. On the other hand 3.00-3.05 age group performed lower MLU than 5.00-5.11, and 6.00-6.11 age groups.

When findings were evaluated together it might be concluded that MLU changes as the child gets older but it is not predictable beyond age of 2.11. Recent studies reported similar results that MLU increases predictably as the child gets older. But there may not be a strong positive relationship over the entire series of MLU stages or age ranges except at the earliest stages of development (Ghiotto, Bredart, & Bachelet, 1987). This result is also supported by Klee (1985) and Scarborough (1986). Both studies performed with 24- to 48- month range and they showed that for older children MLU was very problematic. Klee et al.(1985) and Scarborough et al. (1986) also results of the present study concur with Miller and Chapman (1981) that MLU increases as the child get older. However relation between MLU and age was not predictable particularly beyond about 36 months (stage III and early V) (Klee et al. 1985).

Furthermore, results of present study showed that MLU correlates strongly and significantly with chronological age with normally developing children, ages from 2 to 6 ($r = .64$). Finding is concurred with Miller & Chapman (1981). They

studied with 123 children ranging in age from 1;5 to 4; 11 with 3-months intervals. And highly strong relation was found between age and MLU ($r = .88$). Therefore it is clear that length of utterances appears to be a good measure of language development of children.

Further, finding of the present study are compared to two other studies; de Villers & de Villers (1973) and Erreich (1980). De Villers (1973) reported similar results with Miller & Chapman. Relation was found .78 between age and MLU. Both of these studies were from early Stage I (from 12 to 26 months) to post-V (from 41 to 46 months). On the other hand the correlation with age was also found very weak ($r = .09$) among 18 normal children between stages III and early V (from 31 to 44 months) by Erreich (cited in Klee & Fitzgerald, 1985). Klee & Fitzgerald (1985) examined with similar sample with Erreich and they found weak correlation with age. To conclude this point, it is clear that MLU increase with age, but there is not predictable relationship between MLU and age beyond stage III (from 31 to 34 months) and early stage IV (from 35 to 40) (Klee & Fitzgerald 1985).

Before the present study, only one study had been published on the relation between age and MLU for Turkish children. Ege, Acarlar & Güleriyüz, (1998) evaluated MLU in a sample of 95 normally developing preschool children between 17 and 59 months of age. They reported strong correlation between age and MLU ($r = .83, p < .01$). There are some possible reasons explanations of different correlations between the present study and Ege et al.(1998) One of them is that subjects of two studies both came from the same community, but Ege et al.(1998) sampling range

(from 17 to 59 months) in age less broad than that of the present study (from 24 to 83 months). Another differences is that data of Ege et al. (1998) and present study includes different socio-economic strata that is in their study children from middle and high socio economic level were included. On the other hand equal number of mother educational level included in the present study but family income level was not included. In literature, there is evidence that difference on socio economic level from high to low causes to change of relationship between age and MLU from .88 (Miller & Chapman, 1981) than .75. (Klee, Schaffer, May, Membrino,& Mougey, 1989). Other relevant difference is that gender is thought as one of the important characteristic in development like mother educational level. Having highly educated mother may be increasing MLU. Therefore gender and mother educational levels evaluated as control variables in the present study because of their probable effects on results but Ege et al. did not control or include as variables them. It is clearly seem that there are some methodological differences between two studies. Different methodologies may be cause different relationship between age and MLU in Turkish children.

Rules of MLU were prepared by Brown (1973) and development of MLU was explained at five stages. When comparing results of the present study and Brown's stages, it is clear that Brown's stages were not concordant with the present study. That means developments of stages are not the same with Brown's. For example; according to Brown approximate utterance length is 2.5 to 3.00 at stage III (from 31 to 34 months). However, in this study 2,06-2,11 (from 30 to 35 months) age group had longer utterance length (MLU = 4.17). Only stage II (from 27 to 30

months) shows similar MLU. Brown claimed that children at stage II have MLU from 2.00 to 2.5. However, MLU of children at this stage (2.00-2.05 age group) was 2.62. Thus it is obvious that participants of this study are compare according to Brown's stages, they have longer utterance length. Future of language may cause these differences.

8.2. Discussion of Word Order Finding

The present study provides convincing evidence for early acquisition of word order in Turkish. Children as young as 2 years were able to use SOV order successfully and all age groups showed similar superior performance in all tasks. There is no developmental change aspect of word order in tasks.

Finding of present study were consistent with general finding of word order literature. When we look at the findings, it was seen that children are sensitive to word order both production and comprehension from a very early age as young as 16 months (Lempert, 1978; cited in Akthar & Tomasello, 1997). When the time they start to combine words, they relatively rarely make word order errors in production (Bloom, 1991; Braine, 1971; Brown, 1973. cited in Akthar & Tomasello, 1997). To illustrate, in spontaneous speech, young children generally tend to place agents before, and patients after (Lempert, 1978; Akthar & Tomasello, 1997).

The results of the present study were consistent with Aksu-Koç & Slobin (1985). They documented that although, word order is used flexibly for pragmatic functions as in the adult language, Turkish children younger than 2 correctly place new information before the verb and they understand process of reversible transitive sentences. Therefore all six orders of subjects, verb and object are comprehended correctly (Aksu-Koç & Slobin, 1985). More current research verifies these findings for preschool-age children (Aksu-Koç, 1994; cited in Küntay & Slobin, 1999). It was analyzed by Aksu-Koç stories produced in response to a picture book that tells a story without words. Young children were used principle of pragmatic word order.

When findings were evaluated together it might be concluded that Turkish children produces first utterances with SOV order and they are not any difficulty using of word order in spite of their early age. In this point explanation of Clancy (1985) about superior of Turkish children in word order both comprehension and production seem to very acceptable. He claimed that Turkish has very obligatory inflections that make easy to understand meaning of a sentence. Therefore Turkish children comprehend meaning by means of inflections so both comprehension and production of word order error decreases.

Further, these findings were appropriate with parameter setting approach. According to parameter setting word order does not learn but rather is triggered by environmental input, therefore children learn word-order very early ages. (Lighfoot, 1989; Gibson & Wexler, 1994; cited in Akthar, 1999). Children learn parameter value of their language whether preverbal or post verbal. They can do that to pay

attention of any sentence in their environment such as adult's speech (Pinker, 1994. cited in Akthar, 1999). Therefore, children learn word order as a very simple task and they use word order strategy without errors. It was emphasized that when children begin to produce full sentences they achieve their language's basic word order (Braine, 1976; Pinker, 1984; Bloom, 1991; Tomasello, 1992. cited in Akthar, 1999). For example, Bloom (1993) reported that 2-year-olds expose to English have the same competence as adult speakers.

Findings of the present study were contradicts with Akthar & Tomasello (1997 & 1999) and Robert (1983). According to these researcher children learn their language's word order a verb-by-verb basis (Tomasello, 1992. cited in Akthar & Tomasello, 1997) and children younger than 3 years have most probably learned the appropriate use of word order on this way (Roberts, 1983). That is children produce grammatically appropriate sentence with familiar verbs such as kiss, and tickle. They criticized studies, which were performed with familiar verbs and emphasized that children are not able to use word order to mark agent and patients with novel verbs until 3 years 6 months. Their critique may be true for some studies which used familiar verbs but the present study was performed with neither novel nor familiar verbs. That is during the study verbs were not given the children by means of tasks. For example, story pictures or structured play were not only emphasized determined verbs such as kiss, hug. Determiners of verbs were children and they were completely free production of their speech.

Tendency of children to use the subject before the verb confirm the present study. Children start to talk SOV or SVO order and they would be acquired earlier than non-subject-initial languages (McNeill, 1975, cited by Hickey, 1990). The hypothesis is supported many research one of them is Hickey's (1990). Although children's parents VSO input, they significantly used subject initial utterances such as SVO or SOV. Different parental input also valid for Turkish children. Despite basic SOV structure in Turkish other order is observed frequently when talking between adult and child or adult and adult (Aksu Koç & Slobin, 1985). In this point except environmental input there may be a number of different reasons why the children early acquisitions of SVO or SOV order than other. These orders (SVO and SOV) easier to acquire because of their concept that is the child understand easily the meaning of sentence because speaker experiences his/her plan or idea to act precedes carrying out the action. Thus simple cognitions have an SVO and SOV structures so they appear more frequently and more early than other order (Hickey, 1990). Many studies, which were performed with German-speaking dyslexic children, showed that their typical sentence pattern was SOV (Grimm, 1983; Kany, 1985. cited in Clahsen, 1989) or SVO (Kegel & Günther, 1981. cited in Clahsen, 1989). Early acquisitions of word order in Turkish children also explained with mentioned above. If canonical order of sentence does not verb final, may be acquisition of word order become late like in Irish.

As in mention above in all languages there are tendency placed the subject before the verb among children. When the child starts to produce first utterances he / she uses sentences as correct order spontaneously. (Hickey, 1990).

8.3. Discussing of Subject-Verb Agreement Finding

Subject-verb agreement offers a window onto the mapping from thought to language. In the languages of the world, the categories of agreement seem to reflect categories of experience and social interaction, including number, person, and gender (Bock & Eberhard, 1993). In Turkish, agreement system occurs between subject and verb.

In the present study to compare the developmental function of subject-verb agreement in a linguistically normal children ages from 2 to 6 drawn from as the third issue. Findings of present study showed that children are sensitive to both person and number agreement from very early ages as young as 2 years and all age groups showed similar superior performance in all tasks.

Superior performance of Turkish children may be explained by means of inflections. The inflectional system may assist in developing a subject-verb agreement. The product of inflections involved in agreement make relatively early appearances (Brown, 1973; Cazden, 1968; deVilliers & deVilliers, 1973. cited in Bock & Eberhard, 1993), and they are reliably produced in the spontaneous speech of 3- to 5-year olds (Keeney & Wolfe, 1972. cited in Bock & Eberhard, 1993).

Turkish children use much of the verb morphology productively before age 2 (Slobin, 1982. cited in Hyams, 1992). By this age, they inflect nouns for case and number (plural), person, negation, and verbs for tense aspect. Subject-verb

agreement develops this age together with inflections. There is also some evidence for productivity appears as early as age 15 months (Aksu-Koç & Slobin, 1985). On the basis of the finding reported here, it would appear that early acquisitions of grammatical rules obtain appropriate usage of language for Turkish children. Therefore they produce utterance almost errors.

8.4. Conclusions and Limitations of The Present Study

In this study developmental process of MLU, word order and subject-verb agreement were examined. The first point addressed concerns the relationship between utterance length and age. The results showed that MLU is related with age and it is predictable for early ages but not beyond 35 months (2.06-2.11 age group). Other research topics are word order and subject-verb (person and number) agreement. All age groups as young as 2 year olds showed similar superior performance in all tasks and there is no developmental change aspect of word order and subject-verb agreement in tasks.

“Turkish child speech transcripts do not have the familiar “child language” look evidence in most other languages. Child utterances are short and simple, but rarely ungrammatical or incomplete from the point of view of the adult language. Thus Turkish acquisition provides evidence that grammatically relevant notions are accessible to quite young children if the means of expression are sufficiently salient and analyzable” (Aksu-Koç & Slobin, 1985. p: 845). It is possible that all principles of grammar are present in young 2-year-olds and that language particular properties of syntax are rapidly acquired.

Psycholinguistic is very complicated topic so studies should approach different aspects. In this study some topics cannot be examined. Gender and mother education levels are one of them. They were used as control variables but if sample size becomes larger than 96 their possible effects might be examined. Another limitation is that word order was studied only syntactic aspect but semantic and pragmatic functions of word order can be included word order studies.

8.5. Suggestions of Further Research

The present results make it clear that acquisition of Turkish is an obvious area for further researches because there are only limited numbers of studies on this topic. So there are a lot of open questions about acquisition of Turkish. Thus researchers investigating child language acquisition need to more attend to the developmental aspect. We need to have much more data on a number of issues: earliest stages of productive grammar; adult input; individual differences; pragmatic uses of word order, and its interaction with semantic and pragmatic factors. Future research should examine syntactic complexity.

Turkish linguistic data have not yet been analysed in terms of individual differences. (Aksu Koç & Slobin, 1985). For example; acquisition of the differences between male and female speech in Turkish. Further there are not available data beyond 6. They are important points for language studies because what kind of modifications do Turkish speakers make for young children? To illustrate; effects of

parental input on their child. It is therefore essential to establish what the input is that children hear. Also, in matching child and adult language, it is important to compare frequencies of appearance of a particular structure in these two sets of data. The relevant comparison should be the speech used among adult family members, to reduce the linguistic effects of social distance between child and adult.

Crosslinguistic studies should take into account the dynamic aspect of child language development. We should compare development of various systems. There are no data to support such a claim, and the efforts to account for the mysteries of child language development.



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APPENDICES

APPENDIX A

ARAŞTIRMA BİLGİ FORMU

Sayın Katılımcı,

ODTÜ Psikoloji Bölümü, Gelişim Psikolojisi Yüksek Lisans öğrencileri (Arzu Baykara, Binhan Koyuncuoğlu, Demet Buyurgan, İpek Kaleli, Özlem Kocabaş ve Şükran Kılıç) ve tez danışmanları Doç. Dr. Ayşe Gül Güven ve Y.Doç. Dr. Sibel Kazak Berument tarafından yürütülmekte olan bir çalışma için işbirliğinize gereksinim duyulmaktadır. Gönüllü katılımın söz konusu olduğu, “Türk çocuklarının dil gelişim süreçlerinde bazı temel dilbilgisi yapılarının kazanımı”nı konu alan bu çalışma 2-6 yaş arası 144 çocuğa uygulanacaktır. Bu çocukların herhangi bir işitme/konuşma problemi bulunmaması, ana dilinin Türkçe olması, Ankara’da yaşayıp halen bir okulöncesi eğitim kurumuna devam etmekte olması gerekmektedir.

Bu çalışmanın verileri bilimsel amaçlar dışında kullanılmayacak, çalışmaya katılanların kimlikleri sonuçlar rapor edilip yayınlanırken gizli tutulacaktır. Uygulama 3 ana bölümden oluşmaktadır: İlk kısımda çocuğa 6 resim gösterilip, bunlardan anlamlı bir hikaye oluşturması istenecektir. İkinci kısımda çocuğun, aklına gelen başka bir hikayeyi anlatması istenecektir. Son kısımda ise Legolarla yapılandırılmış oyun ortamında video kaydı yapılacaktır. Tüm uygulama yaklaşık 60 dakika sürecek ve çocuğunuza

herhangi bir şekilde zarar gelmeyecektir. Bu çalışmanın amacı, çocuğunuzu değerlendirmek değil, çocuğunuzun yaşıtı olan bütün Türk çocuklarının, temel dilbilgisi yapılarını nasıl kullandıklarını belirlemektir.

Uygulama süresince katılımcı, herhangi bir sebeple devam etmek istemediği takdirde uygulamayı tamamlamamak hakkına sahiptir. Uygulamalar çocuğunuzun yuva veya okulunda, yuva/okul yönetimince uygun görülen zaman ve okul ortamında yapılacaktır. Araştırmanın tamamı sonuçlandırıldığında, katılımcının isteği doğrultusunda ailesine ya da kuruma elde edilen bulgular hakkında bilgi verilecektir.

Bu çalışma Ankara İl Milli eğitim Müdürlüğü tarafından onaylanmış ve Ankara'daki bütün yuva ve okullarda uygulanması için izin verilmiştir. Çocuğunuzun bu çalışmaya katılmasını kabul ediyorsanız lütfen aşağıda ilgili yeri imzalayınız. Çalışma hakkında daha ayrıntılı bilgiye gereksinim duyarsanız bizi 0312-2103184 numaralı telefondan aramaktan çekinmeyiniz. Yardımlarınız için şimdiden teşekkür ederiz.

KATILIMCI KABUL FORMU

Çocuğum'ın ODTÜ Psikoloji Bölümü, Gelişim Psikolojisi Yüksek Lisans öğrencileri ve tez danışmanları tarafından yürütülmekte olan "Türk çocuklarında temel dilbilgisi yapılarının gelişimi" konulu araştırmaya katılmasını kabul ediyorum. Araştırmanın kapsamı ve uygulamanın gerektiği durumlarda tamamlanmadan bırakılabileceği konusunda bilgilendirildim. (Lütfen size uygun kutuyu işaretleyiniz.)

Annesi

Öğretmeni

.....

.....

.....

Adınız - Soyadınız

İmza

Tarih

APPENDIX B

TEST-ÖNCESİ GENEL BİLGİ FORMU

Aşağıdaki formun, çocuğun annesi veya öğretmeni tarafından doldurulması gerekmektedir.

- Bu araştırma Türk çocuklarının dil gelişimi ile ilgilidir. Araştırmada toplanacak olan veriler bir bütün olarak değerlendirileceği için, sizden istediğimiz her maddeyi dikkatlice okuduktan sonra, soruları kendi başınıza cevaplamanızdır. Sonuçların doğruluğu açısından soruları boş bırakmamanız araştırmacılar için çok önemlidir. İşbirliğiniz için şimdiden teşekkür ederiz.

- Çocuğun :

Adı-Soyadı:

Doğum Tarihi (gün/ay/yıl):.....

Cinsiyeti: KIZ ERKEK

İlk çocuk olup olmadığı: EVET HAYIR

Yuvaya başlama yaşı:.....

Yuva öncesi bakımı :

Evde – anne

Evde – bakıcı

Evde – aile büyüğü

Ev dışında bakım (Nerede? Kim?.....)

• Anne babası :Beraber Ayrı (Ne zamandır? Çocuk kiminle yaşıyor belirtiniz.....)

• Annenin eğitim durumu :

Okuryazar değil

İlkokul mezunu

Ortaokul, lise veya dengi mezunu

Üniversite/ yüksekokul mezunu

• Annenin çalışma durumu : ÇALIŞIYOR (Ne zamandır?)

ÇALIŞMIYOR (Ne zamandır?)

• Ailenizin ekonomik durumu (belirtiniz) : Düşük Orta Yüksek

• Çocuk anlamli ilk kelimesini yaklaşık olarak kaçınıcı ayında söyledi?.....

• Şu anda ortalama kaç anlamli kelime söylüyor? :

yaklaşık 3 kelime

yaklaşık 5 kelime

yaklaşık 10 kelime

10 kelime ve üzeri

• Çocuğun herhangi bir işitme ya da konuşma problemi (kekemelik, gecikmiş konuşma, bazı harfleri söyleyememe vs.) var mı?

EVET

HAYIR

Varsa belirtiniz.....

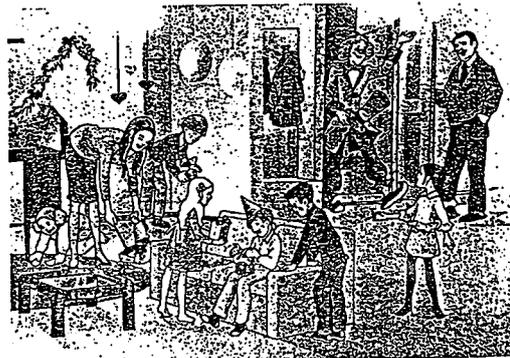
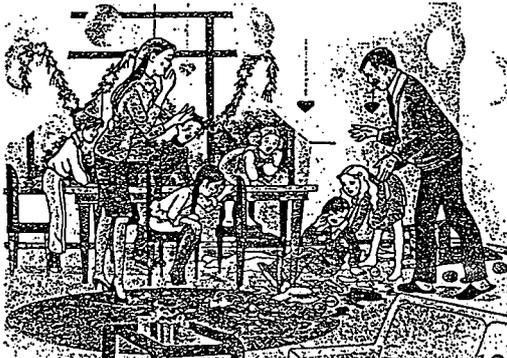
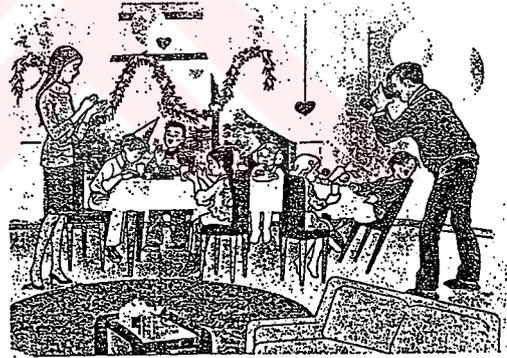
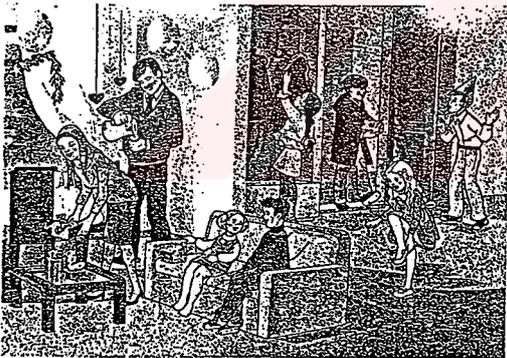
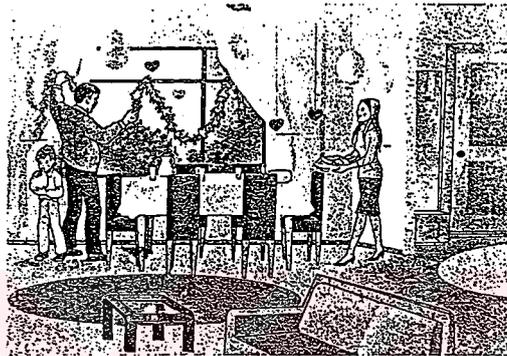
• Çocuk günde yaklaşık kaç saat televizyon seyrediyor?

Formu dolduran

Öğretmen

Anne

APPENDIX C
STORY PICTURES



APPENDIX D

CODING SHEET

DN:

Adı-Soyadı:

Uygulayan:

Ortalama Sözce Uzunluğu – Mean Length of Utterances (MLU)

	Morpheme	Utterance (sözce)	MLU
SECTION1 Kartlar			
SECTION 2 Hikaye			
SECTION 3 oyun			
TOTAL			

Cümlelerin Öğelerinin Sıralanışı ; Word Order

	SOV	Diğer orderlar	Tek kelimeli cümle	Tam cümle	Toplam cümle (tek+toplam)
SECTION1 Kartlar					
SECTION 2 Hikaye					
SECTION 3 oyun					
TOTAL					

Özne- Yüklem Uygunluğu

	Kişi uygunluğu olan	Kişi uygunluğu olmayan	Tekillik/çoğulluk uygunluğu olan	Tekillik/çoğulluk uygunluğu olmayan
SECTION1 Kartlar				
SECTION 2 Hikaye				
SECTION 3 oyun				
TOTAL				

APPENDIX E

RULES OF UTTERANCE FORMATION FROM A SPEECH SAMPLE

1. A speech sample can be composed of a few sentences that are spoken all at once. A sentence in written language is an utterance, which ends with a full stop. So, a speech sample can have several utterances.
2. A group of words may not constitute or may be composed of several parts of a sentence. A notable increase or decrease in the intonation and a pause, indicating the end of speech and an utterance.
3. Whenever a sentence begins but remains incomplete, then another begins and completes; the former sentence will not be included in the analysis.
4. If two independent sentences are connected with conjunctions like “and”, “but”, “because”, “after”, and “then”, these two sentences will be counted as separate utterances.

RULES OF MORPHEME FORMATION FROM UTTERANCES

1. Word or syllable repetitions in stuttering will not be counted. The word will be counted in the final and correct used form.
2. The incomplete utterances of a child will not be counted.
3. If an utterance or a part of an utterance is unclear it will not be counted.
4. Memorize utterances like songs, poems oringles will not be counted.
5. Personal meaningless utterances like “ahh ,”oh”, and “ I mean” will not be counted.

5. Counting number aloud or word series will not be counted. However, if a word series constitute a part of a sentence it will be counted.
6. If the word series, constituting a part of a sentence are combined by conjunction, will be counted.
7. The repetition of a former utterance will not be counted.
8. All indeclinable words will be counted as one morpheme.
9. Proper nouns will be counted as one morpheme.
10. The “değil mi” utterance at the end of a sentence, the “de mi” form will be counted as a morpheme.
11. The forms like “hoşçakal”, “güle güle” will be counted as one morpheme.
12. Nouns that are derived from a different noun, but representing a different subject will be counted as one morphemes.
13. Person or object noun that are derive from verbs will be counted as one morpheme.
14. In repeated verbs, the repeat word will not be counted but if there is a suffix will be counted once.
15. Time, personal pronouns, question, negative suffixes and noun cases will be counted as separate morphemes.
16. Adjectives derived from nouns will be counted as two separate morphemes.
17. Adjectives that are derived from verbal roots, verbalize, nouns, gerunds, and affixes in causative and passive verbs, will be counted as separate morphemes.

APPENDIX F

Group Minimum-Maximum Values of Mean Length of Utterances (MLU)

Groups	<u>Story Generation</u> MLU	<u>Story Telling</u> MLU	<u>Structured Play</u> MLU
2,00-2,05	1 3.47	0 6.06	2.05 4.55
2,06-2,11	.08 6.48	1.50 5.94	2.50 6.42
3,00-3,5	2.36 7.45	3.0 8.20	2.56 7.11
3,06-3,11	3.08 6.97	3.37 7.34	3.87 7.16
4,00-4,05	4.0 6.77	3.82 7.77	3.80 6.85
4,06-4,11	3.93 8.25	4.25 9.56	3.19 7.14
5,00-5,11	5.0 7.88	4.23 8.60	4.02 8.71
6,00-6,11	3.36 7.65	3.31 8.00	4.21 8.73
Age	.00 8.2	0 9.56	2.05 8.7

APPENDIX G

Group Minimum and Maximum Values of Percentages of Subject-Object-Verb Order (PSOV)

Groups	<u>Story Generation</u>	<u>Story Telling</u>	<u>Structured Play</u>
	PSOV	PSOV	PSOV
2,00-2,05	80.95 100	75 100	66.67 100
2,06-2,11	80 100	25 100	73.17 100
3,00-3,5	68.75 100	64.71 100	76.61 100
3,06-3,11	83.78 100	76.47 100	68.12 95.56
4,00-4,05	49.49 100	66.67 100	80.21 100
4,06-4,11	62.86 97.67	66.67 100	73.53 100
5,00-5,11	76.47 100	77.78 100	70.29 100
6,00-6,11	17 82	80.95 100	70.30 72.90
Age	49.49 100	25 100	66.67 100

APPENDIX H

Group Means of Number of Full Sentences (NFS) and Percentages of Other Order (POO)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	NFS	POO	NFS	POO	NFS	POO
2,00-2,05	21	7.88	5.25	8.81	44.75	7.82
2,06-2,11	21.92	6.74	10.08	16.92	55.08	14.26
3,00-3,5	31.00	12.60	17.58	15.38	89.25	14.26
3,06-3,11	32.17	7.23	15.58	10.23	103.50	12.38
4,00-4,05	43.75	14.03	21.67	13.20	89.26	10.74
4,06-4,11	37.08	11.81	13.91	14.92	86.92	12.04
5,00-5,11	28.42	8.80	29.25	9.63	124.25	14.38
6,00-6,11	36.08	9.42	34.41	7.36	121.83	11.72
Age	31.43	9.79	18.03	12.06	87.79	12.06

APPENDIX I

Group Minimum and Maximum Values of Number of Full Sentences (NFS) and Percentages of Other Order (POO)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	NFS	POO	NFS	POO	NFS	POO
2,00-2,05	0-53	0-19.05	0 -15	0 - 25	1 - 108	0- 33.3
2,06-2,11	2 -49	0-20	1 - 24	0 - 75	9 - 135	0 - 6.83
3,00-3,5	10-68	0-31.25	0 - 49	0-35.29	2 - 188	0 - 3.39
3,06-3,11	13-46	0-16.22	3-32 -0	0-23.53	14 - 227	4.44-31
4,00-4,05	16-99	0-50.51	7 - 44	0 -33.33	6 - 150	0- 19.79
4,06-4,11	19-51	2.33-37.14	3-27	0 - 33.33	6 -217	0 -26.47
5,00-5,11	12-53	0-23.53	11 -75	0 - 2.22	17-343	0-29.71
6,00-6,11	60-100	0-40	0 - 80	0 - 19.05	32 - 214	0- 27.10
Age	0-99	0-50.51	0 - 80	0 - 75	1 - 343	0-33.33

APPENDIX J

Group Means of Number of Total Sentences (NTS), Percentages of Full Sentences (PFS),
and Percentages of One-Word Sentences (POWS)

Groups	<u>Story Generation</u>			<u>Story Telling</u>			<u>Structured Play</u>		
	NTS	PFS	POWS	NTS	PFS	POWS	NTS	PFS	POWS
2,00-2,05	53.25	70.25	29.75	7.5	65.54	34.46	64.83	68.75	31.25
2,06-2,11	27.58	77.88	22.12	12.17	80.34	19.66	68.33	78.94	21.06
3,00-3,5	37.42	82.35	17.65	19.58	87.43	12.57	102.42	83.82	16.18
3,06-3,11	34.25	94.24	5.76	17.67	88.13	11.86	113.75	89.16	10.84
4,00-4,05	49	88.90	11.09	25.08	88.42	11.58	103.83	87.28	12.71
4,06-4,11	43.25	87.79	12.21	14.83	93.36	7.16	104.00	81.92	18.08
5,00-5,11	30.50	92.22	7.78	32.08	90.10	9.90	143.25	85.70	14.30
6,00-6,11	38.50	94.38	5.62	40.17	85.86	14.14	136.33	89.75	10.25
Age	36.47	86.73	13.27	20.30	85.72	14.34	104.59	83.79	16.21

APPENDIX K

Group Means of Number of Total Sentences (NTS), Percentages of Full Sentences (PFS), and Percentages of One-Word Sentences (POWS)

Groups	<u>Story Generation</u>					
	NTS		PFS		POWS	
2,00-2,05	1	61	0	86.99	13.11	100
2,06-2,11	9	50	14.29	98	2	85.71
3,00-3,5	16	85	62.50	94.87	5.13	37.50
3,06-3,11	13	48	84.09	100	0	15.91
4,00-4,05	18	104	78.26	96.15	3.85	21.74
4,06-4,11	20	72	69.44	100	0	30.56
5,00-5,11	15	57	68	100	0	32
6,00-6,11	17	84	78.95	100	0	21.05
Age	1	104	0	100	0	100

Groups	Story Telling					
	NTS		PFS		POWS	
2,00-2,05	0	23	0	85.71	13.11	100
2,06-2,11	2	28	20	100	0	85.1
3,00-3,5	0	50	0	100	5.13	37.50
3,06-3,11	3	32	60	100	0	15.91
4,00-4,05	7	47	67.86	100	3.85	21.74
4,06-4,11	4	30	75	100	0	30.56
5,00-5,11	14	82	69.57	100	0	32
6,00-6,11	4	81	0	100	0	21.05
Age	0	82	0	100	0	100
Groups	Structured Play					
	NTS		PFS		POWS	
2,00-2,05	1	135	30	100	0	70.0
2,06-2,11	11	187	29.41	94.55	5.45	70.59
3,00-3,5	4	221	50	97.28	2.72	50
3,06-3,11	18	236	70.41	97.87	2.13	29.59
4,00-4,05	7	181	78.05	98.04	1.96	21.95
4,06-4,11	9	229	53.57	97.14	2.86	46.43
5,00-5,11	22	356	73.04	96.35	3.65	26.96
6,00-6,11	35	241	78.47	97.10	2.90	21.53
Age	1	356	29.41	100	0	70.5

APPENDIX L

Group Minimum and Maximum Values of Percentages of Personal Agreement (PSOV)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	PSOV		PSOV		PSOV	
2,00-2,05	66.67	100	75	100	93.75	100
2,06-2,11	9	50	100	100	100	100
3,00-3,5	97.78	100	91.67	100	99.54	100
3,06-3,11	97.22	100	100	100	100	100
4,00-4,05	100	100	97.78	100	98.90	100
4,06-4,11	92	100	70	100	77.65	100
5,00-5,11	85	100	66.67	100	63.76	100
6,00-6,11	94.12	100	93.33	100	78.40	100
Age	66.67	100	66.67	100	63.76	100

APPENDIX M

Group Means of Number of Total Sentences (NTS) and Percentages of Personal Disagreement (PDA)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	NTS	PDA	NTS	PDA	NTS	PDA
2,00-2,05	31.25	3.08	7.5	2.57	64.83	.89
2,06-2,11	27.58	0	12.17	0	68.33	0
3,00-3,5	37.42	.28	19.58	1.21	102.42	.007
3,06-3,11	34.25	.23	17.67	0	113.75	0
4,00-4,05	49	0	25.08	.19	103.83	.14
4,06-4,11	43.25	1.06	14.83	2.50	103.50	2.53
5,00-5,11	30.50	3.05	32.08	4.67	143.25	6.18
6,00-6,11	38.50	.49	40.17	.56	136.3	2.02
Age	36.47	1.03	20.30	1.46	104.53	1.48

APPENDIX N

Group Minimum and Maximum Values of Number of Total Sentences (NTS) and
Percentages of Personal Disagreement (PDA)

Groups	<u>Story Generation</u>				<u>Story Telling</u>				<u>Structured Play</u>			
	NTS		PDA		NTS		PDA		NTS		PDA	
2,00-2,05	1	61	0	3.33	0	23	0	25	1	135	0	6.25
2,06-2,11	10	100	0	2.80	2	28	0	0	11	187	0	.52
3,00-3,5	16	85	0	2.22	0	50	0	8.33	4	221	0	.46
3,06-3,11	13	48	0	2.78	3	32	0	3.20	18	236	0	.43
4,00-4,05	18	104	0	3.8	7	47	0	2.22	7	181	0	1.10
4,06-4,11	20	72	0	8	4	30	0	30	9	229	0	22.35
5,00-5,11	15	57	0	15	14	82	0	33.33	22	356	0	36.24
6,00-6,11	17	84	0	5.88	4	81	0	6.67	35	241	0	21.60
Age	1	104	0	3.33	0	82	0	33.33	1	356	0	36.24

NTS: Number of Total Sentences

PDA: Percentage of Personal Disagreement

APPENDIX O

Group Minimum and Maximum Values Percentages of Personal Agreement (PPA)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	PPA		PPA		PPA	
2,00-2,05	66.67	100	75	100	93.75	100
2,06-2,11	9	50	100	100	100	100
3,00-3,5	97.78	100	91.67	100	99.54	100
3,06-3,11	97.22	100	100	100	100	100
4,00-4,05	100	100	97.78	100	98.90	100
4,06-4,11	92	100	70	100	77.65	100
5,00-5,11	85	100	66.67	100	63.76	100
6,00-6,11	94.12	100	93.33	100	78.40	100
Age	66.67	100	66.67	100	63.76	100

PPA: Percentage of personal agreement
Disagreement

PDA: Percentage of Personal

APPENDIX P

Group Means of Number of Total Sentences (NTS) and Percentage of Number Disagreement (PDA)

Groups	<u>Story Generation</u>		<u>Story Telling</u>		<u>Structured Play</u>	
	<u>NTS</u>	<u>PDA</u>	<u>NTS</u>	<u>PDA</u>	<u>NTS</u>	<u>PDA</u>
2,00-2,05	31.25	3.09	7.5	2.67	64.83	.52
2,06-2,11	27.58	0	12.17	0	68.33	.29
3,00-3,5	37.42	.70	19.58	.43	102.42	.008
3,06-3,11	34.25	1.09	17.67	2.60	113.75	0
4,00-4,05	49	.71	25.08	0	103.83	20
4,06-4,11	43.25	2.07	14.83	2.50	104.00	2.88
5,00-5,11	30.50	3.74	32.08	4.67	143.25	6.57
6,00-6,11	38.50	1.77	40.17	.95	136.33	2.91
Age	36.47	1.65	20.30	1.74	104.59	1.68

APPENDIX R

Group Minimum and Maximum Values of Number of Total Sentences (NTS), and
Percentage of Number Disagreement (PDA)

Groups	Story Generation		Story Telling		Structured Play	
	NTS	PDA	NTS	PDA	NTS	PDA
2,00-2,05	161	0-33.33	0-23	0-25	1-135	0-6.25
2,06-2,11	9-50	0-0	2-28	0-0	11-187	0-3.42
3,00-3,5	16-85	0-5.26	0-50	0-4.76	4-221	0-.54
3,06-3,11	13-48	0-4.17	3-32	0-26.67	18-236	0-0
4,00-4,05	18-104	0-3.23	7-47	0-0	7-181	0-1.10
4,06-4,11	20-72	4-30	70-100	9-22.9	77.65-100	0-22.35
5,00-5,11	15-57	0-20	14-82	0-33.33	22-356	0-36.24
6,00-6,11	17-84	0-10.53	4-81	0-6.67	35-241	0-21.60
Age	1-104	0-33.33	0-82	0-33.33	1-356	0-36.24