

**REPUBLIC OF TURKEY
ÇUKUROVA UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF ENGLISH LANGUAGE TEACHING**

**SYNTACTIC, LEXICAL AND CONTENT ANALYSIS OF CHILDREN'S
PRIVATE SPEECH**

Emel UÇAR

PhD. DISSERTATION

ADANA / 2018

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PhD. DISSERTATION

ADANA / 2018

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ÖZET

ÇOCUKLARIN KENDİ KENDİNE KONUŞMALARININ SÖZDİZİMSEL, SÖZCÜKBİLİMSEL VE İÇERİK ANALİZİ

Emel UÇAR

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Bu tez, ana dili Türkçe olan 3, 4 ve 5 yaşlarındaki tek dilli çocukların kendi kendine konuşmalarını araştırmayı amaçlamıştır. Çalışmanın ilk amacı, kendi kendine konuşmanın başka dillerde yapılan daha önceki çalışmalardan farklı özellikler sergilemesi beklenen sözcükbilimsel, biçim-sözdizimsel ve sözdizimsel özellikler gibi dilbilgisel özelliklerini incelemektir. Bu çalışma ayrıca Türkçe konuşan çocukların kendi kendine konuşmalarındaki içerik özellikleri ortaya çıkarmayı hedeflemiştir. Bu tezin bir başka amacı da, çocukların anneleriyle yalnız olduklarında yaptıkları görevi yerine getirirken ürettikleri iletişimsel konuşmayla kendi kendine konuşmayı dilbilgisel özellikleri açısından karşılaştırarak kendi kendine konuşmanın sosyal kökenini incelemektir.

Bu çalışmanın verisi iki aşamada toplanmıştır, ilk olarak çocuklardan kendi kendine konuşma verisi, ikinci olarak anne-çocuk etkileşiminden elde edilen konuşma verisi toplanmıştır. İlk aşamada kendi kendine konuşma verisi 3;1 ve 5;7 yaşları arasındaki 28 çocuktan toplanmıştır. 3 yaş grubunda 8 çocuk, 4 ve 5 yaş gruplarında onar çocuk bulunmaktadır. Veri toplama sürecinde çocuklar kreşin ayrı bir odasında, parçaları hareket ettirilebilen ev eşyaları ve oyuncak bir aile figürü olan ahşap bir oyuncak evle oynarken video kaydı yapılmıştır. İkinci aşamada ise her yaş grubundan beşer çocuk anneleriyle aynı görevi yerine getirirken video kaydı yapılmıştır.

Sonuçlar kendi kendine konuşmanın öz düzenleme, planlama ve problem çözme gibi işlevlerinin çocukların kullandıkları dilde özgün kullanımlarla temsil edildiğini ortaya çıkarmıştır. Ayrıca Türkçe kendi kendine konuşmanın Vygotsky'nin öne sürdüğü şekilde yükleme indirgenmediği ve sözdizimsel olarak kısaltılmadığı bulunmuştur. Türkçede kendi kendine konuşmanın içselleştirilmesi yalnızca “kısmen

içselleştirilmiş sözcelerin” yaşla birlikte artmasıyla izlenebilmiştir. Kendi kendine konuşma ve anne-çocuk konuşmalarının karşılaştırılması, kendi kendine konuşmanın sosyal kökleri olduğunun kanıtlarını göstermiştir.

Anahtar kelimeler: Kendi kendine konuşma, sözdizimsel kısaltma, içselleştirme, öz düzenleme.



ABSTRACT**SYNTACTIC, LEXICAL AND CONTENT ANALYSIS OF CHILDREN'S
PRIVATE SPEECH****Emel UÇAR****Ph.D. Thesis, English Language Teaching Department****Supervisor: Prof. Dr. Hatice SOFU****December 2018, 134 pages**

This dissertation aimed at investigating private speech of 3, 4 and 5 years olds Turkish preschoolers. The first aim was to explore linguistic properties of private speech, namely its lexical, morphosyntactic and syntactic features which are expected to present features that are different from previous studies in other languages. This study also aimed to reveal content properties of Turkish children's private speech. Another purpose of this dissertation was to study the social origins of private speech by comparing linguistic and content features of private speech with social speech that children produced when they were completing the same task with their mothers.

Data for the present study was collected in two stages; firstly, private speech data from children were gathered, secondly data from mother-child interactions were collected. In the first stage, private speech data was collected from 28 children aged between 3;1 and 5;7. There were 8 children in three year olds' group and 10 children in each of the 4 and 5 year olds' groups. In the data collection process, children were video recorded in a separate room in the kindergarten while they were playing with a wooden toy house which has removable household items and toy family figures. In the second stage, 5 of the same children from each group were video recorded while completing the same task with their mothers.

Results revealed that self-regulation, planning and problem solving functions of private speech were represented by specific usages in children's language. It is also found out that Turkish private speech is not predicated and syntactically abbreviated in the same way as Vygotsky proposed. Internalization of Turkish private speech was only traced with the increase in the partially internalized utterances with age. Comparisons of private speech and mother-child interactions revealed similarities that

demonstrate evidence for the social origins of private speech.

Keywords: Private speech, syntactic abbreviation, internalization, self regulation



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CHAPTER 1

INTRODUCTION

1.0. Introduction

Children's practices to master the linguistic skills of the language that they are born into have always been a matter of investigation from different perspectives. Being very active listeners even before they were born, they make practices with sounds, words and phrases gradually. Along with the linguistic competence, children have the mastery of communicative competence which deals with the way children learn to use words and sentences appropriately in particular situations and contexts (McTear, 1985). This is a process in which the child practices the skills either in a context with other speakers, or when he/she is alone. The first one is called social speech which is "addressed to another person as indicated by either a pronoun reference, a gaze to another person, or other signals of social intent, such as physical contact, argumentation, or conversational turn-taking" (Diaz, 1992; Winsler, 1998 in Winsler, Fernyhough, McClaren and Way 2005). Applying these spontaneous rules of social speech is crucial for having joint attention between the child and the speech partner.

For the second type of speech which the child performs when he/she is alone , Berk (1992, 1994) states that if the speech which is used by children to communicate with themselves as they go on their daily activities is audible or visible, it is called private, self-directed or personal speech or "behavior". It is one of the most remarkable characteristics of child speech starting as early as two years old.

Although private speech has always been along with the social speech, it has not been studied thoroughly until the beginning of the last century. Piaget and Vygotsky held studies in the early 1900s by looking at this speech in two opposite perspectives. While Piaget thought private speech did not play a role in development, Vygotsky emphasized the connection between social experience, speech and learning.

Up to today, a considerable body of literature and research has emerged including laboratory studies, classroom observations, parent and teacher interviews looking into both typically and atypically developing children. They revealed that private speech plays significant roles on self-regulation, planning, problem solving and task performance in both groups of children. Along with the changes in the behavior, the language of private speech exhibits certain changes in terms of syntax, word choice

and discourse properties. However, these linguistic changes in the nature of private speech as child develops have had little attention although Vygotsky proposed progressive syntactic abbreviation that is leaving out the subject in the surface structure while keeping the predicate in his earliest studies. The existing studies on the linguistic aspect of private speech covered whether there is a progressive syntactic abbreviation or not as claimed by Vygotsky (1934/1987) (Pellegrini, 1981; Goudena, 1992; Feigenbaum, 1992; Winsler, De Leon, Wallace, Carlton and Willson-Quayle, 2003) and supported his claims. Studies also investigated the discourse properties of private speech (Feigenbaum, 1992; 2006). The languages of those studies (i.e. English, Dutch, Russian) belong to Indo-European language family and thus the structures might display similarities on the way to being abbreviated assuming the abbreviation stemming from the nature of private speech. To date, no data on private speech have been found in Turkish which is expected to have syntactic differences due to being a highly agglutinative and prodrop language. Therefore, in this study we aim to investigate various linguistic properties in Turkish children's private speech including lexical and syntactic features. We also aim to study the content of children's private speech regarding the different functions it realizes. We further aim to compare the findings from child private speech with the characteristics of language children use in mother-child interactions in order to see whether there are any similarities and differences between the two types of production.

1.1. Background to the Study

Studies assert important functions on private speech; however, in the initial studies, it was perceived differently by two eminent psychologists Piaget and Vygotsky. Piaget (1962) had pointed out that egocentric speech, in his terms, did not have a positive effect on cognitive development. According to Piaget, for normally developing children, the term egocentric is identified with three types of utterances: echolalia which is defined as a repetitive process of sounds and syllables for playful purposes; monologs referring to speeches that a child gives apparently for his/her own personal benefit; and collective monologues in which two or more children simultaneously present monologs to one another without paying attention if the others comprehend or respond. In Piaget's terms, this egocentric speech comes from immature minds and exists because children have difficulty in imagining others' perspective. Therefore, he claims much of their

private speech serves little communication function. He also believed that this speech gradually disappears and children become capable of real social interaction.

On the other hand, although Piaget and Vygotsky had common points in explaining developmental theory, contrary to Piaget, Vygotsky (1934/1987) puts emphasis on the link between social experience, speech, and learning. He defended that cognitive growth and language development occurred concurrently with an increasing dependency of one upon the other. As for the private speech, his ideas which are opposite to those of Piaget's became influential decades after Piaget's proposals. Vygotsky summarizes the process as follows:

The function of egocentric speech is similar to that of inner speech: It does not merely accompany the child's activity; it serves mental orientation, conscious understanding; it helps in overcoming difficulties; it is speech for oneself, intimately and usefully connected with the child's thinking. (...) Egocentric speech develops along a rising, not a declining, curve; it goes through an evolution, not an involution. In the end, it becomes inner speech. (Vygotsky, 1986, p. 228)

According to Vygotsky, the features of reality a child is ready to master are within zone of proximal (or potential) development. The child's performance in doing activities and accomplishing tasks on his own and with the help of someone else is not the same. Vygotsky states that zone of proximal development includes the performances in which the child and the adult discuss on the task and the child tries to accomplish the task with the guidance of the adult. In the same way, when he or she is alone the "child incorporates the language of those dialogues into his/her private speech and then uses it to guide independent efforts" (Berk, 1994, p. 79) Therefore, unlike Piaget's view claiming that the private speech had no implication for and leads to social communication eventually, Vygotsky proposed that early social communication between the adult and the child gives rise to private speech providing a stimulus for further development.

Both Piaget and Vygotsky's proposals have been revisited from many aspects and private speech studies have gained new dimensions and outcomes. Still, Vygotsky's sociocultural theory is the major basis for explaining and understanding the content and functions of private speech. Although it has been investigated for decades mostly in Indo-European languages, we do not know whether typologically different languages

show similar characteristics regarding private speech. Therefore, this study set out to contribute to the field with providing various features of Turkish private speech.

1.2. Statement of the Problem

Researchers studying private speech of children mostly dealt with its implications for children's behavior (Piaget, 1962; Vygotsky, 1986; Diaz, 1992; Berk, 1994; Winsler, 1998; Winsler, Fernyhough, McClaren and Way, 2005). Few studies concerning linguistic properties of private speech such as syntax for syntactic abbreviation, lexicon for noun and verb usages and discourse features, also exist in the literature (Silverman, 1972; Pellegrini, 1981; Goudena, 1992; Feigenbaum, 1992).

Linguistic properties of private speech need further investigation in order to interpret the changes in its content, function and the behavior of the children as it transforms to inner speech in other languages apart from the existing ones. This is a totally new aspect for child language studies in Turkey, and a linguistic investigation of Turkish children's private speech is expected to reveal significant findings as Turkish comes from Altaic language family which has different syntactic properties than the languages private speech has been studied so far. For example, Turkish permits null subject and codes properties such as time, person and case in the predicate. Therefore, in Turkish the use of overt pronominal and lexical subjects and objects can be omitted and their use is determined by discourse-pragmatic factors such as topic change, indication of contrast, ungrammatical structure or emphasis (Kornfilt, 1984; Enç, 1986, Erguvanlı-Taylan, 1984; Özsoy, 1987; Sofu, 1995; Öztürk, 2001). For that reason, studying the nature of Turkish private speech in terms of subject use may exhibit differences regarding syntactic abbreviation and predication, compared to children acquiring languages from different language families. Hence, Vygotsky's definition of the terms *predication* and *abbreviated syntax* of private speech needs further definition in the light of data from Turkish private speech.

As for the lexicon, although there is a preference for nouns over verbs in early childhood in most languages, children utilize more verbs or nouns depending on the characteristics of their mother tongue. Thus, in languages like English, more nouns are used. Pellegrini (1981) studying English private speech stated that children used more object-oriented words than action-oriented ones in their private speech. However, in languages where verbs are more prevalent and carry most information, verbs may be

preferred and the role of the verbs may change in the formation of predicates. For example, due to the agglutinative nature of Turkish, verbs are inflected for tense, person, etc. which permits to build one word sentences with all the necessary components. Therefore, studying Turkish children's private speech in terms of noun and verb preference might reveal different results from the existing literature due to the typological features of Turkish.

Additionally, in the studies investigating social speech of children, input is of great importance in the initial stages acquisition process. As we put emphasis on the importance of the language in the zone of proximal development, a further investigation is needed in the speech of parent child dialogues during problem solving situations so as to have a deeper insight to the language and function in private speech.

1.3. Aim of the Study

The aim of the present study is to reveal if the syntax of Turkish preschoolers aged between three to five, is abbreviated developmentally in the same line with Vygotsky's predication. It also aims to indicate if Turkish preschoolers use more object oriented or action oriented words in their private speech developmentally. In the same line, this study tries to find the connection between the lexical and syntactic resemblance of child private speech and the speech that they produce during a problem solving situation in the presence of the mother.

1.4. Research Questions

In this dissertation we will try to find answers to the following research questions:

1. What are the lexical characteristics of 3-5 year olds' private speech?
 - a. What are the function words and particles used by children in their private speech?
 - b. Do children prefer verbs or nouns among content words in their private speech?
2. What are the syntactic characteristics of Turkish private speech?
 - a. Is the syntax of 3-5 year old children's private speech abbreviated/incomplete in the same line with Vygotsky's 'predication'?

- b. Is there any change in the clausal density of 3-5 year old children's private speech?
3. What is the content of utterances children use in their private speech?
4. Are children's productions in private speech task relevant or not?
5. What are the similarities and differences between the children's private speech and the language they use when they are in interaction with a person present?

1.5. Limitations of the Study

In the present study there were two stages for data collection. In the first stage children from three age groups, namely ages three, four and five, played with a toy house on their own and their productions of private speech were video recorded. The number of the children in three year olds' group was eight, in four and five year olds' group was 10. In order to increase the reliability of the study, it would be better to have more children in each group.

A similar limitation was valid for the second stage of the study where five of the mothers and their children from each age group played with the toy house together. Although children whose mothers gave permission were video recorded on their own in the first stage, for the second stage where children and their mothers were expected to play together, some of the mothers in the first stage either did not want being video recorded or could not arrange their schedules for the second stage of the data collection . Therefore, the number of the participants was limited to five in each age group.

1.6. Operational Definitions

Social Speech: It is the vocalized speech addressed to another person in the setting for interpersonal communication. In the present study, the term is also referred to the speech that children and their mothers produced as they were completing a task together.

Private Speech: Audible or visible speech which is used by children to communicate with themselves as they go on their daily activities (Berk, 1992). It starts around age three and decreases and transforms into inner speech around age seven.

Inner Speech: It is defined as verbalized thought or silent thinking (Vygotsky, 1934/1986). It emerges in people's minds when they are planning, organizing or solving a problem.

Syntactic Abbreviation: Syntactic abbreviation is omitting the compulsory components of an utterance and turning it into sentence fragments (Feigenbaum, 1992). In Vygotsky's terms, it is equal to predication. Due to the agglutinative and pro-drop nature of Turkish, syntactic abbreviation is sought through the length of the utterances, amount of incomplete and partially internalized statements.

Predication: It refers to a form of syntactic abbreviation by "omitting the subject of a sentence and all words connected with it, while preserving the predicate" (Vygotsky, 1934/1986, p. 236).

1.7. Summary

This chapter introduced background for the study on private speech. It mentioned different points of views on the purpose of private speech and why it is important to conduct this study. It also covers aim of the study, statement of the problem, research questions and limitations of the present study.

CHAPTER 2

REVIEW OF LITERATURE

2.0. Introduction

This study focuses on the private speech of children aged 3 to 5 in different perspectives. This chapter begins with an overview of first language acquisition in general and in Turkish. Explaining developmental theories of Piaget and Vygotsky leads the way to comprehend the underlining thought of private speech. It also explains the studies in private speech in other languages and in Turkish and linguistic properties of private speech.

2.1. Theoretical Framework

So as to realize how children become competent in their mother tongue, it is necessary to overview language acquisition process from the very beginning. At some point, the development of social speech and emergence of private speech overlap which requires better understanding of the theories for each of their progress.

2.1.1. First Language Acquisition

First language acquisition is a unique process which is mostly completed in the first three years of life. In such a short time, children become conversation partners of any language that they are born into by actively learning and creating not only about language but also about general learning in life. Therefore language acquisition is closely related to general cognitive development and learning.

At the very beginning, although babies are totally dependent on a caregiver for meeting their physical needs and do not seem to show any meaningful interaction except from crying for feeding or discomfort, their brain starts operating even before birth and they are equipped with a great ability to listen. Thanks to this ability, infants are able to distinguish speech sounds from other environmental sounds (Blasi et al., 2011). They can also distinguish their mother's voice from another female's voice when they are three days old (DeCasper and Fifer, 1980) or four-day-old babies are able to distinguish the prosody of their mother tongue from any other language (Mehler et al. 1988). This proves that language acquisition starts when children are still in the womb.

With the help of this ability to attend human sounds, they go further in constructing the basis of their mother tongue step by step. Studies show that young infants are able to discriminate speech sounds according to phonetic category although they do not have those sounds or phonetic distinctions in their native language (Werker & Tees, 2002). However, they lose this ability as they get older and when they become adults, they are no more able to discriminate the sounds that do not occur in their native language. Studies show that infants rely on different phonetic cues in the input for word segmentation in different months of age for different languages (Saffran et al., 1996; for English, Dutch and German, Mersad, Goyet and Nazzi, 2010; for French and Turkish, van Kampen et al., 2008)

The acquisition of words with their meanings does not happen immediately but is built as children's inner representations of language constantly develop and reorganized. Theories suggest different learning paths into cracking the codes of meaning. Bloom (2000) points out that in order for children to learn words efficiently, it is crucial for them to establish and keep the joint focus of attention with the ones around them, understand others' intentions and goal directed actions. According to Piaget, (1945/1962) in the sensorimotor period, children can only make sense of the world through sensing it directly. He states that children should get the idea that when an object is out of sight, it does not disappear but is just not in their experimentation zone. Therefore, language development is related to establishing this object permanence concept.

Having these prerequisites, theories vary in explaining the acquisition of meaning. Behaviorists assert that children learn their first words through associative learning. Being exposed to the stimulus repeatedly leads the child to associate the sound of the word with the object. This could explain learning concrete referents that surround the child but could not explain the whole acquisition process which is faster and more complicated.

In contrast to behaviorist model, developmental theories which try to explain this process through child's expanding social, cognitive and linguistic skills appear. Clark (1993) puts forward that one of the steps in cracking the word mapping puzzle is that children develop ontological categories that classify the linguistic parts into objects, actions, events, states, etc.

After being able to segment the speech stream into meaningful pieces, first comprehension and then production of the words for concepts improves. When

children's first words were analyzed, in their study on English, Mandarin and Cantonese, Tardif et. al. (2008) found that "children learn terms to describe people (whether kinship terms or individual names), concrete, manipulable object nouns, action verbs, and so on. In all three languages, the common nouns that children learned were manipulable objects that children encountered in their homes, or animals, rather than larger household objects or outside things" (p. 937). The results are also in line with Nelson (1973) stating that the first words are learnt not because they are present in the setting, but they are objects that are movable or manipulable.

Earlier production of content words is not surprising as they carry the meaning rather than grammatical function. These words are nouns, verbs, adjectives and adverbs in sentences and they refer to objects, concepts, agents and actions. Children's use of nouns and verbs has been investigated in many languages and aspects. Gentner, (1982) states that nouns are the largest and earliest class of words that are acquired, while verbs are smaller in number and are behind nouns. This is due to what Gentner calls Natural Partition Hypothesis. She points out that this distinction between nouns and verbs "is based on a preexisting perceptual or conceptual distinction between concrete concepts such as persons or things and predicative concepts of activity, change-of-state, or causal relations; and that the category corresponding to nouns is, at its core, conceptually simpler or more basic than those corresponding to verbs and other predicates" (1982, p. 4). In other studies conducted to test this hypothesis, it is possible to trace a noun bias in some languages such as Italian (Tardif et al, 1997), French (Bassamo, 2000) and Dutch (DeHouwer and Gillis, 1998). Bornstein et. al., (2004) also suggested the presence of noun bias. They proposed that children with smaller vocabulary size used more nouns than adjectives or closed class words, but there is no difference when it comes to the emergence of nouns and verbs.

However, results in some Asian languages are reported to be more conflicting in terms of this bias. (Altınkayış Türkay, 2005; Gökmen, 2005 for Turkish; Choi and Gopnik, 1995 for Korean). These studies showed that nouns do not necessarily precede verbs, but they are acquired at the same time. Kauschke, Lee, and Pae (2007) summarize about that "Language-specific properties, such as the prominent position of nouns and verbs in sentences, the transparency and complexity of inflections, or the possibilities of word formation and word-category change, influence the degree to which nouns and verbs can be distinguished, and the salience of nouns and verbs" (2007, p.1047). About the "verb friendly languages, they add that reduction of nouns

and noun phrases due to their being pro-drop languages carry verbs into important positions. Verbs' generally being in sentence final position as well as having regular and transparent morphology and the pragmatic focus on actions increases their accessibility. For these reasons, Kauschke et. al. (2007) conducted a comprehensive study on noun and verb naming in Korean, Turkish and German which is structurally different than the first two. They revealed that children processed nouns easier than verbs. However they add that the extent of this discrepancy in naming nouns and verbs display differences across languages. More specifically, they state that German children are better at naming nouns than Korean or Turkish children until the age of five; nevertheless, there is no significant language effect for naming verbs. They explain that the frequency and importance of nouns might be the reason of the result for German children. In addition, salience and high accessibility of verbs might have an effect on the high capacity of naming verbs for Korean and Turkish children.

On the other hand, function words, such as pronouns, prepositions, conjunctions and determiners make up the other class of words. Also known as closed class words which do not add new ones in the class as frequently as content words, function words are on stage from the beginning of language acquisition, although their production comes after content words. Function words do not serve for the content, but they are the words that "build relationships between parts of sentences and perform linguistic function" (Özsoy, Balcı, Turan, 2011, p.93). As they do not carry the meaning, they do not convey communicational value.

Although these words are not many in number, studies show that frequency of usage of these words is quite high. In the corpus study of function words in English, Kornai (2002) revealed that these words comprise 49,5% of the corpus. Also studies in Turkish also indicate that there are function words among the most frequently used words (Kumova Metin, 2008; Aksan and Yaldir, 2011).

Although early word productions of children are telegraphic and they do not produce grammatical morphemes until they are about two years old (Brown 1973, de Villiers and de Villiers 1973), when it comes to understanding, it is revealed that children are aware of function words and use them as a cue for understanding the whole (Gerken, Landau and Remez, 1990; Gerken and McIntosh, 1993, for English; Johnson, 2005, for Dutch; Höhle and Wiessenborn, 2003, for German; Shi et. al., 2006, for French). Hicks (2006) also found that "infants at around 15 months of age have knowledge of the function words of their language and can indeed assimilate novel

content words into the grammatical categories of their native language” (p. 154). In addition, in the language directed to the child, it is found that the type of the function words is lower than the token frequency (Brent and Siskind, 2001; Shi, Werker and Cutler, 2006).

Function words include various words in different languages. For Turkish, demonstratives, mI question particle, conjunctions, personal pronouns and postpositions can be considered as function words. However, some of them are accepted as particles, therefore for Turkish, particles can be included in function words.

To start with, basically used to point an object or situation, demonstratives are linguistic devices that are used to keep the conversation going and mutual attention. Therefore, both adults and children use them frequently in their social speech. Investigating the early usage of demonstratives in general by young children acquiring English, it is revealed that they do not consider proximity/distance relation when using these demonstratives (Clark and Sengul, 1978; Tanz, 1980; Hallan, 2001). Clark and Sengul(1978) and Tanz, (1980) state that it takes six to seven years of age for children to keep the distance and addressee’s attention in mind when using demonstratives.

Studies specifically on the acquisition of function words and particles in Turkish are limited. Demonstratives are among the frequently studies ones. In Turkish, there are basically three demonstratives, *bu* ‘this’, *şu* ‘that’, *o* ‘it/that’ and they are conjugated with all the case markers. They indicate both the distance of the object to the speaker, and if the attention of the addressee is on the referred object (Özyürek, 1998; Özyürek and Kita, 2000). Therefore, if the referred object is proximal to and present in the visual attention of the addressee *bu* is used, if it is present in the visual attention but distal to the speaker *o* is used. Besides, if the referred object is not present in the addressee’s visual attention, regardless of its being proximal or distal to the speaker, *şu* is preferred more often (see Table 1).

Table 1

Analysis of the Turkish Demonstrative Pronoun System

Addressee's visual attention on the referent	Distance of the referent	
	Proximal to the speaker	Distal to the speaker
Present/Neutral	<i>bu</i>	<i>o</i>
Absent	<i>şu</i>	<i>şu</i>

Retrieved from Küntay and Özyürek (2006, p.308)

The following studies indicated early and frequent use of *bu*, followed by *şu* and *o* and their functions. To start with, Sofu (1995) revealed that children start using *bu* starting from age two. In addition to this early usage, Küntay and Özyürek (2006) observed that just as adults do, children use *bu* when referring to objects that are proximal to the speaker and present in the visual attention. However, they stated that different from the adults, six year-old children used *şu* mostly when the object is proximal to the addressee but away from his/her visual attention. They also point out that children preferred to use *bu* to *şu*.

Postpositions are among the other function words studies in the literature. In their cross-linguistic study on the acquisition of postpositions in English, Italian, Serbo-Croatian and Turkish, Johnston and Slobin (1979) found out that there is an order of acquisition starting with *in*, *on*, *under*, *beside*. They are followed by *between*, *back* and *front*.

After cracking the code of their mother tongue with concept development, object permanence and joint attention, infants are shaped with more specific linguistic properties of their mother tongue such as morphology and syntax which are followed by even more complex, adult like utterances. Children become active conversation partners, learn to take turns and make appropriate contributions. Clark (2009) state that children's usages vary in terms of their functions such as "telling stories, explaining how a toy works, persuading a friend to do something, or giving someone directions on how to get somewhere. Between age one and six, children acquire extensive skills in using language and can sound quite adult like much of the time" (p. 14).

As Clark (2009) mentioned, simply acquiring the phonology, syntax or vocabulary of a language does not make children become competent speakers and a part of their speech environment. They still need to acquire various discourse and

conversational skills. From around the age of three on, children start dealing with social aspects of language which include going beyond the literal meaning by understanding and producing various levels of meaning and maintaining conversations by mastering the skills to be collaborative. They are not good at these skills at the beginning for many reasons. Keenan and Schieffelin (1976) state that attention span of children is so limited therefore they are easily distracted by the environment. In addition it is not easy for children to find the referent if it is not related to present place and time. Another problem is their failure in taking the perspective of the others. Adults are good at balancing between given and new information that helps them for topic establishment and continuation. However, children usually tend to assume too much information as given, and this leads to obscurity. Still all these unsuccessful efforts are signs for trying to be a part of the social communication. In the acquisition process, just as they do tests for practicing other aspects of language, children also practice for this social aspect of language either alone or in the presence of a partner.

In the second half of the 20th century, theories that are based on sociocultural roots of cognitive development gained importance emphasizing that the mind, with all its skills including the language, develops during the cultural and social activities in the guidance of a more skilled partner. For this reason, cognitive development needs to be examined from the primary aspects of Piaget and Vygotsky.

2.1.2. Piaget's Theory of Cognitive Development and Private Speech

Piaget studied the cognitive development of children and explained the developmental mechanisms of them on the way to being individuals. Piaget takes development as a whole not as learning information or behaviors, therefore, a proper development of cognitive development is the necessary precursor of linguistic expression. There is a sequence of development in stages not ages and the child must go through all the previous stages so as to reach a certain stage. According to him, sensorimotor period is the initial stage of cognitive development. It starts from birth and lasts until the child is about two years old. In this stage children make sense of the world through direct sensation and motor activities are performed. They are not able to recognize that an object is separately and continuously present even if they do not have direct experience of them. When they have the mental representation of an object (i.e. schema), they gain object permanence which lead the next stage, preoperational stage. It

starts around age two and lasts until the age of six or seven. Symbolic thinking and egocentric thought characterize this stage. Piaget (1999) states that “It is this function (symbolic function) that makes possible the acquisition of language or collective ‘signs,’ but its range is much wider, since it also embraces ‘symbols’ as distinct from ‘signs’, i.e., the images that intervene in the development of imitation, play and even cognitive representation.” (p. 278). Play becomes an expression and an affective modification of reality and egocentrism is visible in the symbolic games. However, he thinks that these egocentric plays are unconscious. The third stage is the concrete operational stage which lasts until the age of about 12. The child is now able to adapt alternative viewpoints, yet still limited to concrete objects. There is a continuous increase in the intelligence, so the elementary operations of arithmetic or geometry and logical seriations and groupings are considered as successive objective transformations reproduced through mental experience. After the age of 11-12 formal operations stage starts where abstract thinking and reasoning starts. The child is able to think logically about potential events or abstract ideas and make a distinction between thought and acceptance. They gain the ability to combine and classify items in a more sophisticated way, and they have a larger capacity for higher-order reasoning.

Piaget thinks that language acquisition is not a special faculty but needs social and cognitive prerequisites. However although adult speech is socialized and has communicative intent, early language of the child is egocentric. He stated that:

Egocentrism is on the one hand primacy of self-satisfaction over the objective recognition (hence the nature of the early thought of the child, which is half way between play and adaptation), and on the other, distortion of reality to satisfy the activity and point of view of the individual. In both cases it is unconscious, being essentially the result of failure to distinguish between subjective and objective.” (1999, p. 285)

Piaget divided egocentric speech into three categories: repetition (echolalia), monologue, and dual or collective monologue. Repetition (echolalia) is the repetition of words and syllables or even nonsense words just for the pleasure of talking without any social character. Although its content changes, its function stays the same throughout different ages. As for the monologue, it also has no communication aim, but it is the speech that accompanies, reinforces or supplements the action. He states that “this is simply the side tracking of the original function of language, and that the child

commands himself and external things just as he has learned to command and speak to others.” (1962, p.10). Collective monologues are defined as “the most social of egocentric varieties of child language” (1962, p.10). They are monologues in the presence of others as in two children appearing to be talking to each other by taking turns, but actually producing monologues.

Piaget (1962) believes that in any category egocentric speech is used to socialize thought and accompany and reinforce activity. It results from the child’s not being able to know what to keep to himself and what to say out loud. In addition, it also results from the lack of sustained communication among children. Finally, at around age seven and eight, egocentric speech loses its importance and simply disappears.

The ideas that private speech was unconscious and had no purpose were influential in when they were proposed by Piaget. However, Vygotsky approached this speech in a different way by putting great emphasis on its content and functions and theories started to be developed on these ideas.

2.1.3. Vygotsky’s Sociocultural Theory and Private Speech

Vygotsky proposed new approaches and perspectives on the study of psychological development, general learning and language development. He suggested that developmental approach should be built upon three concepts: higher mental functions, cultural development and mastering one’s own behavioral processes. Within the higher mental functions, he assumed that language development and its relation to thought helps to practice other mental functions and they go through a cultural development. He (1934/1986) stated “Their relations (thought and speech) and connections do not remain constant. That is why the leading idea is that there is no constant formula of relation between thought and speech that would be applicable to all stages and forms of development or involution. Each of these stages has its own characteristic form of relation between these two functions” (p.110). Therefore it is not easy to create stages for their development.

Concept formation is among the earliest and the most fundamental phases of learning. According to Vygotsky’s view of concept formation, children experience two groups of concepts: scientific and spontaneous. While scientific concepts are created in structured and systematically organized educational settings, spontaneous concepts derive from child’s own imagination and view of everyday experiences. He thinks that

the development of scientific concepts follows a route that is related to the comprehension and development of spontaneous concepts. In the end, this dialogical feature of learning that the child develops during the acquisition of scientific concepts leads to mental testing when the child is left alone.

Vygotsky viewed cognitive development as a socially mediated process. He states “any function in the child's cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an inter-psychological (between people) category, and then within the child as an intra-psychological category (inside the child)” (1978, p.57). In their developmental process, it is essential for children to have cooperative conversations with more experienced others who represent their culture and support children's mastery in appropriate activities in the zone of proximal development. He defines the term as “potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). In the zone of proximal development, the child's unsystematic spontaneous concepts are directed and guided by adult reasoning. Because, in turn, these practices help the child to learn how to organize and systematize his thoughts when he encounters a problem on his own. In fact, it should not necessarily be a problem, it could also be during solitary play which cannot just be defined as being for pleasure but includes creating imaginary situations that needs rules and roles to be allocated to different characters, that is private speech. Thus, as Chaiklin (2003) puts it, “any situation in which a child is being offered some interaction with another person that is related to a problem to be solved” (Chaiklin, 2003, p.54) is in the child's zone of proximal development.

Activities of the child are accompanied by the child's speech in three forms of speech: external (social) speech, egocentric (private) speech and inner speech. External speech is the social speech that emerges when we are in interaction with others and addressed to others. Private speech which is voiced speech addressed and adapted to oneself whereas inner speech is silent speech -thought- which is carried out in mind and addressed to oneself. Hence, private speech is like a connection between early social speech and inner speech. At this point, it should be clarified that unlike Piaget who defines egocentric speech coming out of “autistic” and “immature minds”, Vygotsky thinks that it is a tool of thought that has many functions and disappears on the way to being non-verbalized thought, that is inner speech. He thinks that this speech, which is used for interpersonal communication at the beginning, starts to be used for

intrapersonal communication, self-guidance and self-regulation. Future studies have approved Vygotsky in that this speech is not for “moment to moment articulation of ongoing thought processes during task specific problem solving, but instead as a coherent set of verbal regulatory strategies that have developed over time into an organized way of guiding one’s behavior” (Winsler, 2009, p. 8).

Vygotsky also defends that egocentric speech shows a pattern of development in structure although it gradually becomes less audible from age three to seven. At the age of three, the structural and functional qualities of egocentric speech and social speech seems to be the same, but through the age of seven, these two speech types have totally different structures and functions. “With the progressive isolation of speech for oneself, its vocalization becomes unnecessary and meaningless and, because of its growing structural peculiarities, also impossible” (Vygotsky, 1986, p. 230). Therefore private speech shows a tendency towards abbreviation by deleting the subject and the words related to it and keeping the predicate and the connected words to it which is called predication.

Although they had some common points in the course of cognitive development, Piaget and Vygotsky did not share the same point of view on the content and the function of private speech. While Piaget thinks that it comes from immature mind and plays no function on any developmental phase of the child, Vygotsky put forward a very rich theory of private speech by attributing fundamental roles to it in the course of social development of the child.

2.2. A Review of Studies on Private Speech

For investigating thought and behavior via their social and linguistic reflections, studying private speech is an appropriate tool. The fundamental theory of Vygotsky (1934/1986) raised interest in this type of speech by claiming that inner speech (verbal thought) comes from the communicative exchanges with others and child’s using private speech when he speaks to himself (self-directed speech) before it becomes fully internalized inner speech.

Studies on private speech have been conducted from various perspectives such as function, frequency, purpose and language of private speech. Winsler (2009, in Winsler, Fernyhough, Montero, 2009) puts the research on private speech into three major groups as verbal strategy development research, Vygotskian-inspired private

speech research, and research of cognitive developmentalists and cognitive psychologists on domain specific theories on executive functioning, working memory, preservation, inhibition, cognitive flexibility and control, and/or rule use.

Winsler (2009) states that the strategy development researchers focus on “the task and strategy relevant content of the speech specific to the task at hand that yields information about children’s cognition” (p.5). They study the cognitive processes and problems themselves with older children, finding that children or adults use various strategies during problem solving, private speech being one of them. These studies show that children use various strategies in different situations, times and even in different trials of the same task (Bjorklund and Douglas, 1997; Crowley and Siegler, 1999; Schneider and Weinert, 1990, Siegler, 1996; Siegler and Stern, 1998).

Contrary to the strategy researchers, private speech researchers focus on the self-regulating spontaneous speech during any activity. They have studied motivational functions, affect expression, metacognitive reflection, quantity, internalization and audibility of private speech (Silverman, 1972; Diaz and Berk, 1992; Krafft and Berk, 1998; Pellegrini, 1981; Bono and Birzi, 2014; Feigenbaum, 1992, 2009).

The last group of researchers who are cognitive psychologist and developmentalists studied private speech on the side of executive function skills. They think that inner speech has an important role in retrieving and activating task related goals and guiding goal related behavior and activities. More specifically, studies revealed relations between children’s use of private speech and phonological recoding in memory and math tasks (Al Namlah, Fernyhough and Meins, 2006; Ostad and Sorensen, 2007). Studies on adult inner speech usage showed that adults use their inner speech to retrieve and activate their task related goals and guiding their goal directed behavior and activities. That is, speech has an executive functioning role when guiding one’s behavior when switching from one task to another (Baddeley, Chincotta, and Adlam, 2001; Emerson and Miyake, 2003; Miyake, et. al., 2004). The same results are assumed to be true for children, but there has not been a study testing this directly for children’s private speech usage (Winsler, 2009).

The common point in these studies is that in every normally developing child, private speech emerges, peaks and declines and eventually becomes silent. However there are specific claims on the purpose, function and other factors that affect the use of private speech such as age, gender and the number of siblings, etc. by different scholars.

In terms of the age of private speech, Vygotsky (1978) reported a rise in using private speech in the preschool years and a curvilinear development. Then, Kohlberg et al. (1968) found that age of private speech use rise around the age of four. Frauenglass and Diaz (1985) also found that private speech becomes less audible with age. In spite of these variances in age, children make use of private speech in various situations for various purposes.

The purpose and function of private speech have long been discussed and categorized by a number of researchers in all of the above traditions. The studies on the role of private speech as a link between adult-child interactions and task improvement (Berk and Spuhl, 1995; Winsler et al., 1997), the role of private speech in preschoolers' self regulation (Bono and Birzi, 2014), the relation between private speech and theory of mind (Fernyhough and Meins, 2009) have all explained the role of private speech in terms of task performance, self regulation and executive functioning. Vygotsky (1986) explained that "egocentric speech is not just a release of tension or an expressive accompaniment to an activity but it is also a significant tool of thought in a proper sense, in seeking and planning the solution to a problem". Berk (1994) also proved that the central function of the private speech is self-guidance. He stated that children talk to themselves more frequently when working alone on challenging tasks and also when their teachers are not immediately available to help them. In both cases, children need to take charge of their own behavior. Wiley (2006) also claims that children speak to themselves as if taking the role of another person, often that of the mother's. Further, Clark (2005) points out that using private speech provides insight into children's language development, their understanding of social and cultural contexts and some insight into their personalities and learning characteristics.

There have been numerous researchers who studied the content and function of private speech and created their own coding categories. In the Private Speech Coding Manual, Winsler, Fernyhough, McClaren and Way (2005) included the studies in the literature with the metrics used for private speech analysis, coding for syntactic abbreviation, task relevance, degree of internalization and naturalistic settings tasks used to assess private speech.

In the private speech context, content means the "referential aspects of the utterance, that is what the child is talking about" (Diaz, 1992, p.67). Table 2 shows the categories of content of private speech by different scholars when doing different tasks.

Table 2

Content of Private Speech by Different Scholars

Scholars	Copeland (1979)	Rubin and Dyck (1980)	Diaz et al. (1992)	Kraft and Berk (1998)
Categories	1. Exclamations 2. Nonwords 3. Description of self 4. Description of environment 5. Self reinforcement 6. Planning 7. Commands 8. Questions 9. Inaudible	1. Analytic statements 2. Comments about materials 3. Comments about activity 4. Directions to self 5. Feedbacks 6. Questions/Conditional statements 7. Other	1. Exclamations 2. Nonwords 3. Description of the self 4. Description of the environment/task 5. Evaluative or motivational statements 6. Plans/hypothetical reasoning 7. Commands to the self 8. Questions/answers 9. Transitional statements 10. Other	1. Affect expression 2. Word play and repetition 3. Fantasy play speech 4. Describing one's own activity and self guidance 5. Inaudible mutterings 6. Other

Adapted from Winsler, A., Fernyhough, C., McClaren, E. M., & Way, E. (2005). Private speech coding manual. *Unpublished manuscript*. George Mason University, Fairfax, VA, USA. Available at: <http://classweb.gmu.edu/awinsler/Resources/PsCodingManual.pdf>.

In all of the categories above, description or comments about self (e.g. “I am riding this”) and description or comments about the task (e.g. “The yellow chair”) are in common. Also planning, exclamations, word plays, questions, inaudible mutterings and uncategorized speech “other” categories exist in all of the studies but under different names.

Although content and function terms are sometimes used interchangeably, Diaz (1992) stated that the function of private speech means the possible consequences of the expression for the person's ongoing behavior. Diaz (1992) exemplifies the functional categories as follows: For example if the child utters, “I am riding this” as s/he does the action, the functional category of this utterance is self-guiding. However, if it occurs before the action, the category could be planning. In addition, the utterance “The yellow chair” can be categorized as focusing attention as the child uses the speech for focusing on a particular object.

Table 3

Functional Categories of Private Speech by Different Scholars

Scholars	Furrow(1984)	Furrow (1992)	Feigenbaum (1992)
Categories	1. Instrumental	1.Engaging/	1. Planning Function
	2. Regulatory	regulatory	a) Defining the problem
	3. Self Regulatory	2. Self-regulatory	b) Defining the goal
	4. Attentional	3. Expressive	c) Defining discrepancies
	5. Interactional	4. Referential	d) Formulating a plan
	6. Expressive	5. Describing own	e) Monitoring plan
	7. Referential	activity	execution
	8. Description of	6. Seeks	f) Remembering
	one's own activity information		g) Emotional release
	9. Questions	7. Imaginary	2. Non-planning Function
	10. Imaginary	8. Informative	a) Fantasy
	11. Informative	9. Incomprehensible	b) Emotional release
	12. Incomprehensible		c) Word play
			d) Sound effects
			e) Voice characterization

Adapted from Winsler, A., Fernyhough, C., McClaren, E. M., & Way, E. (2005). Private speech coding manual. *Unpublished manuscript*. George Mason University, Fairfax, VA, USA. Available at: <http://classweb.gmu.edu/awinsler/Resources/PsCodingManual.pdf>.

Furrow (1984) had initially coded the function of private speech in 12 categories, but in his 1992 study, he defined the functions in nine categories by considering some of the categories including similar features. On the other hand, Feigenbaum (1992) adapted most of his planning function categories from Pea (1982) and non-planning categories from Kohlberg et al. (1968) and Fuson (1979; in Winsler, Fernyhough, McClaren and Way (2005).

As is clear to see, research on private speech has a long history and evolving practices around the world. However, in Turkish, very few studies have studied this topic and these are held especially in the past two decades.

2.3. Studies on Private Speech in Turkish

In Turkish, there is an enormous body of research on theories of psychology, education and language development in the literature in the past few decades. Researchers have visited the theories including Piaget's theory on development and learning and Vygotsky's sociocultural theory on various domains, tested them in various aspects. However studies focusing on and testing specifically children's private speech are very rare. Most of the publications are review of literatures on the differences between the theories of Vygotsky and/or Piaget, mentioning the differences in their approaches on private speech in a few paragraphs.

In a review article, Bayhan and Saranli (2010) present the definition and categories of private speech among preschool children, areas, reasons, and examples why children need private speech as well as a comparison of Vygotsky's and Piaget's views on private speech. Based on Vygotsky's theory of private speech, Bayhan and Saranli (2010) explain that language is a social communication tool for preschool children to organize and construct knowledge and relationships. External experiences can become a part of internal understanding of children to imagine and produce ideas as the language development process goes on.

For Vygotsky, of the two types of speech, private speech is defined as the self-speech that is audible but not addressed to others (whereas public speech is used to communicate with others). Preschool children begin private speech to discover their own behaviors and knowledge and to regulate them. It is in this way that they combine new objects and ideas and try to figure out relationships among concepts. Based on this view, Bayhan and Saranli (2010) allege that children need private speech as a regulatory tool to aid their mental and linguistic development and that private speech should be encouraged by teachers and parents. On the other hand, Piaget views private speech only as an egocentric speech that occurs due to certain deficiencies. Opposing this claim through Vygotsky's social constructivist views, Bayhan and Saranli (2010) state that collective monologs and egocentric speech have a social structure and children's private speech do not wipe away, but becomes mentally audible and verbal ideas in time.

They conclude with suggestions to teachers and parents for ways of promoting children's private speech. Teachers can guide children's verbal thinking processes, encourage them to think while talking to peers, ask them to write or draw what they have understood about a topic, and model a think-aloud process to encourage them to

speak aloud about what they are thinking while doing something (Bayhan & Saranlı, 2010). It is important that teachers and parents use external mediators for private speech and not inhibit it as long as children are able to continue their task while in private speech.

In another review of private speech literature in Turkish, Demir (2010) compared Vygotsky's, Piaget's, and Watson's views on the stages of speech. She states that while Watson argues with the most traditional behaviorist perspective that children speak loudly and then whisper, Vygotsky sees no functional difference between these two. For him, whispering is within egocentric speech, which later becomes inner speech embracing a different function. Piaget, on the other hand, highlights egocentric speech as an individualistic behavior that is followed by socialized speech. Vygotsky disagrees with him arguing that egocentric speech is the most important stage from aloud speech to inner speech.

Demir (2010) underlines that language is a social tool, and speech for socialization brings about self-confidence, which has two dimensions: the feeling of being able to and the feeling of being loved. Thus, when children start school, they should be able to express their ideas freely without prejudice to be successful, which is the primary goal of egocentric education. Children might have different social and educational backgrounds, but they should be given tasks to foster self-confidence and speaking skills. Studies show that individuals who are valued in their autonomous development period tend to be more enterprising and capable of self-actualization (Yavuzer, 1986). This first gives responsibility to parents in that while raising children, rather than being authoritarian, parents should create a democratic, independent, and comfortable environment for children to gain confidence. Teachers also play a critical role in raising confident individual who have successful language skills and who are not shy to express their ideas. As a result, it can be said that egocentric education can enable societies to raise more confident individuals; therefore, private speech should be encouraged among children.

Since it is easier with an egocentric understanding to express feelings, ideas, imaginations clearly without any hesitations, Demir (2010) suggests that children should be provided with a comfortable atmosphere in which they can feel relaxed to produce private speech and valuable without any threat so that active learning can occur.

In a recent and more specific study on Turkish children's private speech, Keles and Alisinanoglu (2014) investigated the observations and ideas of 44 pre-school teachers on private speech patterns of children. They believed that since it is difficult to make authentic observations in laboratories, one of the best ways to investigate private speech is to gather the ideas of preschool teachers. Selected basically through convenience sampling, the participants are aged 22 to 53 and had experience from 2 to 35 years. Only one of the teachers is male and 31 of them work at a public school, 13 of them work in private schools.

The data were collected through semi-structured interview forms, for which expert opinions were consulted and piloting was made. The form has demographic information part and observations and views on private speech regarding their context, content, function, and developmental effects. The data were analyzed through content analysis, for which first frequency analysis and then categorizations were made. For validity and reliability, the categorizations were in line with Vygotsky's views on private speech functions. Inter-rater reliability in coding was found 80%. Finally, maximum variety was sought in sampling.

The findings about the participants' observations were categorized into four regarding (i) the context and (ii) content of private speech (iii) the functions and (iv) developmental effects of private speech. For the first category, the most private speech was observed while playing with blocks while the least was in picture matching. For the second category, the highest frequency was in defining the activity they were involved in and the lowest was asking themselves questions and answering them. For the third category, they found out a mutual emphasis mostly on descriptive and motivational functions of private speech. For the fourth category, both the effects on individual development and on other children's development were examined separately, and in both cases positive effects were reported.

As is clear to see, the number of studies on private speech in Turkish is quite limited. Furthermore, studies investigating the linguistic properties of private speech that is expected to display certain features different from social speech have not been witnessed in Turkish.

2.4. Language of Private Speech

There has been limited number of studies that examined the linguistic properties of private speech and its implications on the content and function. These studies mostly dwelled on certain word classes (nouns and verbs) and syntactic features of private speech.

As for the content of the private speech, use of rhythmical repetitions, counting, changed and personalized words and culture specific items are witnessed (Clark, 2005). There are general comments that private speech tends to have a simple rather than complex use of language. For the linguistic structure of private speech, Vygotsky (1934/1986) also stated that “egocentric speech develops, it shows a tendency toward an altogether specific form of abbreviation, namely: omitting the subject of a sentence and all words connected with it, while preserving the predicate” (p. 236), that is ‘predication’ in his terms. He defends that the syntax of the private speech is highly abbreviated, as the topic of the speech is familiar to the speaker, therefore it consists of mostly predicates. He exemplifies this by providing a social context: “Now let us imagine that several people are waiting for a bus. No one will say, on seeing the bus approach, ‘The bus for which we are waiting is coming’. The sentence is likely to be an abbreviated ‘Coming’, or some such expression, because the subject is plain from the situation” (Vygotsky, 1934/1986, p. 236). Wertsch (1985) argues that these abbreviated forms are representatives of first written language sentences, as they express a complete thought, second, inner speech absorbs and hold all the abstract conceptual content of the abbreviated speech.

In Vygotsky’s terms, private speech has the similar syntax as in social speech the initial stages around age three, however “with the progressive isolation of speech for oneself, its vocalization becomes unnecessary and meaningless” (p. 230). As a result, there are reductions in private speech on the way to becoming inner speech.

In parallel with Vygotsky, Feigenbaum (1992) investigated the syntax and development of communicative competence through private speech. In his terms when children use private speech, they “practice, explore, discover and consciously comprehend the cognitive, pragmatic and communicative skills that she has been developing implicitly since infancy” (2009, p.105). Thus, she experiences communication in the perspective of both the speaker and the listener.

He states that mastery of speech involves mastery of topic manipulation and in turn, private speech plays a major role in this process of mastery. He proved that, by predicating expressions, from the point of view of conversation or discourse, the child adds "new" information that moves the conversation along and this plays a typical role to set the shared topic in conversation. Then these new expressions become "old" information that is known to the persons or self and further predicated. Therefore, Feigenbaum (2009) defends that there is a relation between the development of predication and the child's mastery of discourse and conversational skills. He states that, at the age of five, children start using private speech for different functions and they try to master the discursive patterns of social speech in their private speech.

In his study, Feigenbaum(1992) investigated the discourse structure of planful private speech, which is used for planning function and redefined the narrative discourse according to the peculiarities in private speech structure. Specifically, in the case of private narrations, he does not refer to the past events' narration, instead, "narrative refers to discourse that serves a prospective, rather than a retrospective function" (1992, p. 193). Feigenbaum states some evidence that suggests that private speech between 4 and 8 years of age contain an increasing number of "planful conversational exchanges" (p. 196) that may serve as a way for holding planning functions, such as formulating, performing and monitoring steps of the planning. He suggests that "the development of private discourse provides a structural basis for the development of the planning functions of private speech" (p. 193). In sum, both planful narratives, and the quality and quantity of planful conversational exchanges increase in private speech between the ages of 4 and 8 although the syntax of it is fragmented.

On the other hand, Pellegrini (1981) investigated the syntax and semantic properties of private speech of 41 preschoolers in three age groups (from 3; 3 to 5; 9). He found that there is no significant age effect on syntactic abbreviation. He suggested that the structure consisting of a noun phrase, a verb phrase, and a predicate noun (N + V + N) was witnessed significantly more than any other syntactic structure, despite age variance. He also states that the N + V + N structure was the most complex structure observed. However, the simplest structure, a noun phrase or a verb phrase alone, was the second most frequently detected structure. He also examined the semantic features of preschoolers' private speech and revealed that children encode objects and locations more than actions. As they already know how to place the pieces of the puzzle in his design, identification of the correct piece of puzzle and its location is new information

for them and they encode them more frequently.

From an opposing point of view, Jones (2009) rejects Vygotsky's view that external speech is abbreviated and internalized after passing through the egocentric speech phase. Firstly he argues that the abbreviatedness degree of an utterance could not be compared with the written language which is not the same as communicative function of written forms that could be abbreviated just like spoken language. Secondly, he criticized Vygotsky's measuring the abbreviatedness degree of the utterance in the bus context. He claims that Vygotsky's abbreviated utterance "Coming" could also be the abbreviated form of such a sentence: "Dear addressee, a single vehicle of the type which we in this part of Russia would normally assign to the "bus" category and which I assume we are both waiting for in order to arrive at our destination, is coming at us at a speed of 10 km per hour" (Jones, 2009, p. 170). He further questions if someone in the bus stop catches the eye of another and gestures towards the street with his head for stating that the bus is coming also abbreviates the previously unabbreviated longer form.

Silverman (1972) held one of the few studies on private speech syntax. She analyzed the syntax of 10 four year olds' private speech in terms of disfluency which includes "interjection of sounds or syllables, sound and syllable repetition, word repetitions, phrase repetitions, revisions, prolongations of phonemes, broken words and tense pauses" (p.247). Then she compared the results of private speech with that of social speech. Her findings suggested that there is not a difference in the complexity of the syntax of private speech and social speech.

This limited number of studies on linguistic features of private speech in different languages gives space for investigating not only the structure or form but also its interaction with function. Due to its peculiar syntactic features and the lack of literature, studying the linguistic features of private speech in Turkish is expected to bring about new perspectives for the studies on the language of private speech.

2.5. Summary

This chapter consists of four main parts. It starts with the theoretical framework on an overview of the literature on first language acquisition. Then, theories of Piaget and Vygotsky on cognitive development and learning are visited including their opposing views on the aim of private speech. In the second part, studies on the use of

private speech in other languages are focused. In part three, available literature on private speech in Turkish is covered. The last part is about the language of private speech which is claimed to have some peculiarities different from social speech.



CHAPTER 3

METHODOLOGY

3.0. Introduction

In Chapter 3, research design and the methodology of the present study is explained. Starting with presenting the participants, instruments and the setting of the present study are presented. Next, the research method and overall research design of this study is explained.

3.1. Participants

Data of the present study was gathered from two sets of participants in two stages. In the first stage, participants were children; in the second stage data is collected from mothers and their children from the first stage.

3.1.1. Stage 1

In this stage, data was collected from a total of 56 children ranging in age 3;1 and 5;7. This is a period of time when private speech emerges, peaks, starts to disappear slowly and becomes inner speech in the early years of primary school. The participants were chosen with convenience sampling as they attended the kindergarten in Çukurova University campus except for four of the children in three-year-olds' group. As there were not enough children available in the kindergarten in that age group, we included four children from her neighborhood or among relatives of the children who also attended a different kindergarten . The mothers of these children shared the same characteristics with the mothers of children from the kindergarten in terms of educational background. The setting during the private speech and mother child video recordings were also arranged in a way that would be closest to the recordings in the kindergarten.

Table 4

Participants in Stage 1

Age	Children Who Produced Private Speech	Children Who Whispered or Produced Inaudible Mutterings	Children Who did not Produce Private Speech	Total
Age 5	10	6	3	19
Age 4	10	1	11	22
Age 3	8	2	5	15
Total:	28	9	19	56

Among 56 participants, 19 of them did not produce any audible private speech. Although the researcher approached and encouraged the child to speculate about placing the pieces once or twice, it was not possible to obtain private speech data from these children. In addition, nine of the participants produced private speech which was in the form of whisper and inaudible mutterings. Therefore, they were not included in the lexical and content analysis. Hence, 28 of the participants who produced audible private speech were included in the lexical and content analysis.

For further analysis on syntactic abbreviation, nine of the participants who whispered or produced inaudible mutterings (See Table 4) were included in the analysis as the increase in the whispers and inaudible mutterings is an indicator of internalization process of private speech. Six of these children are in five-year-olds' group, one of them is in four-year-olds' group and two of them are in three-year-olds' group.

Table 5

Profile of the Participants in Stage 1

Age Groups		Age 3	Age 4	Age 5
Number of participants who produced private speech		8	10	10
Age	Mean age	3;3	4;3	5;1
	Age range	3;1-3;11	4;0-4;11	5;0-5;7
Gender	Female	6	6	3
	Male	2	4	7

The profile of the participants in Stage 1 is shown in Table 5. In the first age group there are eight three-year-old children (mean age: 3;3, range: 3;1-3;11, two boys and six girls). In the second age group, there are ten four-year-old children (mean age: 4;3, range: 4;0-4;11, four boys and six girls). In the last age group, ten five-year-olds (mean age: 5;1, range: 5;0-5;7, seven boys and three girls) are included in the study.

3.1.2. Stage 2

In order to study the effect of the language in the zone of proximal development to children's language in private speech, a second set of data was collected with 15 of the mothers of the children in the first stage while doing the same task with their children. There were five mothers and their children in each age group equally (See Table 6).

Table 6

Participants in Stage 2

Age		Age 3	Age 4	Age 5
Number of Mother-Child Recordings		5	5	5
Gender	Female	4	3	1
	Male	1	2	4

Among the children who produced private speech, convenience sampling was used to choose the mothers as in Stage 1. Mothers of the children who produced audible private speech were invited to the second stage and data was collected from the ones who accepted the invitation or were able to arrange their schedule for video recording session.

3.2. Instruments and Setting

As the study aims at investigating private speech, a design that elicits the highest amount of private speech is essential. In terms of designing the right task for eliciting adequate amount of private speech, researchers have used many techniques and developed various tasks. Krafft and Berk (1998) found out that private speech was used more often in open-ended tasks in which children set their own goals and define their own behavior for meeting the goal rather than close-ended tasks.

There is a variety of methods for eliciting private speech according to the aim of the study such as puzzle placement (Pellegrini, 1981), Lego building (Berk and Spuhl, 1995), drawing (Matuga, 2003) or train ascending task (Feigenbaum, 1992). Krafft and Berk (1998) states that ‘research on private speech has largely been limited to closed-ended tasks with a single correct solution (e.g., puzzle solving, picture matching, story sequencing, and model copying); little evidence exists on the occurrence of private speech during open-ended activities with several or many possible endpoints (e.g., block play, drawing and painting, experimenting with musical toys, and make-believe play) -pursuits that consume far more of young children's time than do closed-ended tasks’(p. 638). In addition, Winsler et. al. (2003) state that certain tasks have tendency to elicit particular types of private speech, yet, overall children are likely to maintain the relative ranks in terms of “(a) the frequency with which they use different types of private speech across tasks, (b) the extent to which the speech is syntactically abbreviated, and (c) the proportion of children’s private speech which is partially internalized” (p. 597). In their manual for coding private speech, Winsler et. al. (2005) brought a body of research together with the accompanying coding schemes, tasks and settings (See Table 7).

Table 7

Private Speech Studies with the Accompanying Coding Schemes

<u>Citation</u>	<u>Coding Schemes</u>	<u>Tasks</u>	<u>Setting</u>
Azmitia (1992)	Internalization: 1. Task Relevance/Irrelevance 2. Form - audible or inaudible - complete or abbreviated	Lego building task	Lab Setting; Alone vs. Paired Conditions
<u>Berk (1986)</u>	1. Internalization - regular volume - partially internalized - task-irrelevant vs. task-related 2. Item Based	Normal Classroom Tasks	Classroom Setting
Berk & Spuhl (1995)	Content (3 categories)	Mother-Child Play	Lab Setting
Copeland (1979)	Content (9 categories)	Free play	Lab Setting
Duncan & Pratt (1997)	Timing (3 categories)	Paper-folding task and a story- sequencing task	Lab Setting
Diaz, Winsler, Atencio, & Harbers (1992)	Content (10 categories)	Many different construction tasks	Lab Setting
Feigenbaum (1992)	Function (2 categories: planful and nonplanful; 15 subcategories: 7 planful and 8 nonplanful)	Train track building task	Lab Setting
Fernyhough & Fradley (2005)	Berk (1986) Coding Scheme	Tower of London	Lab Setting
Fernyhough & Russell (1997)	Social vs. Private Speech (4 categories)	Free Play (minimal adult intervention)	Lab Setting
Furrow (1984)	Content (12 categories)	Mother-Child Play	Home Setting
Furrow (1992)	Function (9 categories)	Mother-Child Play	Home Setting
Goudena (1987)	Content (5 categories)	Geometric design task and picture arrangement task	Classroom Setting
Kohlberg, Yaeger, & Hjertholm (1968)	Timing (3 categories)	Sticker designs	Lab Setting

(Table 7 Continued)

Kraft & Berk (1998)	1. Content (6 categories) 2. Internalization (Form) (Pellegrini, 1981)	Normal Activities (Functional Play, Constructive Play, Fantasy Play, Unoccupied Onlooker)	Classroom Setting	Classroom
Rubin (1979)	Study 1: Kohlberg et al. (1968) coding scheme Study 2: Content (7 categories)	Study 1: Peer Free play Study 2: Individual play	Lab Setting	
Rubin & Dyck (1980)	Content (7 categories)	Normal Activities	Classroom Setting	Classroom
Winsler (1998)	1. Content (Copeland, 1979 & Diaz et al., 1992) 2. Internalization (Berk, 1986) 3. Item Based	Lego and selective attention task	Lab setting in clinic); Individual and Adult- Child Conditions	
Winsler, Carlton, & Barry (2000)	Presence of Private, Social, or No Speech	Naturalistic activities, tasks, and games	classroom Setting (Large Group, Semi-Structured, and Free Play)	Classroom
Winsler, De Leon, Wallace, Carlton, & Willson-Quayle (2003)	1. Content (Copeland, 1979 & Diaz et al., 1992) 2. Internalization	Selective Attention Task; Legos	Classroom Setting and Home Setting	
Winsler & Diaz (1995)	Presence of Private, Social, or No Speech	Naturalistic activities, tasks, and games	classroom Setting (Large Group, Semi-Structured, and Free Play)	Classroom
Winsler, Diaz, Atencio, McCarthy, & Chabay (1999, 2000)	1. Internalization (Berk, 1986) 2. Item-Based	Magnet Board, Selective Attention Task (Hammer Task)	Individual Setting	Lab
Winsler, Diaz, & Montero (1997)	Item-Based (Success/Failure)	Selective Attention Task	Isolated Room in Preschool Setting	

Retrieved from Winsler, A., Fernyhough, C., McClaren, E. M., & Way, E. (2005). Private speech coding manual. *Unpublished manuscript. George Mason University, Fairfax, VA, USA. Available at: <http://classweb.gmu.edu/awinsler/Resources/PsCodingManual.pdf>.*

As is clear on Table 7, the coding schemes vary from task relevance/irrelevance, content, function, timing, internalization to being item based and researchers preferred the most suitable task for their aims. Open ended tasks such as Lego building, paper folding, story sequencing, construction, geometric design, picture arrangement, sticker design, magnet board tasks as well as free play tasks in the child's natural setting at home or in the classroom are chosen in order to elicit the highest amount of private speech. Depending on the nature of the task, settings were either in lab, school or at home.

Keeping the tasks and settings of the existing literature in mind, for the present study, a task and setting that would help to obtain the highest amount of private speech is arranged. Therefore, for the present study data was collected in a room reserved for playtime activities in the kindergarten. For the first stage of data collection, the furniture and the toys in the room are designed suitable for play and observation (See Figure 1).



Figure 1. The layout of the setting

Firstly, a proportionate table and chair suitable for the participants were placed across the wall on the right side of the room. Then, a camera that would record the child's actions and private speech utterances was placed on the right side of the child but a few steps away from the table the child is sitting at. Children could see the camera, therefore, they were probably aware of being recorded. However, they were not given a separate information on their being video recorded. The researcher sat four or five

meters at the back of the child with her laptop computer on her lap. The researcher preferred to stay in the same room both for typing the private speech children produced and some studies showed evidence on the stimulation of private speech in the presence of others (e.g., Goudena, 1987; Berner, 1971; Kohlberg et al., 1968).

On the table, a wooden toy house which had colorful removable household items was placed in a heap in front of the child. There were also toy family figures with parents, a daughter and a son (See Figure 2).



Figure 2. Wooden toy house with removable household items and family figures

Four of the pieces were not related to the setting but similar to the existing household items in terms of shape (square and rectangular prism) and color (yellow and green). These pieces were placed among the others so as to get the children speculate about what they are and where they should be placed and talk to himself in order to solve the problem.

Choosing the right task and instrument in the correct setting is very important for eliciting the desired data. Therefore, a special play session is organized with three kids

from the same age groups of the present study before using the toy house in the actual study. It is seen that the children produced private speech when playing alone with the toy house and this made the researcher feel more confident about using it in this study.

For the second stage of the data collection, the same task and setting was also used for mother-child recordings. However, when it was not possible for the mothers to come to the kindergarten, some of the recordings were done in the mother's offices or at homes. Therefore, the toy house and the household items were carried to that place and a similar setting was created. This time, the researcher did not necessarily stay in the same room for typing the conversations the speech during mother child interactions was fast. Therefore, she left the room from time to time.

3.3. Data Collection Process

In the present study, data was collected in two stages. In the first stage, children were recorded when they were doing the task on their own; in the second stage, some of the children who produced audible private speech and their mothers were recorded while doing the same task together. All the sessions were video recorded, transcribed and coded according to the aims of the study. Prior to the sessions, parents were given a consent form explaining the procedure, asking for some demographic information and requesting their permission for video recordings. In addition, before the recordings started, the researcher spent a few hours for a few days with the children in their classroom routine to make them feel comfortable with her during the video recording session. These activities included helping the teacher in arranging playtime activities, providing snacks in the snack time, taking the children to the cafeteria and back for breakfast or lunch.

Keeping the child busy with a task and make him/her feel inside the activity helps to obtain private speech. Krafft and Berk (1998) proved that open-ended tasks and reduced teacher or adult direction facilitated the use of private speech. Therefore, the toy house and its removable pieces provided satisfying data both for retrieving private speech and during mother-child recordings.

In the first stage of data collection, children were recorded when they were playing with the toy house on their own. At the beginning of the session the child was given the following instruction: *"Bu aile, bu evi yeni almış. Buraya taşınmışlar ama taşıyan adamlar eşyalarını buraya, dışarı bırakıp, onlara yardım etmeden gitmiş."*

Eşyalarını düzgünce eve yerleştirmelerine ve eve girmelerine yardım eder misin? Eşyaları istediğin gibi yerleştirebilirsin. Ben hemen arkada işimi yapıyor olacağım sonra gelip ne yaptığına bakacağım.” (This family has recently bought this house. They moved here but the porters left all these goods outside the house and left without helping them. Would you help them put all their stuff inside the house properly and get them in the house? You can do it the way you like. I will be right at the back and do some work of mine then I will come and look at what you have done.) After a few prompts for placing the pieces, the researcher left the child alone.

The recordings took between 10 to 20 minutes. However, if the child produced private speech effectively from the beginning, the first 15 minutes were included in the analysis. If the child spoke slowly or produced private speech some time later, the researcher did not interrupt on the 15th minute, instead kept on recording for some more time, up to 5 more minutes.

During the sessions, the researcher sat a few steps at the back of the child without interfering and seemed to deal with her own work but actually transcribed the child’s private speech simultaneously so as to minimize possible disambiguation while transcribing the recordings. In some cases, some children attempted to ask questions to the researcher but she did not respond to these questions in the first or second attempt so as to lead the child to feel that he is alone while doing the task. The researcher responded the questions shortly if the child insisted on the question for a couple of times by turning his/her body to the researcher, moved towards her or directly addressed her.

One of the aims of this study is to compare the language of children’s private speech and the language in the zone of proximal development. Therefore, in the second stage of data collection, five of the children in Stage 1 and their mothers were recorded while doing the same task in Stage 1. The recordings took place within the following two weeks after the video recordings with children in the first stage. The same instructions about putting all the household items into the house were given to the mothers and their children again, but this time, the researcher did not always stay in the same room or transcribed their speech. After giving the instructions, she either sat at one side of the room or left the room for short periods of time so as to let the mothers feel comfortable. The recordings took between 10-15 minutes.

Following the data collection with children, mother-child recordings were completed within the following two weeks. Due to problems in arranging their schedule for recording in the kindergarten, or as there were four more participants from outside

the kindergarten in the campus, six of the recordings were done in the mothers' office/work or in their home.

3.4. Data Analysis Procedure

In the first stage, all the video recordings were transcribed by watching the videos and comparing them with the researcher's simultaneously typed transcriptions. Children who produced audible private speech were filed separately from the ones that had no or little private speech with inaudible mutterings. The data obtained from children who produced audible private speech (N=28) was included in the lexical, syntactic and task relevancy analyses. In addition, children who whispered or produced inaudible mutterings (N=9) were included in the analyses of syntactic abbreviation when considering the gradual internalization of private speech with age.

In the second stage, language of mother-child interactions was analyzed with the same procedures as in the first stage. This provided opportunity to compare the linguistic properties of private and social speech and provide evidence on the source of private speech.

In addition to mean numbers and percentages, Kruskal Wallis-H Test was used for statistical analysis in order to see whether there is a significant difference among the age groups in terms of the linguistic and content variables. This test is preferred as it is the non-parametric alternative to the one-way ANOVA. It presumes that the data does not come from a particular distribution as in the present data.

3.4.1. Analysis of Lexical Characteristics

All the private speech utterances were coded in terms of their lexical properties. In order to do that, firstly, function words and particles were detected; then, mean numbers, percentages and raw numbers were identified. Although they are not as many as content words in type, their token is very high. Function words do not have clear referents and serve syntactic functions. There are differences in the function words in typologically different languages. In Turkish, demonstratives, personal pronouns, postpositions and conjunctions are among function words.

Demonstratives are words "that serve to direct the hearer's attention towards a referent by encoding different spatial and temporal aspects of the situation that delimit the search space within which the referent is located" (Küntay and Özyürek, 2006, p.

304). They explain that in Turkish, three demonstratives (*bu* 'this', *şu* 'that' and *o* 'it') and their case marked forms encode both distance and the addressee's visual attention. Analyzing demonstratives in private speech is expected to shed light on the dialogical nature of private speech as one needs to keep the distance and addressee's visual attention when he/she uses them. However, private speech is not addressed to an external party which makes us assume that the usage of demonstratives in private speech serves for performing certain functions.

In addition to demonstratives, pronouns are analyzed within the frame of function words. "Pronouns are expressions that are used when referring to persons, things or states of affairs that have previously been mentioned, whose referents are obvious from the context or whose content is only partially specified" (Göksel and Kerslake, 2005, p.230). Among these pronouns, children's use of personal pronouns (Singular: *ben* 'I', *sen* 'you', *o* 'he/she/it', plural: *biz* 'we', *siz* 'you', *onlar* 'they') and their case marked forms is investigated as their usage is optional in sentences and overt use of these pronouns might be an indication of different functions especially in private speech context where children are externally alone and talking to and for themselves.

Another category in function words is postpositions. Turkish does not have prepositions, instead, it has many postpositions that follow their complements. They are both in the bare form as in *için* 'for' and *gibi* 'like' or possessive, genitive or dative complements as in *arkasında* 'behind' and *önünde* 'in front of' (Göksel and Kerslake, 2005). In addition, in the case of *ile/(y)la* 'with/by' it might be analyzed as a commutative or instrumental marker.

Conjunctions are also among function words that are investigated within the aim of this study. "Conjunctions are expressions such as *ve* 'and', *fakat* 'but', and *ya da* 'or', which join two or more items that have the same syntactic function" such as phrases, subordinate clauses or sentences. (Göksel and Kerslake, 2005, p. 440). In addition, when joining sentences, discourse connectives such as *aksine* 'on the contrary', *üstelik* 'moreover', *sonuç olarak* 'as a result' also connect sentences by building "a cohesive link between concepts expressed by entire groups of sentences" (p. 440). In this respect, Göksel and Kerslake (2005) define *da* as a discourse connective clitic with different functions.

Along with function words, particles/clitics that perform different functions in sentences are analyzed together. Particles are not attached to words, therefore cannot be accepted as affixes and appear separate from words. Göksel and Kerslake (2005) state

that “Most clitics can attach to any type of phrase, and thus have freedom of movement inside a clause, unlike suffixes, which are fully integrated with the word to which they are attached” (p.100). They list some of the particles as; discourse connective *dA*, yes-no question particle *-mİ*, the additive connective *bile* ‘even’, the copular markers *-(y)dİ*, *-(y)mİş*, *-(y)sA*, *-(y)ken*. Under the heading of conjunctions, Göksel and Kerslake (2005) explain various functions of *dA* as a clitic. They state that it has additive, continuative, adversative, subordinator and enumerative (*dA...dA*) functions. From another perspective, Zeyrek and Weber (2008) take *dA* particle under the discourse connectives heading as both a coordinating and subordinating conjunction depending on its function. In sum, although the functions of this particle are agreed on, there is a variety on its structural classification. In the present study, *dA* is going to be analyzed under conjunctions section with all of its functions analyzed.

Another category in function words to be analyzed in private speech is postpositions. Turkish does not have prepositions. Instead, it has many postpositions that follow their compliments. They are both in the bare form as in *için* ‘for’, *gibi* ‘like’ and *kadar* ‘as...as’ or possessive, genitive or dative complements as in *arkasında* ‘behind’ and *önünde* ‘in front of’ (Göksel and Kerslake, 2005). In addition to these, in the case of *ile/(y)lA* ‘with/by’, they take it as a commutative or instrumental marker within postpositions which is also accepted within the analysis frame of the present study.

In addition to function words and particles, of the content words, only nouns and verbs were analyzed in private speech. Pellegrini (1981) studied private speech in order to investigate action or object oriented nature of private speech assuming that children already know the verbs for placing a puzzle (in his context), they verbalize mostly new information which are nouns including shape, color or location. For this reason, the analysis of the present study concentrated on the use of nouns and verbs for the same purposes.

3.4.2. Analysis of Syntactic Characteristics

In order to reveal any syntactic abbreviation and gradual internalization of private speech, syntactic characteristics of private speech were investigated. Studies assume that children’s private speech is gradually abbreviated, predicated and internalized (Vygotsky, 1936/1986; Wertsch, 1985; Winsler et. al., 2003). In order to find out if

Turkish children's private speech is abbreviated, predicated and internalized in the same way as Vygotsky's predication, first of all, the T-units in the utterances were detected with mean and row numbers. Hunt (1970) described T-units as "the shortest unit in which a piece of discourse can be cut without leaving any sentence fragments as residue" (p. 189) In addition to this, mean number of words per t-unit was identified to see if they get shorter on the way to being internalized as children get older.

Secondly, clausal density of children's private speech and the speech that they produce during mother-child interactions were analyzed in order to reveal a gradual internalization or abbreviation of private speech. In order to measure clausal density, the number of dependent clauses in complete utterances was divided into the number of independent clauses and the result was multiplied by 100.

In addition, in order to investigate any syntactic abbreviation, the speech was coded according to its syntactic structure as abbreviated or non-abbreviated. In order to do it, each private utterance was coded, according to its syntactic structure whether it is abbreviated or non-abbreviated/complete. In the initial analyses, grammatically incomplete or incorrect utterances that did not share the predicate of the previous or following utterances and interrupted statements were coded as fragmented as exemplified in Example (1):

- (1) CHI 28 (M, 5;4):
- | | |
|---|-------------------|
| Siz şimdi bunu // (places the ladder) | <i>Fragmented</i> |
| <i>Now you...this//</i> | |
| Merdiven tamam. | <i>Complete</i> |
| <i>Ladder is OK.</i> | |
| Yüzme kıyafetimiz // (checking the doll's' clothes) | <i>Fragmented</i> |
| <i>Our swimming suit//</i> | |
| O zaman // (puts the doll in the bathroom) | <i>Fragmented</i> |
| <i>Then//</i> | |

Additionally, the utterances that shared the same predicate with the previous or following utterance were coded as elliptical as in Example (2):

- (2) CHI 14 (M, 4;6)
- | | |
|--|-------------------|
| Bu çocuk da fotoğraf çekilecekmiş. | <i>Complete</i> |
| <i>This child is also going to have his photo taken.</i> | |
| Nine de. | <i>Elliptical</i> |
| <i>So is the grandma.</i> | |
| Anne de. | <i>Elliptical</i> |
| <i>So is the mother.</i> | |
| Herkes fotoğraf çekildi. | <i>Complete</i> |
| <i>Everyone had their photo taken.</i> | |

When we are in conversation with others, it is easy to hear both parties' turns and decide if the sentence needs another constituent. As in the example by Enç (1986, p. 205) the second sentence uttered by John needs to have the subject overtly so as to state the contrast.

Mary:	<i>Herkes Ali'yle tanış-tı.</i> Everyone Ali-COM meet-PAST-3SG Everyone met Ali.
John:	<i>Ben tanışmadım.</i> I meet-NEG-PAST-1SG I didn't meet.

However, in some cases, it was not easy to determine if the utterance was fragmented or elliptical as the speech was not social and in the form of dialogues, utterances were private in the child's mind which made it hard to decide if the constituents were necessary. Also, in the literature in English, the terms "elliptical, incomplete, and fragmented" are used interchangeably in private speech context. Therefore, the distinction between the two was given up and both the fragmented and the elliptical utterances were coded as abbreviated.

3.4.3. Analysis of Content of Private Speech

Although there are a variety of studies on private speech categories, the content is more or less similar. In the literature, there have been a number of studies which investigated the content of private speech (See Table 1.) The present data is analyzed basically through semantic categories of Winsler et. al. (2003) with a few alterations in the categories such as dividing *Questions* category into two as *Questions/Answers to the Self and to Imaginary Characters*. The reason for using Winsler et. al.'s category is that they have also adapted it from previous studies and it has a very comprehensive categorization.

This categorization includes:

- a) *Exclamations*: One word affect expressions and expletives (e.g. Ah! Aman!)
- b) *Non-words*: Sound effects, wordplay, noises and humming (e.g. Hmm, sound of the water coming from the tap)

- c) *Description of Self*: Statements about the child's state or behavior (e.g. Kendimi görüyorum. 'I can see myself.')
- d) *Descriptions of the Environment/Task*: Statements about the setting or the task (e.g. Bu da mutfaktaki buzdolabı. 'This is the fridge in the kitchen.')
- e) *Evaluative and Motivational Statements*: Statements about the child's self-reinforcement, ability, performance of the task or motivation. (e.g. Yaptım! 'I did it!', Güzel oldu. 'It is good.')
- f) *Plans/Hypothetical Reasoning*: Plans or future-related statements, if-then statements. (e.g. O zaman bu da televizyon izleyecek. 'Then this one is going to watch TV.')
- g) *Commands to the Self*: Explicit instructions given to the self by using imperative verb. (e.g. Dur! 'Stop/Wait!', Yukarı çık! 'Go upstairs!')
- h) *Questions/Answers to the Self*: Questions addressed by the child to himself/herself and clear answers to his/her own questions. (e.g. Bunu nereye koyuyorum? Buraya koyuyorum. 'Where do I put this? I put it here.')
- i) *Question/Answers of the Imaginary Characters*: Questions addressed and answered by the toy family figures or imaginary characters. (e.g. Anne yemek hazır mı? 'Mom, is the breakfast ready?', Hayır daha hazırlamadık, babanla televizyon izliyoruz. 'No, we haven't prepared yet, we are watching TV with dad.')
- j) *Transitional Statements*: Reflective utterances upon finishing one activity and starting another one. (e.g. Tamam 'OK', Şimdi 'Now')
- k) *Other*: Any utterance that could not be labeled as one of the above categories.

3.4.4. Analysis of Task Relevancy

The present study also examined if children's private speech and speech when they are in interaction with their mothers are task relevant as it is suggested in the literature that private speech becomes more task relevant as children get older (Vygotsky, 1934/1986). Normally, the speech is analyzed as being task relevant or task irrelevant. When deciding on the task relevant statements for the present study, after personal communication with Adam Winsler through e-mails (Date: 19.12.2013), two levels of task relevant statements were defined: Task relevant 1 (TR1) and task relevant

2 (TR2). It is agreed that statements about where things should go and definitional items about what something is were coded as TR1 (e.g. *What is this? It looks like a pillow. I will put this here.*). More fantasy elaboration about the items and how they refer to the child's own life were coded as TR2 (e.g. *The mother is cooking now, Come on daddy let's play!*). Task irrelevant (TI) statements included word play, affect expressions, and utterances that are not related to the task at hand.

3.5. Summary

In this chapter, firstly the coding schemes that include the tasks and setting used in private speech studies so far are presented, and then the participants, instruments and setting of the present study were introduced in detail. Later, an overview of the data collection that took part in two stages was described and data analysis procedure was explained.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.0. Introduction

In this chapter, results of the data analysis process are presented. It mainly covers linguistic properties and content and task relevancy of private speech, then the same results are compared with the speech that children produce when they are doing the same task with their mothers.

4.1. Analysis of Lexical Properties in Children's Private Speech

In this study, data was collected in two stages. Firstly, private speech data was gathered from children in three age groups, namely ages three, four and five in order to provide various linguistic properties of private speech. Secondly, social speech data was collected from mother child interactions while doing the same task in order to compare the results both in private speech and in social speech. In the first stage, there are a total of 56 children who were video recorded when they were playing with a toy house on their own. Overall, the aim of the linguistic analysis is to analyze lexical choice, syntactic abbreviation and complexity in children's private speech and compare the results with their social speech. In line with the aims of the present section, lexical properties of the private speech such as the use of function words and particles and content words will be presented.

4.1.1. Function Words and Particles

Function words play an important role in building statements. As mentioned in the literature by Kornai (2002), Kumova Metin (2008) and Aksan and Yaldir (2011), although they are not as many as content words in number, frequency of usages of function words is quite high. In addition, children use function words as a cue for understanding the whole from initial stages of their first language acquisition process on (See Section 2.1.1. for further literature).

Looking into the function words and particles in the private speech of children, it is clear to trace an increase in the amount of usage as can be seen in Table 8. There is a developmental increase in the function words and particles in private speech as children

get older. The total number of function words and particles in three-year-olds' group is the lowest with 255 (Mean=31,8) in four-year-olds' group, this number rises to 271 (Mean=27,1), while the highest number of function words and particles is used by children in five-year-olds' group with 314 (Mean=31,4%).

Table 8. *Function Words and Particles in Private Speech*

Age	N	Total N of Function Words	$\bar{x}$	SD	Min	Max	Mode	Median
3	8	255	31,8	18,1	6	63	-	30,5
4	10	271	27,1	26,5	3	97	3	20,5
5	10	314	31,4	19,1	3	75	-	26,5

Figure 3 shows the mean number of function words and particles for each age group. Three and five-year-old children produced almost the same mean number of function words and particles (Means= 31,8 and 31,4 respectively), while four-year-olds' usage is lower (Mean=27,1). The difference among mean numbers across age groups is not very high, but it is possible to see a U-shape development in Figure 3.

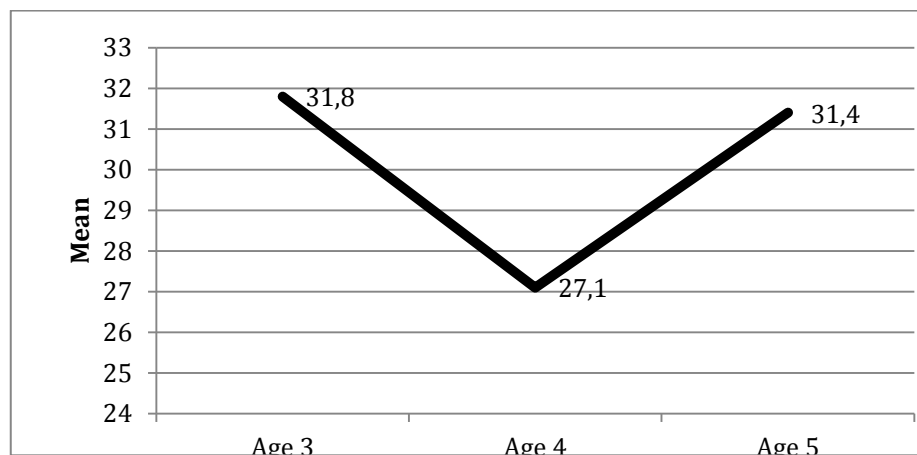


Figure 3. Mean number of function words and particles across age groups

Function words and particles that are used by children in their private speech are further analyzed into categories. When we look into the details, they are classified under

five categories; demonstratives, personal pronouns, conjunctions, yes/no question particle –mI and postpositions (See Figure 4). Figure 4 illustrates usages of specific function words and particles with high occurrences which are expected to contribute to the understanding of the functions of private speech. It is clear to see that the use of demonstratives and their case marked forms are observed to be remarkably high in all age groups (Three-year-olds=69,5%, four-year-olds=66,5%, five-year-olds=73%) . Besides, conjunctions (three-year-olds=25,2%, four-year-olds=28%, five-year-olds=18%) , personal pronouns (three-year-olds=5,1%, four-year-olds=5,3%, five-year-olds=8,8%), yes-no question particle –mI (three-year-olds=3,1%, four-year-olds=3,4%, five-year-olds=4%) and postpositions (three-year-olds=2,7%, four-year-olds=7,3%, five-year-olds=4,7%) are among other function words and particles identified in the data.

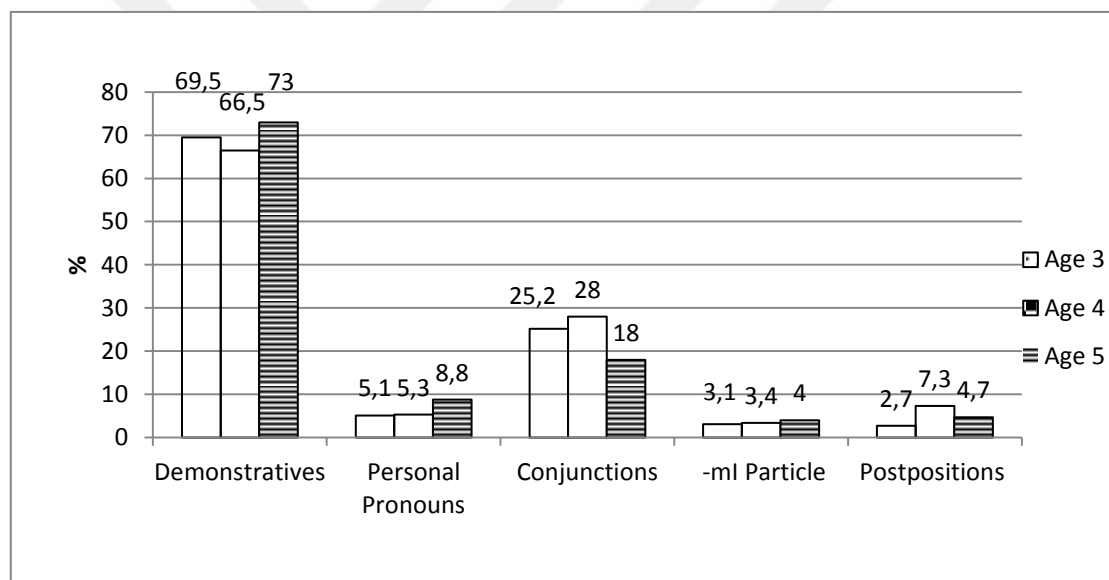


Figure 4. Function words and particles in private speech

Details of these usages are provided in the following sections. They are illustrated with samples from the data obtained from different age groups.

4.1.1.1. Demonstratives

Turkish has basically three demonstratives *bu* ‘this’, *şu* ‘that’ and *o* ‘it’ and their case marked forms. When using demonstratives both distance and the addressee in the setting are considered (Küntay and Özyürek, 2006). In this setting, children used all the

demonstratives and their case marked forms frequently in their private speech for themselves as well, similar to communication what one does when talking to an addressee.

As it can be seen in Figure 5, in their private speech children prefer *bu* and its case marked forms more than the other demonstratives (Three, four and five-year-olds =82,9%, 75,1% and 67,5% respectively). *Bu* requires both proximity of the speaker and visual presence of the pointed object that are present in the task. Additionally, by using a demonstrative, the child creates a frame to practice self-regulation, self-description and planning which are the most frequent functions of private speech.

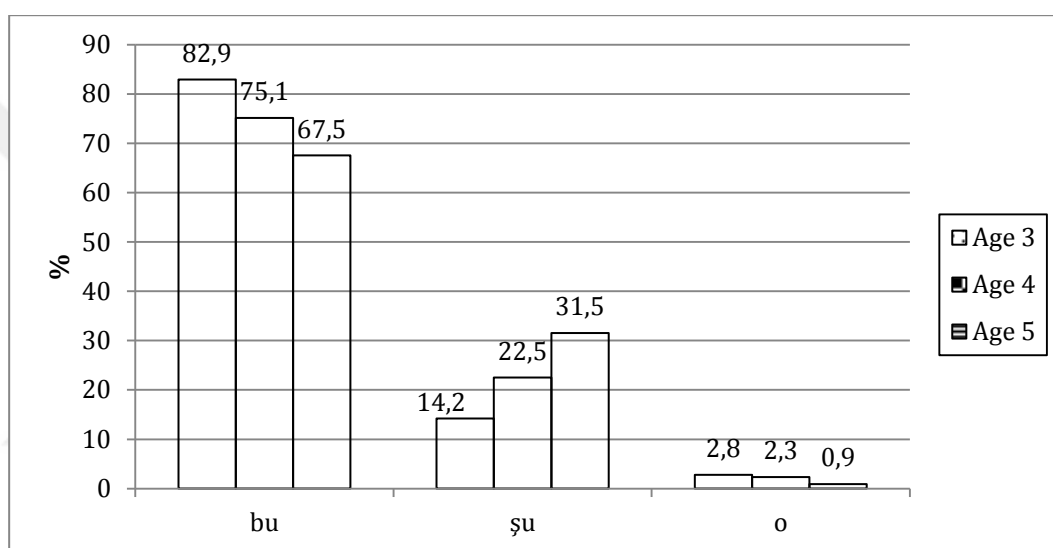


Figure 5. Percentage of each demonstrative in total demonstratives in private speech

Due to the fact that children ignore the proximity/distance criterion at early ages (Clark and Sengul, 1978), during these egocentric years, they prefer to use *bu* frequently to point objects that are proximal to the speaker and visually present in the setting (Küntay and Özyürek, 2006). Among all the age groups in this study, children in the youngest group used *bu* more than the others. In the following examples in (3), children generally held the item in their hands when using *bu*.

- (3) CHI18: Bu ne? Bu da ayna mı? Bunu nereye koyim peki? (F, 4;3)
What is this? Is this a mirror too? Where do I put this?
 CHI4: Bu sandalyeyi buraya koyuyoz ama. (F, 3;6)
But we put this chair here.

Considering *şu* which is preferred when the referred object is not in the visual attention of the addressee regardless of its being proximal or distal, its use increases as children get older. In three-year-olds' group, it is used 14,2%, but it increases to 22,5% at age four and 31,5 % at age five. This increase might be an indication for older children being more aware of and considerate about the addressee presence even when they are in conversation with and by themselves as they do in social speech. Some examples are provided where children still hold the object in their hands but use *şu* to refer to it (Example 4).

(4) CHI 3: *Şu da bir yastık olabilir mi?* (F, 3;6)

Can that be a pillow too?

CHI 15: *Şu şuraya gidecek.* (F, 4;3)

That will go there.

When the use of *o* is analyzed, while adults use it frequently when the object is distal to the speaker but present in the addressee's visual attention, there are few usages of this pronoun in children's private speech (Three, four and five-year-olds=2,8%, 2,3% and 0,9% respectively). It is used five times in three-year-olds', four times in four-year-olds' and twice in five-year-olds' group.

(5) CHI 10: *Babam buraya koyuyodu onu.* (F, 4;1)

Dad was putting it here.

In Example (5), the child uses the utterance upon placing the receiver of the television in the table on which it stands. When using the demonstrative *o* the object was already placed and away from her and it was in her visual attention.

4.1.1.2. Personal Pronouns

In Turkish, personal pronouns are not obligatory in most sentences since their usage is pragmatically controlled and person is marked in the predicate. They have features for person and number but not for gender (Kornfilt, 1997).

Table 9

Case Marked Forms of Turkish Personal Pronouns

Singular				Plural		
	First	Second	Third	First	Second	Third
Nominative	ben	sen	O	biz	Siz	on-lar
Accusative	ben-i	sen-I	on-u	biz-i	siz-i	on-lar-ı
Genitive	ben-im	sen-In	on-un	biz-im	siz-in	on-lar-ın
Dative	ban-a	san-a	on-a	biz-e	siz-e	on-lar-a
Locative	ben-de	sen-de	on-da	biz-de	siz-de	on-lar-da
Ablative	ben-den	sen-den	on-dan	biz-den	siz-den	on-lar-dan

Adapted from Kornfilt(1997, p. 281)

There are also nonspecific indefinite personal pronouns that do not refer to a specific person, such as *biri* ‘one’, *birisi* ‘someone’, *bazıları* ‘some of them’, *herkes* ‘everyone’, *kimi* ‘some people’, etc.

When personal pronouns are analyzed in children’s private speech, the total number of personal pronouns is 63. Figure 6 shows that there is an increase in the overt use of personal pronouns with age . The number of overt personal pronouns three and four-year-olds use is very close to each other being 16 and 18 consecutively. Among the three-year-old children’s group, three of the children did not produce any overt personal pronouns. All the instances were used by five of the children, especially one of them using it seven times during the session. Overt personal pronoun usages of four-year-old children revealed that six of the children in this age group did not use the pronouns overtly. Eighteen instances in four-year-old children’s group were distributed among four of the children, one of them (CHI 14, 4;6) having the highest usage while impersonating the toy family members in his made-up scenario. Five-year-olds used them more than the younger age groups do with 29 instances. Except for three of them, all the children in this age group used overt personal pronouns in their private speech. In sum, in three and five-year-olds’ usages of overt personal pronouns were more evenly distributed when we compare them with four-year-old children. This means that there are more individual differences in the use of overt personal pronouns in four-year-olds’ group.

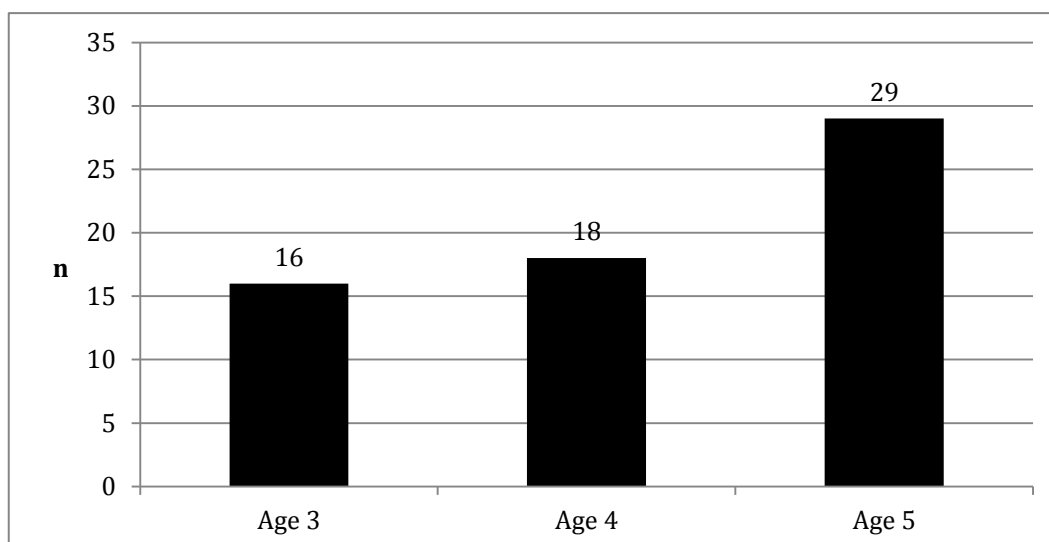


Figure 6. Use of overt personal pronouns in children's private speech

As for the use of case marked forms of these personal pronouns, 53 of them were used in the subject position and in the nominative case. 43 of these were definite personal pronouns, while 10 of them were indefinite personal pronouns *biri*, *birisi*, *herkes*, and *birincisi* 'the first one', in the subject position.

Table 10

Use of Personal Pronouns in Private Speech across Persons and Cases

	Singular			Plural		
	First	Second	Third	First	Second	Third
Nominative	35	1	2	3	2	-
Accusative	1	2	-	-	-	-
Genitive	3	2	1	-	1	-
Dative	-	1	-	-	-	-
Locative	-	-	-	-	-	-
Ablative	-	-	-	-	-	-

When the overt use of definite and indefinite personal pronouns was investigated together, it is clear to see that the usages vary across ages. Figure 7 shows that three-year-olds used a total of 14 subject pronouns while four-year-old children used 10. Children in the oldest age group used overt pronouns in the subject position the most. Out of a total of 29 pronouns, they used 26 in the subject position.

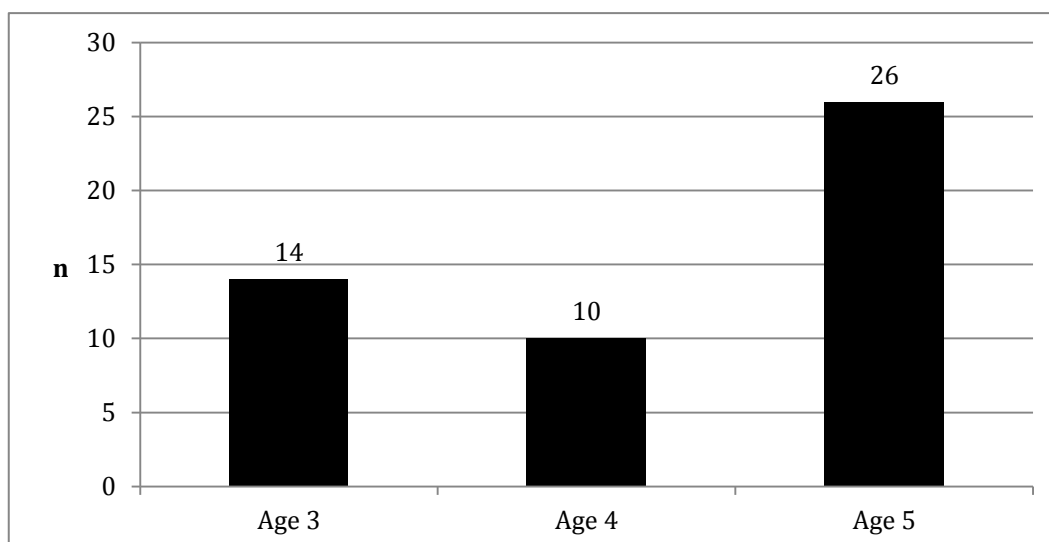


Figure 7. Use of overt subject pronouns in private speech

In the examples (6), (7) and (8), it is possible to see the examples of overt pronoun usages in the subject position. In Example (6), the child speaks in the name of one of the family figures in a make-believe situation. An interesting fact about Example (7) is that the child uses second person plural pronoun *siz* 'you' in order to address the household objects by impersonating them; however, he does not impersonate the toy family characters. In that context he tries to place a piece of cloth on a suitable place, but when the other items block his way, he addresses them as in Example (7). Example (8) illustrates a personal pronoun usage *birincisi* 'the first one' in the subject position when describing the actions of the family figures out loud. Generally, in the group of age 5, children created more scenarios where they allocated roles to the toy characters that produced dialogues related to the context, therefore produced more varied personal pronouns in the subject position as also illustrated in Examples (7) and (8).

(6) CHI 1: Ben buraya oturayım. (F, 3;6)

I will sit here.

(7) CHI 28: Siz çekilebilir misiniz? (M, 5;4)

Could you step aside?

(8) CHI 24: Birincisi ellerini yıkıyor. (M, 5;3)

The first one is washing his hands.

Overall, five-year-old children used overt subject pronouns that are optional in most cases more than the younger age groups. Three-year-olds used these pronouns less than the oldest age group but four-year-olds preferred them the least.

4.1.1.3. Conjunctions

Conjunctions are words that provide logical connections within or among the sentences and maintain meaning correlation. They can stand unattached to any words in the sentence as in *ama* ‘but’, *çünkü* ‘because’ and clitic *dA* ‘too’ or attached to the word as in the suffixal counterpart of *ile* ‘with’ as in *–(y)lA*. In the private speech data of the present study, among all the conjunctions, the ones that are accepted as performing conjunction functions are *dA* focus particle, *ama*, *sonra* and *ve*.

Conjunctions are the second most frequently used function words in children’s private speech. Their usage varies in different age groups. Figure 8 shows that the number of conjunctions used is close in all the age groups. Four-year-olds used conjunctions the most, 72 tokens in total, followed by three-year-olds with 65 conjunctions. Five-year-olds are used conjunctions less than the other groups with 54 usages in total.

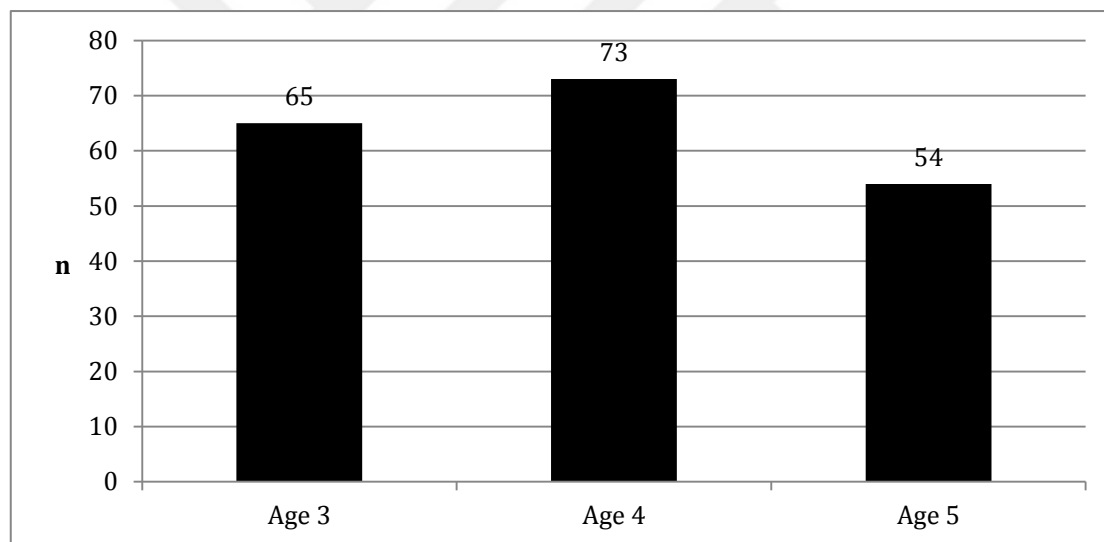


Figure 8. Use of total conjunctions in private speech

When we analyze the conjunctions in more detail, we see in Figure 9 that in every age group focus particle *dA* is the most frequently used particle with its additive and focusing functions. More precisely, three, four and five-year-olds used it 90,7%, 90,2% and 92,5% respectively.

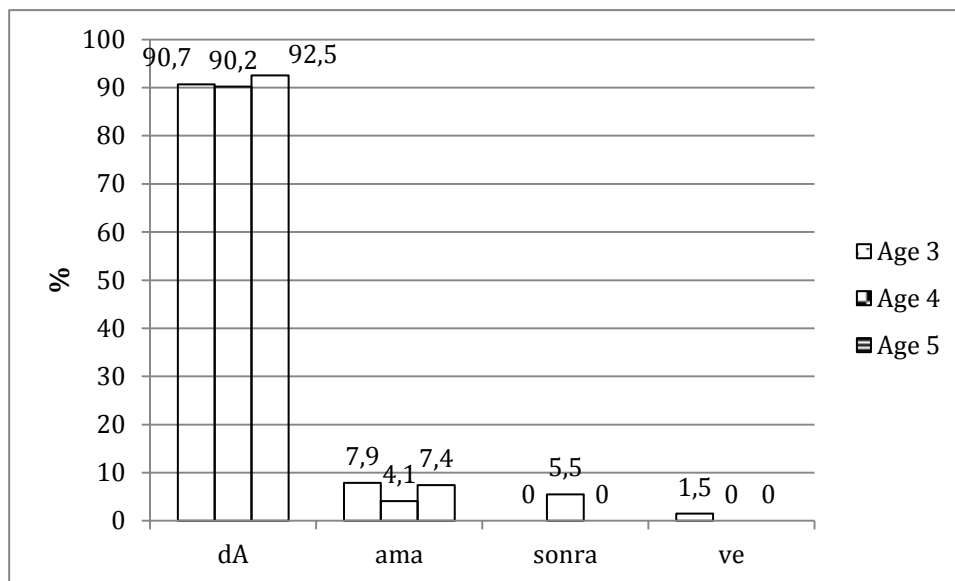


Figure 9. Percentage of each conjunction in total conjunctions in private speech

In the process of completing the pieces of the toy house, children use this particle frequently after the sense of completing by placing almost each piece one after another. Some examples are given in (9).

- (9) CHI 8: Şu da bu da dolap. Şu ne? Bu da bi masa. (F, 3;11)
That one and this one are cupboards. What's that? This one is a table, too.

CHI 15: Bunu da koyucam [:koyacağım]. Bunu da. (F, 4;3)
I'll put this one, too. And this one.

Ama 'but' is used 13 times in the entire data: 5 times by three-year-old (7,9%) and five-year-old (7,1%) children, and 3 times (4,1%) by four-year-old children. In addition to its use for contrast, it is also used for transition to a new activity as the child mutters a song or focusing on an unexpected action as in the following examples (10).

- (10) CHI 2: Ben her şeyi koydum yukarı ama koltuk düştü. (M, 3;11)
I put everything upstairs but the armchair fell off.

CHI 4: Ama koltuk kapanıyor. (F, 3;6)
But the armchair is being closed.

Although their usage is very low, two other conjunctions *sonra* 'then' and *ve* 'and' are witnessed in the private speech data. *Sonra* is used four times (5,5%) by two of the children in age four group as in Example (11). In addition, *ve* is used once (1,5%) by one of the children in age three group .

- (11) CHI 14: Örtüyü kapatmış, işe gitmiş, sonra da oturmuş. (M, 4;6)
(He) closed the cover/blanket, went to work, and then sat down.
 CHI 15: Bunu da alalım. (...) Sonra bunu. Sonra bunu. Sonra bunu.
 (F, 4;3)
Let's get this one, too. (...) Then this one. Then this one. Then this one.
 CHI 2: Yaptıklarım şey bozuluyor ve bu açılıyor. (M, 3;11)
Things I made are destroyed and this opens.

In addition to overt use of conjunctions, one of the children in five-year-olds' group sequenced his actions by using juxtaposition that is adding the sentences one after another instead of using conjunctions as in example (12).

- (12) CHI 21: Yemeğimizi yedik, ilacımızı içtik, çok sağlıklı şeyler yedik, iyileştik. (F, 5;9)
We had our meal ('breakfast' according to the setting), took our medicine, ate very healthy things, got well.

In general, it can be concluded that conjunctions are among commonly used function words in all age groups. Specifically, focus particle *da* has the highest usage across all age groups followed by *ama*, *sonra* and *ve*.

4.1.1.4. -mI Question Particle

In Turkish, questions are formed basically in two ways; firstly by using question words that seek for missing information such as *ne* 'what', *nerede* 'where', *neden* 'why'. The second way of forming questions is to use *-mI* particle which is added right after the questioned part of the sentence. It stands as a clitic without being attached to a word, yet cannot move further from the questioned word.

Although children were doing the task on their own and produced private speech, they asked and answered their own questions when they encountered a problem to be solved. Furthermore, in some cases, the children pretended to ask questions in the name of the family characters in the task. Children preferred both question words and *-mI* particle in their questions but as *-mI* particle is accepted as a function word, only their usage in children's private speech is investigated in this section.

When the use of *-mI* particle is analyzed, it is clear to see that their usage is not very frequent. Three-year-olds used eight questions which is 3,1% of all the function words, while four-year-olds produced nine questions (3,4%) and five-year-olds used 13 questions (4%) by using *-mI* particle. (See examples 13-14)

- (13) CHI 2: Eve böyle takıyor muyuz? (M, 3;11)
Do we place it to the house like this? (When trying to figure out where to put the armchair)
- (14) CHI 20: İki tane mi buzdolabı var? (M, 5;0)
Are there two fridges?

Examples (13) and (14) are the ones that children asked to themselves, as they needed to figure out the situation or the problem. In the private speech context, it is not always possible to decide if it is a real question addressed to find an answer or it is a rhetorical question. Even if it is the latter, asking questions in private speech indicates efforts for better understanding and scaffolding the problem similar to what they do in adult-child interactions.

In some other cases, children asked questions as if they were one of the toy family characters and vocalized them in the name of the character such as the mother, father or one of their children (See Example 15).

- (15) CHI 21: Anne yemek hazır mı? (F, 5;9)
Mom, is the food ready?
 Kardeşim, pencereden bakalım mı?
Brother, shall we look out of the window?

These questions were produced for play purposes without aiming at the child himself. Children's productions of questions in private and social speech are going to be analyzed in terms of content sections.

4.1.1.5. Postpositions

Turkish does not have prepositions; therefore, these functions are performed by a very rich collection of postpositions. In addition to expressing spatial relations with suffixes such as *içinde* 'in' and *altında* 'under', there are bare postpositions in Turkish (See Section 3.4.1.) In the present data, majority of the postpositions are spatial ones with case markers. Others are *gibi* 'like', *için* 'for' and commutative and instrumental *ile/-(y)la* 'with/by'.

The results indicated that of the total function words and particles, three-year-old children used the least amount of postpositions (2,7%) (See Figure 4). These usages included spatial postpositions *içine* 'into', *içinde* 'in' and *üstüne* 'onto' with other postpositions *gibi* 'like', and *ile/-(y)la* 'with/by'.

Four-year-old children's postposition usages were the highest compared to the other age groups (%7.3). In addition to producing the highest amount of postpositions, there was a variety in the types of especially the spatial postpositions. *Gibi* 'like', *için* 'for', *ile/-(y)la* 'with/by', *sonra* 'then' and spatial postpositions *içineliçinde* 'in', *aşağıya* 'down', *yukarıda* 'up' *yanına* 'near/next to', *arkaya* '(to the) back' and *altta* 'down/under' are found in the private speech data.

Lastly, five-year-olds' use of postpositions was higher than three-year-olds', but lower than four year olds (%4,7). In this group, except for one usage of *için* 'for', all the other postpositions were the ones used to express spatial meaning with *üstüne* 'on (top of)' *aşağıda/aşağı* 'down/under', *dışarıda* 'out', *içinde* 'in', *yukarı* 'up', *yanına* 'near/next to'.

Compared to three-year-old children's usage of postpositions, four and five-year-old children produced postpositions with more variety, especially the spatial ones. When children were placing the pieces of the toy house, they already knew the place that they wanted to put that piece on, therefore, they did not articulate them. For this reason, task is assumed to have an effect on the frequent use of spatial postpositions.

Overall, the results indicate that the use of postpositions is not frequent in private speech compared to other function words and particles. Children used mostly demonstratives instead of spatial postpositions in that, instead of using a postposition like *içinde* 'in', the child uses *burada* 'here' or *şurada* 'there' more frequently.

In this section, under the heading of Function Words and Particles, demonstratives, personal pronouns, conjunctions, question particle *-mI* and postpositions were analyzed. Frequent use of certain function words in children's private speech compared to their social speech and its implications will be discussed in the Discussion chapter in more detail. The following chapter presents the analyses of content words, basically nouns and verbs that have some implications for the linguistic function of private speech.

4.1.2. Content Words

In order to see what type of content words children use in their private speech, we have also analyzed content words. The analysis focused basically on the use of nouns and verbs in private speech which indicates certain significance in the private speech literature (Vygotsky, 1934/1986; Pellegrini, 1981).

Although there is a body of research carried out about the existence of noun or verb bias in language acquisition of monolingual children (Gentner, 1982; Choi and Gopnik, 1995; Tardif et al., 1997; Bornstein et al., 2004; Altınkamış-Türkay, 2005; Kauschke, 2007), the results have shown variance due to the structure of languages and methodologies. This tendency has not been studied much in private speech studies. The existing studies on private speech syntax, and therefore lexicon, have demonstrated a tendency towards the use of verbs by omitting the other constituents of the statement which is called predication (Vygotsky, 1986; Wertsch, 1985; Feigenbaum, 1992). On the contrary, Pellegrini (1981) mentioned the reference to objects and locations more than the actions in children's private speech.

According to the results, although there is not a great difference in the total number of nouns (Three, four and five-year-olds= N=226, Mean=28,2; N=195, Mean=19,5; N=266, Mean=26,6 respectively) and verbs(Three, four and five-year-olds= N=175, Mean=21,8; N=164, Mean=16,4; N=221, Mean=22,1 respectively), children in all age groups used more nouns to name and point to objects and locations then they use verbs (See Figure 10). Taking the high preference for demonstratives into consideration, it could be assumed that in their private speech Turkish children used more nouns and demonstratives instead of making predication in the way Vygotsky defines it.

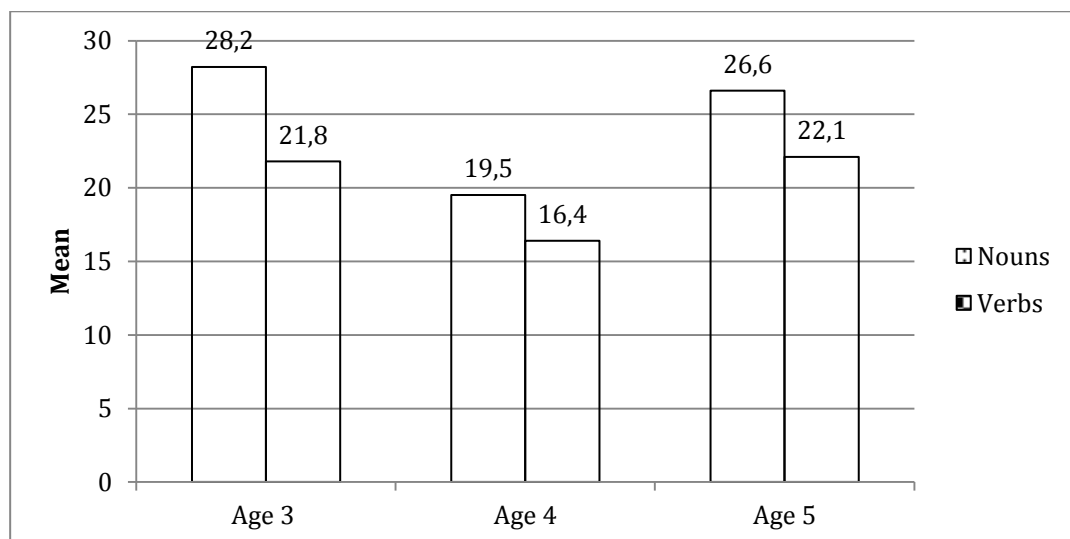


Figure 10. Mean number of nouns and verbs across age groups

In order to investigate nouns in children's utterances, we have conducted Kruskal-Wallis-H test. The results show that there is not statistically meaningful

difference in the number of noun usage across age groups ($p=0,319>0,05$). Yet, if the mean numbers are taken into consideration, children in the youngest age group used slightly more nouns than five-year-olds. In addition, four-year-olds used the least number of nouns in their private speech.

Considering the verb usage, test results did not show any significant difference across age groups ($p=0,352>0,05$). In this case, children in the oldest group used verbs slightly more than the three-year-old children and similar to the use of nouns, four-year-old children used the least number of verbs in their private speech.

In line with the aims of the present study, lexical characteristics of private speech were analyzed in two main sections: Function words and particles and content words. Lexical characteristics were investigated because, in Vygotsky's (1934/1986) terms, language and thought are closely linked with dynamic relations. Therefore, investigating the linguistic characteristics of private speech, through lexicon sheds light on the functions of private speech and how they are performed in this speech. In the same line, a further aim of this study is to analyze the syntactic characteristics of private speech on the way to being internalized and turning to inner speech.

4.2. Analysis of the Syntactic Characteristics of Private Speech

In the literature (Vygotsky, 1934/1986; Wertsch, 1985; Feigenbaum, 1992; Winsler et. al., 2003), studies suggest a gradual syntactic abbreviation of private speech. They suggest that children produce shorter, syntactically abbreviated and/or partially internalized (inaudible mutterings or whispers) sentences in their private speech as they get older. Upon revealing certain lexical properties of private speech, the present section focuses on the syntactic characteristics of private speech. More specifically, t-units, mean number of words in each t-unit, complete, abbreviated and partially internalized utterances, and clausal complexity of the utterances will be analyzed in order to describe the syntactic characteristics of Turkish private speech and trace the proposed abbreviation and internalization of private speech in the literature as it evolves into inner speech.

4.2.1. Syntactic Complexity in Private Speech Utterances

T-unit analysis has been used to measure overall syntactic complexity of both oral and written speech in first and second language acquisition studies. It is important

to know about the number and length of private speech utterances when explaining its syntactic properties. Therefore, total and mean number of T-units and words in T-units that children produced in their private speech were analyzed in order to decide on the syntactic complexity and the length of the private speech utterances. This will also give us the chance to reveal if Turkish private speech is syntactically abbreviated or internalized just as the results of languages in the literature suggest. (See Table 11).

Table 11

T-units in Private Speech

Age	n	Total N of T-units	$\bar{x}$	SD	Min	Max	Mean N of Words in each T- unit
3	8	285	35,3	20,09	7	67	2,8
4	10	225	22,5	22,37	4	79	2,8
5	10	327	32,7	17,78	5	65	3,2

According to the results, mean number of T-units that three-year-old children produced is 35,3. In the group of four-year-old children, mean number of T-units are 22,5 which is less than the number of utterances in the first group. In the last age group, five-year-old children produced 32,7 T-units on average. It is clear to see that the highest amount of T-units was produced by five-year-olds, but as there are eight children in three-year-olds' group, they had the highest mean number of utterances.

When we look at the number of words in each T-unit, in the first two age groups, T-units of private speech utterances contain 2,8 words on average. However, as expected, mean number of words in T-units in five-year-old children's group is higher: 3,2. This means that five-year-olds use more words in their private speech and make longer utterances. It is contrary to expectations in that children are expected to use shorter utterances as they get older due to the internalization process of private speech with age.

4.2.2. Clausal Density Measures in Private Speech

Another way of detecting syntactic abbreviation or simplification is analyzing clausal density. Clausal density measurement is used for determining (morpho)syntactic

complexity in various studies both with children and adults (Huttenlocher et al., 2002; Nippold et al., 2005; Mimeau et al., 2015). In order to measure and compare clausal density among age groups, the number of dependent clauses in complete utterances was divided by the number of independent clauses and the result was multiplied by 100. The findings on the clausal density of children's private speech across ages are presented on Table 12.

Table 12

Clausal Density in Children's Private

Age	n	$\bar{x}$	SD	Median	Min.	Max.
3	8	0.87	1.73	0	.00	5.26
4	10	2.85	4.31	0	.00	12.5
5	10	4.69	5.84	0-4	.00	18.18

As presented in Table 12, children in the youngest group had the lowest mean (Mean=0,87) in terms of clausal density measures which means that they produced simpler utterances which contained less dependent clauses compared to the older children as in Example (16). Four-year-old children had denser clauses (Mean=2,85) compared to three-year-old children while children in the oldest group had the highest mean number (Mean=4,69) in terms of clausal complexity (See Examples 17-18). It is clear to see the steady increase in the mean number of clauses children use as they get older.

- (16) CHI1: Kapıyı kilitledi. (F, 3;6)
He locked the door.
- (17) CHI 15: Ben okula giderken (...) geçelim mi? (F, 4;3)
When I go to school, shall we pass (...)?
- (18) CHI 25: Yukarı çıkarken kullanırlar belki. (M, 5;3)
Maybe they use it as they go upstairs.(As he places the ladder on one side of the house)

In the social speech, as a natural outcome of first language acquisition, it is expected to see an increase in the clausal complexity of normally developing children as they get older. However, the literature suggests that private speech gets abbreviated and internalized and therefore it becomes less complex. The results on Table 11 showed that

clausal density of children's private speech increases by age. This means that children produce utterances with more clauses in their private speech as they get older.

Nevertheless, the clausal density measurements of children's private speech do not explain if its syntax is abbreviated compared to their social speech. Therefore, a second analysis comparing clausal density in private speech and social speech is carried out in order to determine if children produce syntactically less complex sentences in their private speech. The results will be presented in Section 4.3.4.

4.2.3. Completeness/Abbreviatedness of Private Speech

Private speech starts at around age three, increases through preschool years and declines at around age seven. The studies on the abbreviated nature of private speech have shown that the syntax of preschoolers' private speech is abbreviated and it becomes less overt as children get older and finally it goes underground and becomes inner speech. The aim of the present study is to reveal if the syntactic abbreviation proposed by Vygotsky (1986), Pellegrini, (1981), Feigenbaum (1992), Winsler et. al. (2003) is valid for Turkish preschoolers' private speech. It also aims to examine syntactic complexity and the developmental trend of private speech that becomes less overt as children grow up. More specifically, in order to reveal any gradual abbreviation and internalization of private speech, mean number of complete and abbreviated utterances, mean number of words in each utterance and the amount of partially internalized private speech were also calculated. The results are presented on Table 13.

When the mean number of complete utterances is examined on Table 12, although the number of children in the youngest age group is less than the other age groups, they produced more private speech utterances than the other age groups (Mean=35,3). Mean number of utterances that five-year-old children produced is 32,7 which is more than the four-year-olds' (Mean=22,5). Therefore it is not possible to mention a gradual decrease in the mean number of utterances that children produce.

Table 13

Completeness/Abbreviatedness of Private Speech

	Age 3 (8 Children)			Age 4 (10 Children)			Age 5 (10 Children)		
	N	Mean	%	N	Mean	%	N	Mean	%
Complete Utterances	285	35,3	76,6	225	22,5	68,5	327	32,7	72,9
Abbreviated Utterances	62	7,7	16,6	68	6,8	20,7	55	5,5	12,2
Partially Internalized Private Speech	25	3,1	6,7	35	3,5	10,6	66	6,6	14,7
Words in Complete Utterances	811	2,8	-	648	2,8	-	1056	3,2	-

Analysis on the mean number of abbreviated utterances revealed that, it is possible to trace a gradual decrease in the number of abbreviated (both fragmented and elliptical) utterances as children get older. Mean number of abbreviated utterances in three-year-olds' group is 7,7 which is the highest in all age groups. Four-year-old children produced slightly less abbreviated utterances than the first group with 6,8 but mean number of words that five-year-olds produced is 5,5 which is the least.

Analyzing the mean number of partially internalized (PI henceforth) private speech showed the tendency towards syntactic abbreviation as children got older. In fact, the analysis of the PI private speech was done by counting the partially inaudible sentences and the incidences where children started whispering. But in the second condition, as they were constantly whispering, sometimes for a few minutes, it was impossible to count the exact number of the PI utterances.

The mean number of words in private speech utterances is also accepted as an indication of the syntactic abbreviation. The results of the present data show that there is not any difference in the number of words per utterance between three and four-year-olds. Mean number of words they used in each utterance is 2,8 in both age groups. However, this number increases up to 3,2 in five-year-olds' group. This means that children in the oldest age group make longer sentences than the other age groups in their private speech; therefore it is not possible to suggest the syntactic abbreviation through the analysis of words per utterance.

The results indicate that there is an increase in the number of PI private speech as children get older. Mean number of PI private speech occurrences was 3,1 in three-year-olds' group, 3,5 in four-year-olds' group and 6,6 in five-year-olds' group. This increase as children got older might be accepted as the gradual internalization of private speech as it transforms into inner speech at around age seven.

It is also worth mentioning that in Table 3, it is demonstrated that there were total nine children who were not included in the lexical or content analysis as these children did not produce audible and analyzable private speech. They whispered or produced inaudible mutterings during the data collection process. However, if their age is considered, it is clear to see that, in five-year-olds' group there are more children who whispered and produced inaudible mutterings (N=6) than the younger age groups (In four-year-olds' group, N=1; in three-year-olds' group, N=2). Therefore, this might also be accepted as an indication of internalization in Turkish children's private speech.

In this section, the syntactic abbreviation of children's private speech was investigated. Overall the analysis showed that Turkish has some language specific characteristics that do not match with the definition of syntactic abbreviation in the literature. However, the gradual increase in the PI private speech and clausal complexity indicate that Turkish children's private speech is simplified and reduced compared to their social speech. (See Section 4.3.4 for further results.)

4.3. Content of Private Speech

Content of private speech explains what the utterance refers to and what the child is talking about when using private speech. It gives the idea of the functions performed with private speech. There have been many studies in the literature studying the content of private speech, yet to my knowledge, content of Turkish children's private speech has not been studied before. This section presents the results on the content of children's private speech between ages 3;1-5;7.

The categories used for the present analyses are adopted from Winsler et al. (2003) with a slight alteration by dividing *Questions* category into two as questions and answers to the self and questions and answers of the imaginary characters. Every private speech utterance was coded into one of these eleven categories based on its speech content, namely exclamations, non-words, description of the self, description of the environment and task, evaluative and motivational statements, plans/hypothetical

reasoning, commands to the self, questions/answers to the self, questions/answers of the imaginary characters, transitional statements and other.

Table 14

The Mean Number of Content Categories of Private Speech across Age Groups

	3 year olds (8 children)	4 year olds (10 children)	5 year olds (10 children)
Exclamations	1.13	1.40	0.70
Wordplay/Noises	1.38	0.30	1.80
Description of Self	2.88	1.40	3.20
Description of	24.25	13	14.90
Environment and			
Task*			
Motivational/Evaluative Statements	0	0	0.10
Plans*	4.38	6.10	7.20
Commands to the Self	1.00	0.20	0.40
Questions/ to the	7.88	4.70	7.10
Answers Self*			
of the	0	0.70	0.70
Imaginary			
Characters			
Transitional Statements	1.13	0.60	1.30
Other	1.50	1.70	2.00
mean # of all utterances	46.5	32.8	44.8

The results in Table 14 indicate the mean numbers in each category. We have observed that participants of this study used private speech for all categories indicated. Among the semantic categories, children in all age groups used private speech in order to describe the environment or task they are doing (See Example 19).

(19) CHI 27: Gece olmuş, bebekler yatıyor. (M, 5;0)

It's night and the babies are sleeping. (As he puts the kids of the toy family in bed)

Children in the youngest group used these description of the environment and task statements more than the older age groups (Mean=24.25). Comparing three and four-year-olds in terms of the use of description of environment and task statements statistically shows that the decrease from three to four-year-olds' groups seems to be significant, that is right over $p < 0,05$ ($p = 0,056$). Although there is a decrease in the use of descriptive statements for the environment and task in four-year-olds' group (Mean=13.30), five-year-olds produced these statements slightly more than the children in four-year-olds group (Mean=15,30). In general, the only significance is between three and four-year-olds' group this content category.

Questions and Answers to Self is the second most frequently preferred content category in all age groups. Children generally asked questions to speculate what or where the object is and did not answer their own questions verbally. However, in some cases, they asked and answered questions addressed at themselves as in Example 20.

- (20) CHI 4: - Kumanda nerde?
Where is the remote control?
 - Aa burda kumanda! (M, 3;1)
Oh here is the remote control!

Three and five-year-old children asked questions to self and answered their own questions almost in the same amount (three-year-olds' mean=7.88, five-year-olds' mean=7.10). Just as in the description of environment and task statements, similar kind of decrease is observed in four-year-olds' groups, that is they asked and answered questions to self, less than the other age groups (Mean=4.70)

In some other cases, children created a dialogue between two family members and acted out their dialogue as in Example 21. Therefore "Questions/Answers" category was divided into two, as "Questions/Answers to the Self" and "Questions/Answers of the Imaginary Characters" where the child created a scenario, allocated roles to the toys and got them to talk and ask questions to each other.

- (21) CHI 14: - Ooo çocuğum sen burda mıydın?
Oh kid, were you here?
 - Evet anne. (M, 4;6)
Yes mom .

Children also used planning statements in their private speech. In these statements, they planned about placing the objects, used future oriented arrangements and produced if-then structures. There is a steady increase in the use of plans as children get older (Three, four and five-year-olds' means= 4,38, 6,10 and 7,20 respectively). (See Example 22)

- (22) CHI 26: Evin duvarı yapıcım [:yapacağım]. (M; 5;3)
*I'll build the wall of the house. (When he puts
 unrelated objects around the house)*

When analyzing description of self category, the difference between three and four (Means=2,88 and 1,40 respectively) and three and five-year-olds (Means=2,88 and 3,20 respectively) is not significant. However, when comparing four and five-year-olds' usage of description of self statements (Means= 1,40 and 3,20 respectively), it is possible to see that the increase in the five-year-olds' group is statistically significant ($p=0.030<0,05$).

Motivational and evaluative statements were the least preferred content in private speech. Three and four-year-old children did not use these statements in their private speech at all. There is only one usage by a five-year-old girl when she places the TV stand on one corner and tries to get the boy figure sit on a chair (See Example 23).

- (23) İşte yaptım! (F, 5;9)
See, I did it!

Content of private speech gives the idea of what children talk about in their private speech and how they perform the functions of private speech. Findings on the content analysis revealed that children mostly described the environment and task, planned and asked and answered questions to themselves.

4.4. Task Relevancy in Private Speech

One aim of this study is to reveal the task relevancy of children's private speech. Vygotskian theory assumes children's private speech to become more task relevant, self-regulatory and more internalized between the ages of three and five. Using task relevant or irrelevant private speech has also implications for self-regulation and children's behavior in the classroom and at home (Winsler et. al.2003).

Although the present study does not further investigate the preschoolers' classroom behaviors as studied in the literature, revealing the task relevancy of their private speech is expected to give an insight of their self-regulation and gradual development in terms of task relevancy. For this reason, we have coded all the private speech utterances as being *task relevant 1* (Statements about where things should go and definitional items about what something is), *task relevant 2* (More fantasy elaboration about the items and how they refer to the child's own life) and *task irrelevant* (word play, affect expressions, and utterances that are not related to the task at hand), no matter if they are complete or incomplete, or without being selective in the semantic content. The results are presented in mean numbers in Table 15.

Table 15
Private Speech Task Relevancy across Age Groups

	3 year olds(8 children)	4 year olds(10 children)	5 year olds(10 children)
mean # of all utterances	46,5	32,8	44,8
Task Relevant1 (TR1)	34,1	23,9	27,2
Task Relevant 2 (TR2)	8,6	4,2	6,9
Task Irrelevant (TI)	7,8	1,8	3,0

According to the results, majority of the private speech was task relevant. Children produced TR1 private speech that is related to building and placing the materials and objects the most in all age groups (See Example 24). After that, TR2 private speech (See Example 25) and lastly TI private speech is observed in the data. The same kind of u-shape development is noticed as in content of private speech, that is children in the youngest age group produced the highest number of task relevant private speech (TR1 mean=34.1, TR2 mean=8.6). Children in this group also used the highest amount of TI private speech (Mean=7,8).

- (24) CHI 4: Buraya koydum bunu. TR1 (F, 3;6)
I put it here.
- (25) CHI 6: - Hadi televizyonu aç. TR2 (M, 3;1)
Come on, turn the TV on.
 - Hmm, şimdi. TI
Hmm, now.

Following the youngest group, five-year-olds produced higher amount of TR and TI private speech compared to four-year-olds (TR1 mean=27.2, TR2 mean=6.9). Mean number of their TI private speech was 3.0 (See Example 26).

- (26) CHI 25: - Bu da ayna. TR1 (M, 5;3)
This is a mirror.
 - Kendimi görüyorum. TI
I see myself.
 - Şimdi çocuklar (...) merdivenimiz var görmüyor musun? TR2
Now, kids (...) we have a ladder, don't you see?

Lastly, four-year-olds produced the least number of TR private speech although it was still more than the TI private speech (TR1 mean=23.9, TR2 mean=3.6). This group also produced the least mean number of TI private speech which was 2.4 (See Example 27).

- (27) CHI 14: -Baba yatağa yatmış. TR1 (M, 4;6)
The father is in lying on bed.
 - İşe gidiyorum. TR2
I am going to work.
 - Maalesef, maalesef. TI
Unfortunately (When he overlooks the toy house, between two social speech turns with the researcher.)

When all the groups and categories were compared developmentally, there is not a difference among the age groups in TR1 and TR2 categories except for the TI category. Statistical analysis results indicate that three-year-old children produced significantly more TI private speech than four-year-olds ($p=0,012<0,05$) which proves that three-year-olds produce more task irrelevant private speech than the older ones.

After the analysis on language and content of children's private speech is completed, this study further aims to analyze and compare the private speech data with the speech children produced with their mothers while doing the same task. The reason

for this is to reveal the similarities, differences and possible effects of the social speech on private speech.

4.5. Analysis of Mother-Child Interactions

In terms of production of their first language, normally developing children start producing their first words at around year one, and comprehend a lot of input but there are individual differences among them when it comes to production of utterances with more than one word. At around age three, normally developing children complete the basics of the language that they are born into. As they acquire structures of language they also learn appropriate use of these structures. For that reason, when studying private speech, the source to depend on is studies on both the structures and the functions of language they have acquired. Therefore, in this study we present both linguistic properties, content and task relevancy of private speech and the language that children use when they are in conversation with an adult, in this case, their mothers from the same aspects.

Vygotsky (1987) puts great emphasis on the practices that take place within the zone of proximal development where the child and a more experienced adult work on challenging tasks. Under the adult guidance, effective learning takes place, children master problem-solving skills and self-regulation skills that help them deal with a problem when they are on their own. In the previous sections, the analyses illustrated that when dealing with the task, children used their private speech for self-regulation, planning and scaffolding. In the following sections, the resemblance between private speech and the speech children produce when they are in interaction with their mothers while doing the same task is going to be investigated. The mother-child interaction sessions provided a setting for zone of proximal development and helped us analyze both types of speech in terms of similarities and differences so that we can trace the transfer of the language representing characteristics of zone of proximal development from speech with mother to private speech.

Studies have investigated parenting style, especially if maternal scaffolding predicts children's self-regulatory private speech and task achievement when they are in an independent problem-solving situation (Berk and Spuhl, 1995; Winsler et. al., 1999). This study focuses on resemblances of lexical, syntactic characteristics, content and task

relevancy of private speech and the speech that children produce when they are doing the same task with their parents.

This part of the analysis followed the same route with the analysis of children's private speech that was done in the previous sections. Namely, lexical properties, syntactic abbreviation, content and task relevancy of children in their social speech is analyzed and compared with the private speech data of the same children.

4.5.1. Comparison of the Use of Function Words and Particles in Private Speech with the Mother-Child Interactions

In this section, function words and particles that are used by children during their interactions with their mothers while doing the same task that they did when they were on their own is analyzed. When compared to the private speech of the same children, as a natural outcome of the speech in social interaction, the number of utterances in mother-child interactions increased, consequently there is an increase in the amount of function and content words.

When the mean numbers are investigated developmentally among the groups, it is clear to see that there is a decrease in the use of function words and particles as children get older. Mean number of function words and particles that three-year-old children produced was 116.6. Four-year-old children produced 83 function words and particles while five-year-olds used 52 of them on average (See Figure 11).

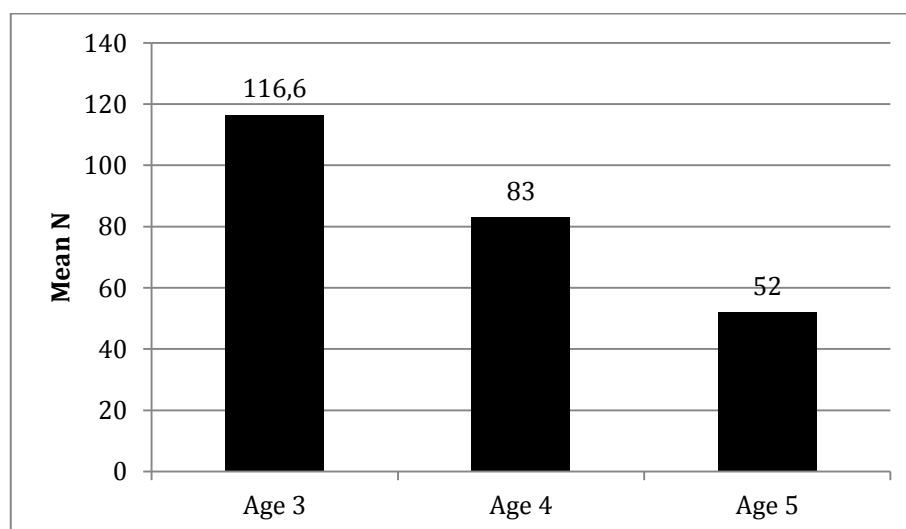


Figure 11. Mean number of function words and particles in mother-child interactions

When function words and particles were analyzed in detail, the results showed that children used demonstratives more than other function words and particles in mother-child interactions. After demonstratives, they used conjunctions, personal pronouns, *-ml* particle and postpositions consecutively (See Figure 12). This order is the same as their private speech productions (See Figure 4).

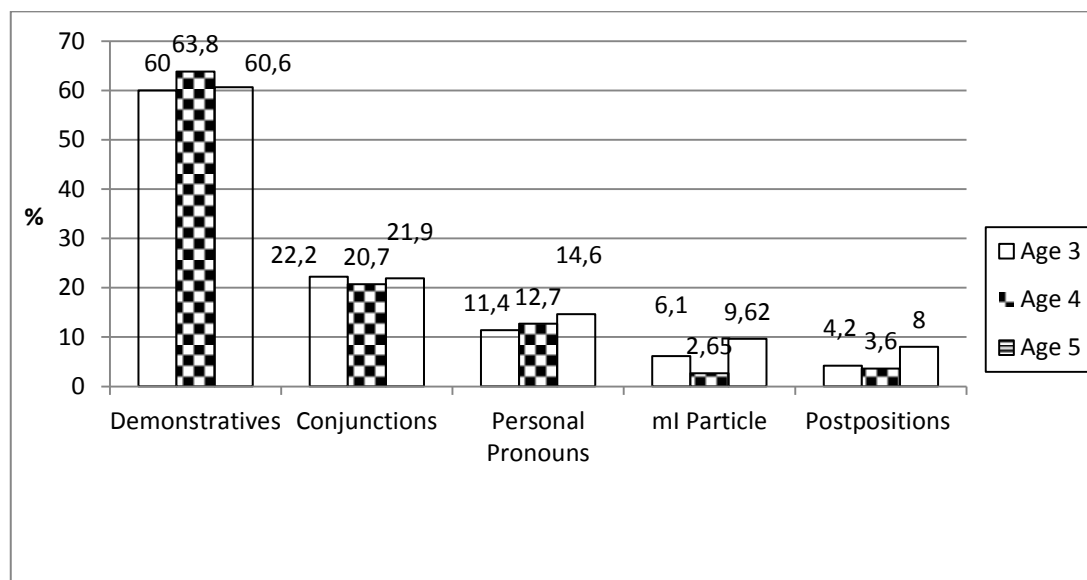


Figure 12. Percentages in total function words and particles in mother-child interactions

As can be seen in Figure 12, in their interactions with their mothers, children used demonstratives more than the other function words just as they did in their private speech. Second most frequently used function word category is conjunctions. When investigated in more detail, it is revealed that the conjunctions in mother-child interactions is both higher in number and more various in terms of the variety of the conjunctions compared to their private speech. Personal pronouns are in the third place before *-ml* particle. The least frequently preferred function words are postpositions.

The following sections are going to present the usages of the function words in mother-child interactions with statistical findings in more detail. In addition, the data is going to be compared with the usages in private speech.

4.5.1.1. Demonstratives in Mother-Child Interactions

In Section 4.1.1.1, demonstratives used by children in their private speech were analyzed and the results showed that children preferred to use *bu* significantly more

frequently compared to *şu* and *o* in their private speech. It was surprising to see that although they were doing the task on their own, they used *şu* which requires addressee's visual attention when we are in interaction in social speech (see page 49 for further results).

In this section, investigating the demonstratives in mother-child interactions revealed similar usages as in private speech. Children in all ages preferred *bu* to the other demonstratives. Among age groups there is not a great difference with four-year-olds' using *bu* more than the other age groups (78,8%) and five-year-olds' using it the lowest (75%) with three-year-olds' using it 77,1%.

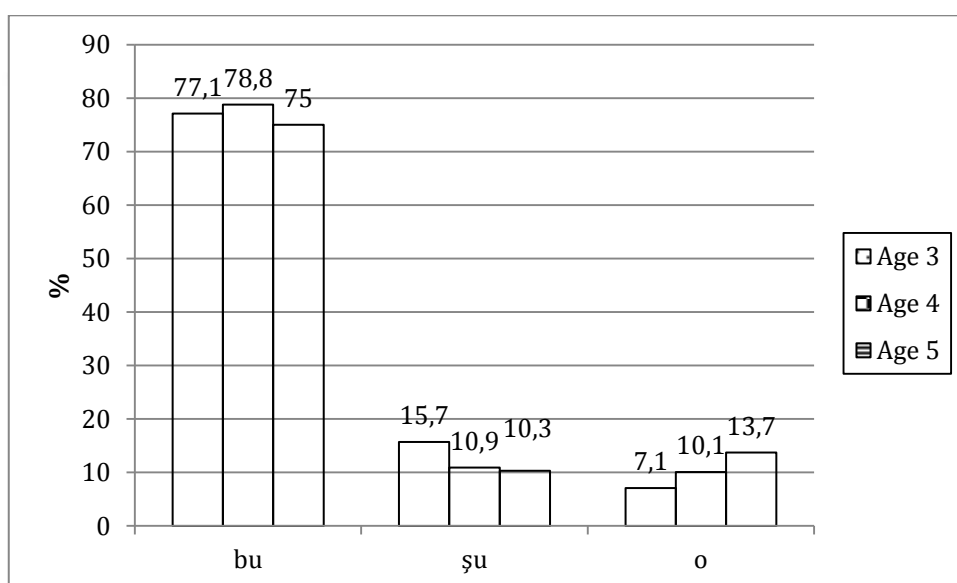


Figure 13. Percentages of each demonstrative in total demonstratives in mother-child interactions.

When the use of *şu* is examined, it is used less than *bu* and is the second most preferred pronoun. It is clear to see that three year olds used it more (15,7%) than the other age groups while the usage of *şu* is almost similar between four and five-year-olds (Four and five-year-olds 10,9 and 10,3 respectively).

O is the least preferred demonstrative preferred by children during their interactions with their mothers. There is not a great difference among age groups, yet it is possible to see an increase as children get older (Three, four and five-year-olds, 7,1%, 10,1% and 13,7% respectively).

If we compare demonstrative usages in private speech and mother-child interactions, overall, the usages are similar, in that *bu* being the most frequently used

demonstrative, *şu* being the second and *o* being the third. However, when investigated individually, in private speech, it is possible to see a decrease in the use of *bu* as children get older while there is not such a trend in mother-child interactions (See Section 4.1.1.1 for private speech data).

Comparing the usage of *şu*, in the private speech, there is an increasing amount in its usage as children get older. In addition, the overall usage is also more than mother child interactions. Five-year-olds used *şu* more when they were on their own, while it is just the opposite in mother child interactions.

The usage of *o* demonstrates some significant differences between private speech and mother-child interactions. In their private speech, children used *o* in very few instances in low percentages, namely 2,8% of it was produced by three-year-olds, 2,3% by four-year-olds and 0,9% by five-year-olds. In contrast to private speech, usage of *o* was significantly more in mother-child interactions in all age groups. More specifically, 7,1% of three-year-olds' demonstratives was *o*, as Kruskal Wallis-H Test reveals, these usages in mother-child interactions are statistically more than their usage in their private speech ($p=0,016<0,05$). 10,1% of four-year-olds' demonstratives was *o* and it was again statistically more than their usage in their private speech ($p=0,004<0,05$). Lastly, five-year-olds' usage of this demonstrative in their mother-child interactions (13.7%) was significantly more than their usage in their private speech ($p=0,007<0,05$). For example, as the child talks about the toy family figures, she says (Example 25):

(28) CHI 4: Onlar biraz çizgi film izlesinler. (F, 3;6)
Let them watch some cartoon.

Overall the results indicate that children used *o* more frequently in their social speech than they do in mother-child interactions. In addition, there is an increase in its usage as children got older which was just the opposite in private speech context.

4.5.1.2. Personal Pronouns in Mother-Child Interactions

In Section 4.1.1.2, personal pronouns in children's private speech were analyzed and the results were presented in detail. The results showed that five-year-old children used the highest number of personal pronouns and the most frequently used personal pronoun was nominative first person singular pronoun *ben* 'I'. They also used overt

subject pronouns more than the other age groups in their private speech (See page 51 for further results).

Looking into the personal pronouns in mother-child interactions, the results are similar to private speech usages. Children used first person singular nominative form more (N=56) than the other personal pronouns. However, there is no usage in dative, locative and ablative forms of personal pronouns in mother-child interactions in the same way as their private speech (See Table 16).

Table 16

Use of Personal Pronouns in Private Speech across Persons and Cases

Singular				Plural		
	First	Second	Third	First	Second	Third
Nominative	56	27	14	1	-	9
Accusative	4	1	-	-	-	-
Genitive	8	-	-	5	-	1
Dative	-	-	-	-	-	-
Locative	-	-	-	-	-	-
Ablative	-	-	-	-	-	-

As is seen on Table 15, due to the interactive nature of social speech, children used far more number of second person nominative pronouns than their private speech in order to address the mother (see Example 29). Third person singular and plural nominatives are notably higher in mother-child interactions during their conversations about the family figures. Example 30 demonstrates one of these usages in plural:

- (29) CHI 28: Anne, sen de yardım et bari. (M, 5;4)
Mom, you help (me) as well.
- (30) CHI 16: Onlar da televizyon izliyorlar. (F, 4;7)
They are also watching TV.

In addition to definite pronouns, children also preferred indefinite personal pronouns. There were eight usages of them namely *kendi*, *hepiniz* and *birisi*. They were all in the subject position and *birisi* was preferred more than the other pronouns.

When the usage of overt subject pronouns were analyzed, in private speech, although there was a fluctuation in their usage with an increase in five-year-olds' group,

(See Figure 6), their usage decreased in mother-child interactions as children got older (See Figure 14). Three-year-olds used 48 overt subject pronouns, while four-year-olds used 33 and five year olds used 30.

One thing that is worth mentioning is the idiosyncratic usages of one of the children in three year olds' group. She used the highest number of overt subject pronouns both in her group and in the entire data. When her usages were investigated, it was figured out that she did not use first person singular morpheme that is added to the predicate from time to time, therefore, in order to indicate that her usage was first person singular, she preferred to use the first person pronoun overtly in the subject position as in Example 31.

- (31) CHI 1: - Ben kapısını kapattı. (F, 3;6)
I closed its door.
 - Ben üşüdü, ben hasta olur.
I am cold, I get sick.

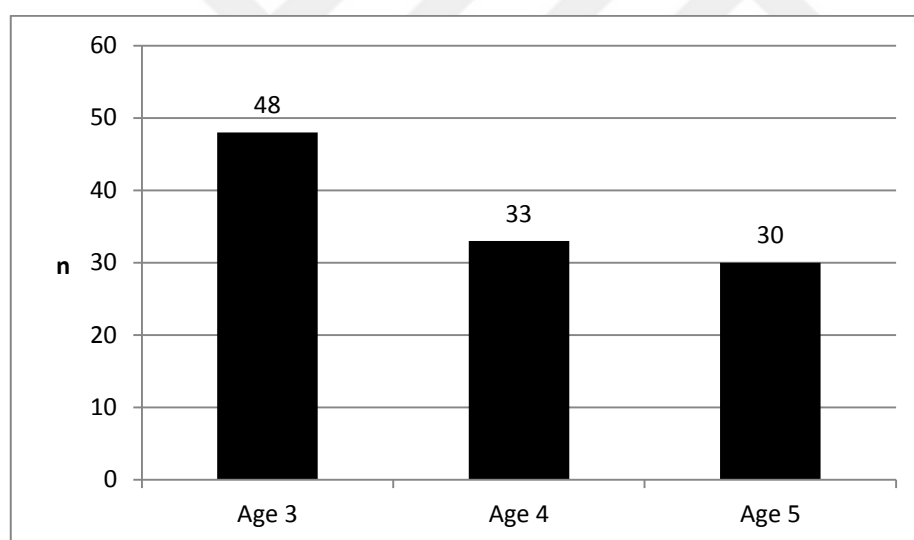


Figure 14. Use of overt subject pronouns in mother-child interactions

Frequent use of overt subject pronouns was also encountered when the child was being precise about who would do the action (Three, four and five-year-olds N=48, 33 and 30 respectively). They used them to emphasize the contrast between the doers (Examples 32 and 33). In addition, they preferred to use overt subject pronouns when they were role playing with toy family characters and allocating their roles (Example 34).

- (32) CHI 15: Çok güzel yapıyorum ben. Sen yapamıyorsun. (F, 4;3)
I am doing it very well. You cannot do it. (When placing household items)
- (33) CHI 19: Ben mutfakta yemek yapıyorum. Sen ne yapıyorsun? (F, 5;0)
I am cooking in the kitchen. What are you doing?
- (34) CHI 28: Ah ben biraz yatayım mı? (M, 5;4)
Oh, shall I have some rest. (When the father character comes home from work tired.)

The results on the overt pronoun usage of the children in their private speech and mother-child interactions present some differences. The first difference is in the amount of them. Parallel to the increasing number of utterances and interaction between the mother and the child, they used more overt pronouns. Another difference is in the developmental trend of the use of overt subject pronouns. In their private speech, five-year-olds produced the highest amount of overt subject pronouns (N=26), then three-year-olds produced the second highest amount (N=14). Four-year-olds used them the least (N=10) in their private speech. In contrast to this, in their interactions with mothers, there was a decreasing tendency in the usage as children got older (Three, four and five-year-olds N=48, 33 and 30 respectively).

4.5.1.3. Conjunctions in Mother-Child Interactions

Conjunctions were among the most notable lexical items in private speech data. Their usage varied across ages, namely four-year-olds produced the highest amount of conjunctions while five-year-olds used them the least in total. However, there was no significance among these differences in the private speech.

Increased number of utterances in mother-child interactions also had an impact on the increased number of different parts of speech. Conjunctions are among the words that were used more in frequency compared to the conjunctions in private speech.

It is clear to see in Figure 15 that across ages, there is a decrease in the number of conjunctions that children used in mother-child interactions. Three-year-olds used 130 conjunctions while four-year-olds used 86 and five-year-olds used 57 conjunctions. The results indicate that three-year-olds' use of conjunctions is significantly more than five-year-olds use of conjunctions ($p=0,028<0,05$).

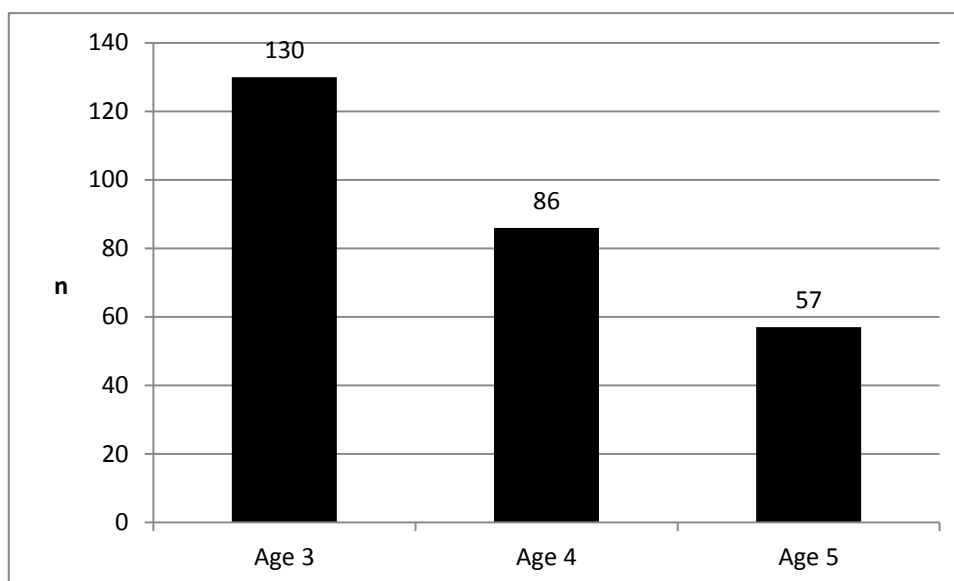


Figure 15. Use of conjunctions in mother-child interactions

When these results are compared with private speech data, it is clear to see that total number of conjunctions that children used in their private speech was less than their productions in mother-child interactions. In addition, the decreasing number in the usage of conjunctions in mother-child interactions is not witnessed in the private speech.

Detailed analysis of the conjunctions in mother-child interactions indicated similar findings compared to the private speech data with some additional conjunctions. In all age groups, *dA* particle is the most frequently preferred conjunction. There is not a significant difference in percentages across age groups, that is four-year-olds' being 75,5%, three-year-olds' being 70.7% and five-year-olds' being 70.1%. Yet, if we examine the mean number of usages, three-year-olds used 18,4, four-year-olds used 13 and lastly five-year-olds used 8 *dA* particle in their mother-child interactions.

Looking into the use of *ama* "but", the percentages indicate that children in the youngest group has the highest percentage (27,6%) while 19,2% of the five-year-olds' produces *ama* and four-year-olds have the lowest percentage (16,2%).

Sonra "then/ later" is another conjunction that is encountered in the data. It had been only used by four-year-olds in the private speech, however in spite of its low usage across age groups, 1.5% by three-year-olds, 4.6% by four-year-olds and 1.7% by five-year-olds used it when they were in interaction with their mothers.

Another conjunction used by children in mother-child interactions was *ve* 'and'. In private speech, there were very few usages only by three-year-olds. In mother-child

interactions, no usages were witnessed in the three and four-year-olds' interactions, but it was preferred three times by five-year-old children (5,2%).

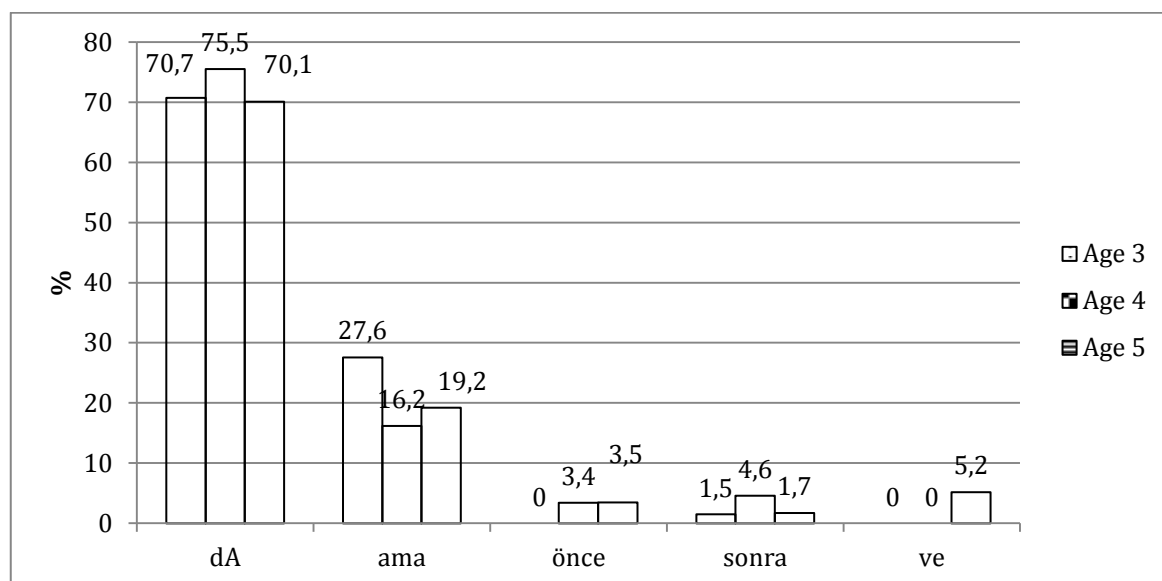


Figure 16. Percentage of each conjunction in total conjunctions in mother-child interactions

In mother child interactions, there is one more conjunction, *önce* “before/first” that was not used by any of the children in their private speech. It is not used by any of the three-year-olds, but four and five-year-old children preferred it in their interactions (3,4% and 3,5% consecutively).

(35) CHI 28: *Önce şunu yerleştirelim yatağa.* (M, 5;4)

First let's place this on the bed. (When placing the piece of cloth on the bed as a blanket)

(36) CHI 17: *Önce şunu, onları yaklaştıralım.* (M, 4;6)

First, let's get that, those closer. (When pulling the chairs closer to him)

In examples 35 and 36, *önce* is used as a sequencer that puts the process in an order rather than combining two statements with its conjunction function. When the other usages are examined in the data, it is realized that all the other usages of this conjunction have the same meaning.

Comparison of the conjunctions in private speech and mother-child interactions revealed that in both contexts, children's preferences of the conjunctions were similar. That is, *dA* is the most frequently preferred particle in the function of conjunction

followed by *ama*, *sonra* and *ve*. Different from private speech data, *önce* is preferred five times in total by four and five-year-olds in mother-child interactions.

4.5.1.4. -mI Question Particle in Mother-Child Interactions

Asking questions and replying them is one of the fundamental parts of communication and a tool for keeping the conversation going. Mutual questions of the mother and the child and their answers to each other were quite common in their interactions while completing the task together. This part of the analysis focused on the questions formed by children using *-mI* particle that is used for forming yes-no questions.

Results indicated that five-year-olds were engaged in exchanges that were formed by *-mI* particle more than the other age groups. 10% of the function words included this particle in five-year-olds' interactions. In addition, 6% of the three-year-olds produced questions by using *-mI* particle. Four-year-olds asked the least amount of questions with *-mI* particle among all the age groups (2,6%). As it can be seen in Examples 37 and 38, question-answer exchanges were an inevitable part of mother child interactions.

(37) CHI 8: Oğlu hatırlamıyor musun? (F, 3;11)

Don't you remember the son?

(38) CHI 19: Anne, bu anneyi oturturalım mı? (F; 5;0)

Mom, shall we get this mother sit? (When placing the toy mother figure on the armchair.)

Children asked these questions to get exact answers or formed pseudo-questions in the flow of the dialogues. In addition to these, they formed tag questions by using *değil mi* for confirmation from the mother in order to move on with the task frequently (See Example 39).

(39) CHI 4: Hala yukarıda çizgi film izliyorlar değil mi? (F, 3;6)

They are still watching TV upstairs, aren't they? (When referring to the toy family members upstairs.)

When we compare the number of the yes/no questions children asked to themselves in their private speech and the ones that they asked to their mothers during their interactions, the results point out that there is an increase in the questions formed

with *-mI* particle during mother-child interactions. The percentages of these questions in private speech utterances are between 3 to 4% in all age groups. This indicates that they formed more questions with *-mI* particle in mother-child interactions which is an expected result due to the interactive nature of social speech as well as the task requiring problems to be solved which lead children to ask questions to the mother.

4.5.1.5. Postpositions in Mother-Child Interactions

Postpositions perform various functions in sentences such as referring to space, direction, reason, and so on. Postpositions produced by children when they are in interaction with their mothers are demonstrated in Figure 12. Overall, the results indicated that spatial postpositions such as *aşağıya* ‘down’ or *içinde* ‘in’ are the most frequently preferred ones in all ages. In addition to these ones, *gibi* ‘like’ *kadar* ‘until’ or *için* ‘for’ are utilized in all age groups (See Examples 40-42).

When the usages were analyzed according to age groups, four-year-olds preferred these words less than the other age groups (3.6%). Most of their postpositions were the ones referring to space together with *ile/(y)lA* ‘with, by’.

(40) CHI 17: Onunla bebekler otursun. (F; 4;6)
Let the babies sit with it.

Three-year-old children preferred these lexical items in the second place (4,2%). In addition to spatial postpositions, there were other usages with *ile/(y)lA* ‘with, by’ and *kadar* ‘until’.

(41) CHI 3: Bunlar televizyon seyretsinler misafirler gelene kadar. (F, 3;6)
Let them watch TV until the guests come.

In five-year-old children’s group, although one of the children did not produce any postpositions at all, they had the highest usage in all age groups (8%). In this age group, they preferred *gibi*, *ile/(y)lA* and *için* together with spatial postpositions.

(42) CHI 24: Kırılmış gibi. (M; 5;3)
It is like broken.

When the results are compared with children's postposition usages in private speech, slight differences as well as similarities can be observed between them. As a natural outcome of social interaction, children used more postpositions when they were in interaction with their mothers. When it comes to the numerical results, it is clear to see that four-year-old children had the highest usages in private speech, but they preferred the least amount of postpositions in mother-child interactions. Five-year-olds had the highest amount of postpositions in mother-child interactions but they were in the second place in private speech.

In terms of similarities, it is clear to see that in both types of speech, children used postpositions referring to space more than the other postpositions. The primary reason for this may be the nature of the task that requires children place the household items into a two-story wooden toy house with four rooms. When we think about the differences such as the amount of postpositions and the age differences observed, it might be concluded that they stem from the task for the first one and for the latter, it might be the result of individual differences among children.

Upon completing the analysis of the function words and particles, noun and verb usages in content words category are going to be analyzed in the following section. The results are also going to be compared with the usages in private speech.

4.5.2. Comparison of the Use of Content Words in Private Speech with the Mother-Child Interactions

In Section 4.1.2, content words in children's private speech were analyzed. The analyses mainly focused on the use of nouns and verbs that have some implications in the private speech literature. The present section investigates noun and verb usages in children's social speech when they were in interaction with their mothers.

Turkish language has some distinctive features in terms of its morphosyntactic structure which is also related to the lexicon compared to Indo-European languages. Studies on different languages show a noun bias but other studies on "verb-friendly" languages such as Korean and Turkish propose that verbs are not necessarily preceded by nouns (Gopnik & Choi, 1995 for Korean; Türkay, 2005, for Turkish.) In addition, in their study, Kauschke, Lee and Pae (2007) found out that German children are better at naming nouns than Korean children or Turkish children until they get five years old, however there is no significant language effect for verb naming. Further, Dhillon (2010)

asserts that the structure of the language was more effective than the input in terms of deciding on the noun bias in early vocabularies of children.

Still, input plays a significant role on the noun bias. The results on the use of nouns and verbs in mother-child interactions are presented in Figure 17.

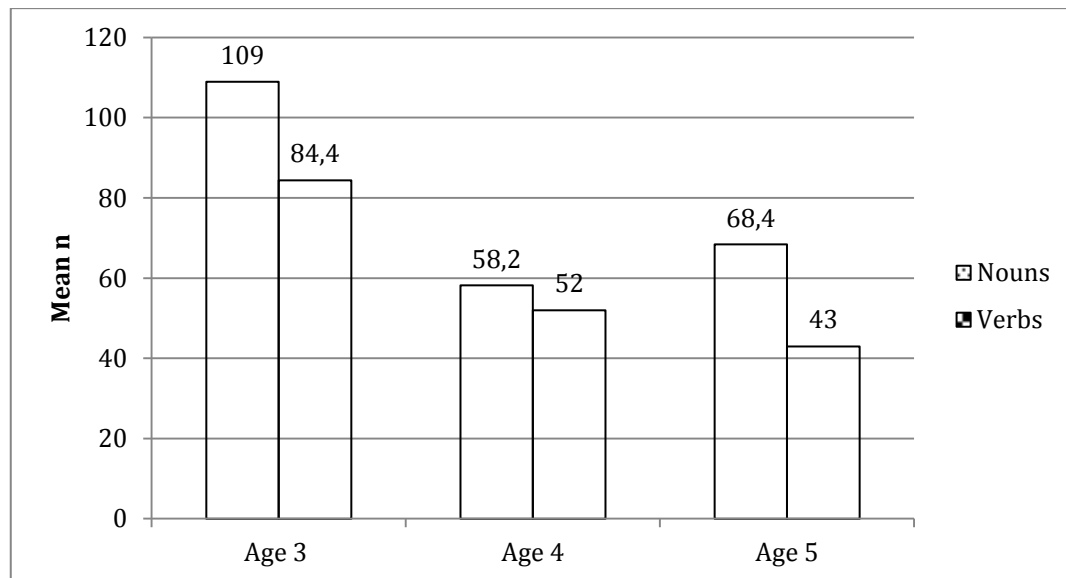


Figure 17. Mean number of nouns and verbs across age groups in mother-child interactions

As shown in Figure 17, mean number of nouns fluctuated across ages. Three-year-old children used the highest number of nouns (Mean=109), five-year-old children followed them (Mean=68) and four-year-olds used the least amount of nouns (Mean=58). In addition to the mean numbers, Kruskal-Wallis-H Test results showed that three-year-olds used significantly more nouns than four-year-olds ($p=0,028<0,05$) and five-year-olds ($p=0,047<0,05$). However, there was no significant difference in terms of noun usage between four and five-year-olds ($p=0,465>0,05$).

As for the verb usage in mother-child interactions, Figure 17 presents that the amount of verbs decrease gradually as children get older. Similar to the use of nouns, three-year-olds used the highest number of verbs (Mean=84), followed by four year olds (Mean=52). Five-year-olds produce the least amount of verbs in mother-child interactions. Statistical tests showed that the verb usage of three-year-olds is significantly more than four-year-olds ($p=0,028<0,05$) and five-year-olds ($p=0,016<0,05$). When four and five-year-olds' use of verbs compared, the results indicated that there is not a significant difference between them ($p=0,465>0,05$).

Looking into the noun and verb usage comparatively, in all age groups, children used more nouns than verbs in their interactions with mothers.

Comparing the results of private speech and mother-child interactions in terms of the use of nouns and verbs, similar to the results of private speech data (See Figure 10), overall, children used more nouns than verbs in mother-child interactions. In the same way, although the mean numbers are high in two tasks, three-year-olds used the highest number of nouns, followed by five and four-year-olds consecutively. Nevertheless, different from the fluctuation in private speech data, there is a gradual decrease in the use of verbs in mother-child interactions.

4.5.3. Analysis of Syntactic Characteristics in Mother-Child Interactions

Present study also aims at investigating syntactic characteristics of mother-child interactions and comparing them with the syntactic characteristics of children's private speech. This section focuses on examining specifically t-units, mean number of words in each t-unit, complete, abbreviated and partially internalized utterances, and clausal complexity of the utterances that children produce when they are in interaction with their mothers while doing the same task.

4.5.3.1 Comparison of the Syntactic Complexity of the Utterances in Private Speech and Mother-Child Interactions

In Section 4.2.1, total and mean number of t-units in private speech and mean number of words in each t-unit were presented. In their private speech, total and mean numbers of t-units were close to each other with four-year-olds' having the lowest number of t-units. Nevertheless, mean number of words in each t-unit showed that five-year-olds used more words in their private speech t-units making longer statements. The same analysis is done for mother child interactions and the results were presented in Table 17.

According to the results in Table 17, there is a developmental decrease in the amount of speech that children produce when they were in interaction with their mothers. Different from the private speech data (see Table 11), youngest children produced significantly more t-units than four and five-year-olds.(671 t-units, mean=134,2) This age group also used more words in their t-units during mother-child session (Mean=3,09) than four (Mean=2,81) and five-year-old children (Mean=2,79).

Table 17

T-units in Mother Child Interactions

Age	n	Total N of T-units	$\bar{x}$	SD	Min	Max	Mean N Words in each T-unit
3	5	671	134,2	35,3	80	169	3,09
4	5	417	83,4	17,9	58	125	2,81
5	5	387	77,4	17,7	59	92	2,79

Overall, when private speech and mother-child interactions are compared, children were more talkative while completing the task with more t-units. It is an expected result of social interaction where there is a more experienced peer who asks questions and facilitates the conversation. When the mean number of words in each utterance is compared in private speech and the speech that children produced in interaction with their mothers, in their private speech, five-year-old children produced longer statements than three and four-year-olds while the results are different in mother-child interactions. Children in the youngest group produced longer sentences in social speech and mean number of words per t-unit decreased as they got older.

4.5.3.2. Completeness/Abbreviatedness of Utterances in Mother-Child Interactions

Literature on the syntax of private speech proposes syntactic abbreviation (Vygotsky, 1986; Wertsch, 1985; Feigenbaum, 1992) with keeping the predicate and leaving out other parts of the speech. In Section 4.2., this study also indicated some degree of syntactic abbreviation in private speech but not in the form of predication.

Further analysis on the syntax of children during interactions with their mothers aims at pointing similarities or differences between these two speeches in terms of syntactic abbreviation. Table 18 presents complete, abbreviated and partially internalized utterances as well as words in complete utterances of the children during mother-child interactions.

Table 18

Syntactic Abbreviation in Mother-Child Interactions

	Age 3 (5 children)			Age 4 (5 children)			Age 5 (5 children)		
	N	Mean	%	N	Mean	%	N	Mean	%
Complete Utterances	671	134,8	89,9	417	83,4	88,3	387	77,4	83
Abbreviated Utterances	77	15,4	10,2	42	8,4	8,8	32	6,4	6,8
Partially Internalized Utterances	3	0,6	0,4	13	2,6	2,7	20	4	4,2
Words in Complete Utterances	2077	3,09	-	1173	2,81	-	1082	2,79	-

According to the results, the youngest children produced the highest amount of complete utterances in their interactions (Mean=134,8). While five-year-olds produced the lowest amount of complete utterances (Mean=77,4). It is possible to follow the same order in the amount of the abbreviated utterances. Mean number of abbreviated utterances that three-year-olds produced is 15,4, four-year-olds followed them with 8,4, and lastly mean number of abbreviated utterances that five-year-olds produced is 6,4.

When it comes to the partially internalized speech in mother-child interactions, different from the results in complete or abbreviated utterances, there is an increase in its amount as children get older. Mean number of partially internalized utterances of three-year-olds is 0,6 while the number increases up to 2,6 in four-year-olds and almost doubles in five-year-olds with 4.

Parallel to the high amount of the complete utterances, words in complete utterances are the highest when children are youngest (Mean=3,09) and lowest when they are oldest (2,79). However the results on the mean numbers of words in complete utterances are close to each other. In spite of the fact that the number of complete utterances and the number of words in complete utterances is the highest in three-year-olds' group, five-year-olds have the lowest numbers in both categories. The reason is that although five-year-olds produced the lowest number of utterances, they produced utterances almost as long as three-year-olds did.

Comparing the results of speech when the child is in interaction with his/her mother with private speech utterances shows both similarities and differences. As children get older mean number of private speech utterances increases in mother-child interactions, on the other hand, the results fluctuate in private speech with three-year-olds' having the highest mean number in complete utterances followed by five-year-olds and four-year-olds.

In addition, abbreviated utterances both in private speech and mother-child interactions decreased as children got older. It should be noted that the numbers are higher in mother-child interactions as children produced overall more utterances when they were in interaction. The results are also similar in partially internalized utterances both in private speech and mother-child interactions. In both contexts, the number of partially internalized utterances increased as children got older.

On the other hand, the results are not parallel to each other in both contexts in terms of the number of words in complete utterances. Although the mean number of words per complete utterance stayed the same in private speech (Mean=2,8) for three and four-year-olds, it raised in five-year-olds' group (See Table 12). However, the results showed a decline in mother child interactions.

4.5.3.3. Clausal Density of Speech in Mother-Child Interactions

Another way of deciding on the syntactic complexity of a piece of speech is to analyze its clausal density. For languages like Turkish, clausal density measures provide results for syntactic complexity. Table 19 presents the results of clausal density in of children in mother-child interactions.

The analyses are conducted in the same way as it was done in Section 4.2.2. According to the results, mean number in three-year-olds is 3,6, four-year-olds 4,2 and five-year-olds 5,9. It is obvious to see that clausal density increases by age.

Table 19

Clausal Density in Mother-Child Interactions

Age	n	$\bar{x}$	SD	M	Min.	Max.
3	5	3.6	2.7	4	.00	7.00
4	5	4.2	4.11	3	.00	12.00
5	5	5.9	3.35	4.25	3.79	12.6

When the results are compared with private speech, it can be concluded that children produce more complex sentences when they are interacting in a social context than they do in their private speech. Their private speech is not predicated, syntactically abbreviated or incomplete as it is suggested in the literature but comparison of private and social speech results reveal that children's private speech is not as complex as their social speech which is an indication of syntactic simplification in private speech.

Analysis on clausal density across ages revealed that as they get older children use denser clauses both in their private and social speech. This finding also contributes to the literature with the analysis of clausal density of Turkish children in toy play setting both in private speech and social speech contexts.

4.5.4. Content of Mother-Child Interactions

In order to analyze the semantic content of mother child interactions and compare them with private speech data (See Section 4.1.5), the same categories in private speech data analysis by Winsler et. al. (2003) was used. Nevertheless, different from the original categories, the "Questions" category which included both the questions and answers of the child in the private speech is divided into two parts; questions to the mother and answers to the mother due to the interaction between the two while doing the task. Additionally, "Commands to the self" category that existed in the content analysis of private speech was altered as "Commands to the mother". The results are presented in Table 20.

Table 20

Content of Mother-Child Interactions in Mean Numbers

	Age 3 (5 children)	Age 4 (5 children)	Age 5 (5 children)
Exclamations	2,2	1,6	1,8
WordPlay/Noises	1,2	0,4	2,6
Description of Self	6,6	8,8	3
Description of environment/task*	48,4	35,6	31,8
Motivational/Evaluative Statements	1,4	1,2	0,6
Plans*	22,2	17,4	9,8
Commands to the Mother	11,8	5,8	2,2
Questions to the Mother*	30	9,6	13,8
Answers to the Mother*	24,6	10	21,8
Transitional Statements	3,4	0,8	2,4
Other	0	0	0
Mean # of Utterances	151	91,2	89,8

As is clear to see in Table 20, children produced the highest amount of utterances that fit into the description of the environment and task category. Three-year-olds produced the highest amount of utterances in this category (Mean=48,4) and four-year-olds followed them (Mean=35,6). Five-year-olds produced the lowest amount in this category (Mean=31,8). The mean numbers decrease as children get older.

Another category that has high amount of usages is “Answers to the mother”. When they were completing the task, children replied their mothers’ frequently asked questions. Three-year-olds (Mean=24,6) and five-year-olds (Mean=21,8) answered their mothers’ questions more than four-year-olds (Mean=10). The results also represent the amount of the questions that mothers asked but these might not be the exact amount of the questions asked by the mothers as children ignored some of the questions of their mothers. Two of these exchanges are provided in Examples 43 and 44.

- (43) MOT: Aynasını nereye koyalım?
Where do we put its mirror?
 CHI 14: Şuraya. (M, 4;6)
There. (He also points at the place with his finger.)
- (44) MOT: Şimdi çocukla ablası neden banyoda yatıyorlar?
Now, why are the kid and his sister sleeping in the bathroom?
 CHI 28: Çünkü sabah olunca banyo yapıyorlar. (M, 5;4)
Because they have a bath in the morning.

Another notable category is “Questions to the mother”. In this category, three-year-olds asked significantly more questions (Mean=30) than other four-year-olds (Mean=9,6) and five-year-olds (Mean=13,8). The results follow the similar order as in the “answers to questions” category. Questions and answers to the mother categories together make up the most frequently preferred utterances by the children due to the interactive and collaborative problem solving nature of the task. Example 45 illustrates a typical question-answer exchange by one of the three-year-olds who asked the highest number of questions to his mother in his age group.

- (45) CHI 6: X’in babası nerede? (M, 3;1)
Where is X’s father?
 MOT: Şurada bak.
Right there, look.
 CHI: Şurada mı? Bu ne?
There? What is this?
 MOT: Bilmem.
I don’t know.
 CHI: Bu X’in babası. X’in babası nerede?
This is X’s father. Where is X’s father?
 MOT: Koltukta uyuyor her zamanki gibi.
He is sleeping on the couch as usual.

For the purpose of statistical analysis, the data in *questions to the mother* and *answers to the mother* categories were gathered and analyzed together. In order to identify any age effect on the use of these categories, Kruskal-Wallis-H Test was applied. The results indicated that the difference between three and five-year-olds is not statistically significant ($p=0,116>0,05$). However, the difference between the usages of three and four-year-olds and four and five-year-olds was statistically significant (for three and four-year-olds $p=0,009<0,05$ and for four and five-year-olds $p=0,045<0,05$). In brief, three and five-year-olds were engaged in question-answer exchanges

significantly more than four-year-olds. In addition, although three-year-olds produced the highest amount of questions and answers to the mother's questions, the difference between three and five-year-olds was not statistically significant as stated earlier.

Plans, commands to the mother and description of the self are among other notable categories. Wordplay and noises, Exclamations and Motivational/Evaluative Statements are among the categories that had the least amount of usages consecutively.

One thing that also grabs attention is that the speech of three-year-olds had the highest usages in all the semantic categories except for description of self and wordplay and noises categories. After three-year-olds, the mean number of usages decreased through four and five-year-olds with lower number of usages.

When the semantic content of private speech and mother-child interactions were compared, the results indicated that there are both similarities and differences between them. In both tasks, the highest preferred semantic categories were the same: description of task, questions and plans consecutively. This indicates that the semantic content of private speech was similar to the social speech. In addition to that, motivational/evaluative utterances were the least produced ones in both speeches. On the other hand, while three year olds produced the highest amount of usages in almost all the categories, it is not possible to generalize the same to the results in mother-child interactions as there were differences across categories and ages.

4.5.5. Task Relevancy in Mother-Child Interactions

Task relevancy in private speech has implications for self-regulation and social behavior of the child. In Section 4.4, results of task relevancy in private speech were presented. In this section, task relevancy in social speech is analyzed with the same categories used in private speech data analysis, namely task relevant 1(TR1), task relevant 2(TR2) and task irrelevant (TI) and the results are provided in Table 21.

Table 21

Task Relevancy in Mother-Child Interactions

	Age 3 (5 children)	Age 4 (5 children)	Age 5 (5 children)
Mean n of Utterances	151	91,2	89,8
Task Relevant 1	114,2	71	56,6
Task Relevant 2	29,2	10,4	24,2
Task Irrelevant	7,2	10,2	5,2

As it is observed in Table 20, in most of the interactions with the mothers, children's speech was in TR1 category which includes utterances about where things should go and some definitional items about what something is. Then, in all age groups, children's speech belonged to TR2 category which includes more fantasy elaboration about the items and how they refer to the child's own life. The third category was TI speech in all age groups. The usages varied across ages. In that, three-year-olds produced the highest amount of TR1 (Mean=114,2) and TR2 speech (Mean=29,2) while four-year-olds' TI usages were the highest across ages (Mean=10,2).

These results were also compared with private speech data (See Table 14). The comparisons indicate that both in private speech and mother-child interactions children's speech most of the speech was TR1 in all age groups. This means that they did not wander away from the task and topic at hand. Within the age groups, the second highest amount of the speech was TR2 in both contexts. In the private speech, the highest amount of TI private speech was produced by three-year-olds and the lowest by four-year-olds, on the contrary to that, it was four-year-olds who produced the highest amount of TI speech in their interactions with their mothers.

4.6. Summary

In this chapter, linguistic, syntactic, content, and task relevancy analyses were completed both in private speech. Overall, the results revealed that certain lexical items such as demonstratives and *dA* focus particle were used very frequently which is an indication of performing various functions of private speech. The results also put forward that Turkish private speech is not abbreviated or predicated as it is suggested in the literature. Content of the private speech pointed out what children actually do when they utter private speech. In addition, task relevancy results demonstrated that task relevant private speech does not increase significantly, but there is a decrease in the task irrelevant utterances as children got older. Then, the analyses consisted of the comparisons of these results with the results of the speech that children used when they were doing the same task with their mothers. The results revealed both similarities and differences between private speech and social speech. The differences are expected for both types of speech being uttered under different circumstances and in different settings. The similarities pointed out the social roots of private speech.

CHAPTER 5

DISCUSSION

5.0. Introduction

The present study was carried out with the aim of investigating various linguistic properties, content, and task relevancy in private speech and comparing the similarities or differences with the speech that children produce when they are doing the same task with their mothers. In order to explore the above-mentioned purposes, a task that would elicit the highest amount of private speech was designed and data was collected in two stages. In the first stage, 28 children from three different age groups, namely three, four and five year olds, were video recorded while playing with a wooden toy house that had removable pieces on their own. In the second stage, 15 children from the same age groups and their mothers were video recorded while doing the same task.

After transcribing the video recordings, the data was analyzed according to various linguistic properties, namely, lexical properties such as function words and particles and content words; syntactic properties, content and task relevancy. The findings presented various linguistic and content properties of Turkish children's private speech. The results were also compared with the same analyses conducted to the data that was gathered from the mother-child interactions and various similarities and differences were presented.

This chapter discusses the results with the findings in the existing literature. Discussions are presented in the order of the research questions listed in Chapter 1.

5.1. Discussion

In this section, discussions of the findings will be introduced using the research questions as a framework. The findings will be interpreted and discussed on the basis of the literature presented in Chapter 2 and the results of the present study presented in Chapter 4.

The present study investigated various linguistic properties of private speech and social speech. The data was analyzed in terms of lexical, syntactic, content, and task relevancy features.

Research Question 1

1. What are the lexical characteristics of 3-5 year olds' private speech?
 - a. What are the function words and particles used by children in their private speech?

For the analysis of lexical properties, initially, the words were grouped as function and content words. In the function words category, particles were also included in this category because some functions are performed using particles in addition to words. Thus, demonstratives, personal pronouns, conjunctions, *ml* question particle and postpositions were investigated. In the content words category, only nouns and verb usages in private speech were examined due to their implications in private speech literature (Vygotsky's predication, 1934/1986; Pellegrini, 1981).

Considering function words and particles, the first category was demonstratives. In the private speech of children, it is not expected to see demonstratives for keeping mutual attention as children are on their own when they are producing private speech. However, the results of this study showed that there was not a significant age effect across the groups regarding the use of demonstratives. Yet, when we consider all the function words and particles, demonstratives were used the most. Among all the demonstratives, *bu* was the most frequently used one followed by *şu* and *o*. The frequent use of *bu* in private speech is in line with the findings in the literature on the use of this demonstrative in social speech. The reason might be the proximity of most of the objects to the child while he/she is playing. In addition, they use this pronoun as the objects are in the visual attention of the children as stated in the social speech literature earlier.

When the use of *şu* is focused, in social speech, although adults take the visual perspective of the addressee when using *şu*, according to Küntay and Özyürek (2006) four-year-olds basically use it to draw attention but six-year-olds use it keeping the distance and visual attention of the addressee in mind. In general, they revealed that unlike adults, children prefer to use *bu* to *şu* in social speech. Özyürek (1998) explains that in adult discourse, *şu* does not necessarily encode distance away from the speaker. It could be used as a variation of *bu* and *o* in discourse. She claims that *şu* might encode "The new versus old mention of the object referred to in the context and to focus the attention of the interlocutors on important referents and to establish orientation" (p. 608). Göksel and Kerslake (2005) also suggest that speakers almost always use *şu* when the speaker is drawing attention for the first time; therefore, it is usually accompanied

by an ostensive gesture. This suggestion on social speech indicates that the speaker takes the addressee into consideration when using *şu*. When it comes to the results of the present study, parallel to the usage in social speech as Küntay and Özyürek (2006) reveals, in private speech children used *şu* less than *bu*, with a difference in the increase in the amount of *şu* in private speech. In line with Özyürek (1998) study on adult social speech, the reason might be explained with the fact that it is used as a variation of *bu* and *o* as speakers do in social speech. In addition to this, encoding the distance of the referred object to the child might be another reason for using this demonstrative in private speech.

Another demonstrative that was found in the present study is *o*. Children did not prefer it very frequently, yet there are a few usages of this demonstrative in every age group. As the literature in social speech suggests, *o* is preferred when the referred object is distal and out of the visual attention of the addressee. Children used *o* in very few instances, as there is no conversation partner while doing the task, that is, the objects are proximal to the child without an addressee present in the setting. Consequently, we can say that the type of the task had an effect on the limited use of *o*.

In this study, in children's private speech, they used demonstratives which are used for drawing attention to provide joint attention and pointing very frequently at earlier ages. Therefore, it can be concluded that children are externally alone in these sessions and in their private speech, in fact they seem to rehearse the conversations that they previously had with the adults. Thus, the language of the private speech resembles the language of common interaction with adults which provides a setting for zone of proximal development which is the problem solving process of children and adults together.

As to the use of personal pronouns, in Turkish, it is optional to use personal pronouns as subjects in sentences. Yet, overt usage of these pronouns has some pragmatic implications. It is proved that speakers use them to emphasize, express contrast, distinguish given/new information, ask questions or command (Erguvanlı, 1984; Enç, 1986; Turan, 1996; Ekmekçi and Sofu, 1995). In this study, it is found out that children use first person nominative pronoun more than any other pronoun in their private speech. It is also revealed that use of overt personal pronouns and overt subject pronouns increase by age and they are used more frequently by five-year-olds than the younger age groups. As children get older, it is observed that there are certain changes in the content of private speech where older children produce richer context with

dialogues in various scenarios, thus overt use of subject pronouns is observed especially in these dialogues. Therefore, frequent use of overt subject pronouns by older children might be explained with the increase of the richer context in their private exchanges.

Investigating the use of conjunctions and particles that serve to connect items in the present study, *dA*, *ama*, *sonra* and *ve* were encountered with consecutive frequency. Examining the details of these conjunctions revealed that, *dA* is the most frequently used one in all age groups and it is used significantly more than the other conjunctions. Göksel and Özsoy (2003) state that *dA* is generally defined as a clitic which has focalizer, topicalizer, additive, and intensifier features. They explain its role by separating its meaning from focusing, in that “focus evoking a set of alternatives to an utterance and *dA* asserting the truth of one of these alternatives” (2003, p. 1143). Hence, in the setting of the present study, task limitation has an effect on the choice of lexical items. As children are continuously placing the pieces, trying to complete the task and planning a setting for the toy family, they speculate about various household pieces and decide on one of them and place it to the most appropriate location decided by them. Therefore, once they decide on the correct alternative and put all the focus on that one, they use or place that piece in the company of utterances that contain *dA* particle.

dA is followed by *ama*, *sonra* and *ve*. In the private speech data, although it is used significantly less than *dA* particle, *ama* is preferred in the second place for providing contrast and expressing negation as a requirement of the task. *Sonra* has a few instances in only four-year-olds’ group and *ve* has very few usages by only one of the three-year-old children. Göksel and Kerslake (2005) state that *ve* ‘and’, a particle borrowed from Arabic, conjoins all types of phrases and clauses, and can function both as a conjunction and as a discourse connective” (p. 441). Yet, contrary to its frequent and early usage in English, it is not preferred very frequently with its additive meaning in especially child discourse in Turkish due to its infrequent use in spoken language. Instead of *ve*, *ile/(y)lA* is attached to non-case-marked noun phrases in order to perform conjoining function, yet with slight differences in the usage between the two (See Göksel and Kerslake, 2005 for further function and usages of *ve* and *ile/(y)lA*).

Conjunctions are also used for sequencing events in story telling context and/or to keep the conversation going and provide continuity in dialogues. In that respect, in this study, as the main purpose of children is to complete the task on their own, they do not prefer to use other conjunctions which have more communicative values.

In the private speech data, questions formed with *-mI* particle which require yes or no answers from the addressee are also encountered with low usages. These usages might be interpreted as pointing the dialogical thinking and verbal regulatory strategies in order to guide their own behavior (Winsler, 2009).

The last group of lexical items observed in the data is postpositions that serve similar function as prepositions in English. In the order of morphological acquisition, spatial prepositions are among the earliest and most frequently preferred ones in English. In his fundamental study, Brown (1973) found that children start to produce spatial prepositions *in* and *on* in the first stage of their morphological development in their social speech. In the present study, *içinde* ‘in’ and *üstünde* ‘on’ are common postpositions in three, four and five-year-olds’ private speech. Three-year-olds’ using these two postpositions is also an indication of the early acquisition of them in their lexical development in social speech.

From the perspective of postpositions in private speech, it is observed that spatial postpositions were encountered more than the other postpositions. Four-year-old children used them more than three and five-year-olds. In four-year-old children’s group variety of these words was also more than the others. Still, postpositions did not have a high frequency among other function words and particles. One of the reasons might be the high usage of demonstratives. In that, instead of using spatial postpositions such as *içinde* ‘in’ or *üstünde* ‘on’ the child expresses its place by using a demonstrative. It is also possible that in their mind, they already know the place of the piece and instead of articulating them, they perform the act.

b. Do children prefer verbs or nouns among content words in their private speech?

Another category of words investigated in this study is content words. However, only nouns and verbs were investigated due to the implications of their usage for private speech literature. Kauschke, Lee and Pae (2007) summarize that in spontaneous social speech, verb friendly languages like Turkish permit the systematic reduction of nouns and noun phrases. They also state that due to the sentence final positioning of the verbs, and regular and transparent verb morphology, their accessibility increase and they hold pragmatic focus on actions. In their study with Turkish-Dutch bilingual children, Özcan, Altınkamaş and Gillis (2016) found out that these children acquire nouns before verbs as monolinguals of these languages do. As to the use of nouns and verbs in private speech, Pellegrini’s (1981) findings put forward that children use words related to

objects and locations more than the words related to actions, as they already know how to place the item that is the action. He suggests that the new information that is worth mentioning is the object and its location. When the results of the content words in private speech were investigated, it is revealed that children in all age groups produced more nouns than verbs. As a verb friendly language, contrary to the expected frequent usage of verbs similar to social speech, children used more nouns in their private speech which is parallel to Pellegrini's (1981) findings.

Research Question 2

2. What are the syntactic characteristics of Turkish private speech?

a. Is the syntax of 3-5 year old children's private speech abbreviated/incomplete in the same line with Vygotsky's 'predication'?

Abbreviation of private speech is related to its nature that includes only the essential parts of the activity as the speaker is already familiar with who the subject is and what the objects are (Vygotsky ;1986, Pellegrini; 1981 and Feigenbaum, 1992). Therefore Vygotsky proposes gradual predication which refers to "omitting the subject of a sentence and all words connected with it, while preserving the predicate" Vygotsky, 1934/1986, p. 236). As private speech is more like social speech in early ages and it becomes predicated as the child gets older. As mentioned earlier, in Turkish, the use of overt pronominal and lexical subjects is optional and their use is determined by discourse-pragmatic factors (Kornfilt, 1984; Enç, 1986,Erguvanlı-Taylan, 1984; Özsoy, 1987; Sofu, 1995; Öztürk, 2001). Hence, if there is no need to emphasize, change the topic or to use the overt pronoun for another reason, they are not used overtly. Also the predicates in Turkish are marked in terms of person, tense and modality, and a predicate is able to hold all the essential components of a sentence on its own. Findings of the present study do not suggest that predication and syntactic abbreviation decreases as children get older. Therefore, present results do not support Vygotsky's syntactic abbreviation and predication possibly due to Turkish being an agglutinative and pro-drop language.

As predication in private speech defined by Vygotsky does not apply to Turkish language, the number of abbreviated and partially internalized utterances was investigated. It is revealed that there is a gradual decrease in the amount of abbreviated utterances, yet this difference was not statistically different. In this respect, the mean number of abbreviated utterances does not suggest syntactic abbreviation for Turkish.

In order to trace the internalized nature of private speech as it goes underground to inner speech, Winsler et. al. (2003) also analyzed mean number of words per utterance. They found that the elaborateness of private speech utterances decreases by age in that three-year-olds' private speech utterances were longer than those of four-year-olds. The same kind of analysis on the present data revealed that although three-year-olds produced more private utterances than the older groups, there is no statistically significant difference between the mean numbers of words per utterance across age groups. These results do not support the findings of Winsler et. al., (2003).

Another implication of syntactic abbreviation is the amount of partially internalized utterances. The results demonstrate that children produced more partially internalized utterances as they got older. Therefore, it could be concluded that syntactic abbreviation is traced in the increasing amount of partially internalized utterances in Turkish private speech. This finding is in line with Winsler et. al. (2003) who also state an increase in the amount of partially internalized private speech as children get older and accept it as an indicator of the internalization of private speech.

- b. Is there any change in the clausal density of 3-5 year old children's private speech?

In addition to analyzing syntactic abbreviation by looking into complete, abbreviated and partially internalized utterances, present study investigated clausal density of private speech. Clausal density analyses indicate that clausal complexity of both private and social speech utterances increase as children get older. This means that children do not produce simpler utterances in their private speech as they get older. Therefore, analysis on the syntactic complexity which has not been conducted on the private speech studies before also does not display a simplification or abbreviation in private speech syntax.

Overall, the results revealed that syntactic abbreviation is witnessed in the present data however it is not in the same form as the studies in other languages suggest due to the agglutinative nature of Turkish. On the other hand, results supported the gradual internalization of private speech as older children produce more partially internalized private speech than the younger ones. In addition, there are more children who produced inaudible private speech in five-year-olds' group indicating that as private speech turns into inner speech, it becomes less overt and gradually it goes underground.

Research Question 3

3. What is the content of utterances children use in their private speech?

In the present study, content of private speech was explored. Private speech utterances were classified into 10 semantic categories formed by Winsler et. al. (2003) who used a problem solving task with three and four-year-olds with the aim of investigating developmental change of private speech, syntactic abbreviation and task relevancy. The results of our study revealed dissimilarities in some of the categories which might be due to the nature of the tasks in the two studies. When similarities of the present study is compared with Winsler et. el.'s (2003) study, both in Turkish and English, children used the highest amount of private speech for description of the task. Similarly, in this category the amount of the usages by three-year-olds decreased when compared to four-year-olds' group in both studies. In the same line, Rubin (1979) proposed that making comments on one's own activities and feelings have the chance to "make young speakers aware of their own actions and of their own separate existences" (p. 291).

In Winsler et. al. (2003) study, usages in *description of the task* are followed by *other, transitional statements*, and *description of own activity* categories. However, in Turkish, description of the task category is followed by *questions to the self, plans* and *descriptions of own activity* categories. Turkish children asked more questions to self and used planning function more than the ones in Winsler et. al (2003) study. Furthermore, although the usages in planning category decreased in the older age group in their study, in the present study, children used more planning statements as they got older. Therefore, high usages of descriptions of the task and the self, questions, and plans in Turkish preschoolers' private speech confirm Vygotsky's (1934/1986) claims of the self-regulatory function of the private speech.

Age related differences within the same category might be explained by the findings of Winsler, Carlton and Barry (2000). They found that "most four-year-old children's private speech occurred during the tacitly structured, self-selected activity classroom setting, focused, goal-directed activity and in the context of sustained activity. Whereas, three-year-old children's self-talk was more evenly distributed across the classroom contexts, more equally likely to appear during either goal-directed or unfocused activities, more equally likely to occur during either sustained or rapidly changing activities" (p. 680). They also interpret that four-year-olds tend to use private speech where it can serve its self-regulatory function more productively. As also stated

by Johnson and Ershler (1981) compared to younger children, older children are more likely to keep their task behavior for longer periods of time, create more complex play, and interact in cooperation with others.

In line with the above-mentioned literature, there are differences in the mean number of usages in the content of the utterances. In that, in most of the content categories including *description of environment and task* and *questions to self*, three year olds produced the highest amount of utterances than the older ones. In addition, utterances for planning increased as children get older proving that private speech provides self-regulatory function more with age.

Research Question 4

4. Are children's productions in private speech task relevant or not?

In the present study, task relevancy of children's private and social speech is analyzed. Vygotsky proposed that children's private speech became more task relevant as they got older. Although there is not a great difference in the mean number of utterances in terms of task relevancy, the results showed that three-year-olds' TR1 and TR2 private speech is higher than the other two age groups. Following three-year-olds, five-year-olds' private speech was more task relevant. Four-year-olds had the least TR1 and TR2 private speech utterances. It is interesting to see that there is a decrease in task relevant statements in four-year-olds' group where it is expected to increase. Winsler et. al. (2003) found similar results in their study, in that, three-year-olds' private speech was more task relevant than four-year-olds'.

On the other hand, findings of the present study revealed that three-year-olds' mean number of task irrelevant utterances were higher than the other age groups where there was a decrease. Thus, this result might be the evidence for Vygotsky's claim stating that private speech becomes more task relevant as children get older. Winsler et. al (2003) also suggest that there are always individual differences in private speech among children. They provide evidence that these differences in children's private speech "are associated with differences in children's observed self-regulatory behavior in the classroom" (p. 605).

Compared to children's interactions with their mothers, a similar result is realized in some aspects. Three-year-olds' TR1 and TR2 speech was higher than the other age groups. Here, it should be noted that three-year-olds produce the highest amount of mean number of utterances than the older ones. This might be the reason of

these high usages. Just as they do in their private speech, task irrelevant utterances of five-year-olds' social speech is the lowest.

Research Question 5

5. What are the similarities and differences between the children's private speech and the language they use when they are in interaction with a person present?

Data for the present study was derived from two sources, in two stages. First of all, private speech data was gathered from children in three different age groups when they were completing the task. After that, in the second stage, the same task was completed with five of the children in our groups and their mothers in order to compare the private and social speech of children in various linguistic and contextual aspects.

The results of this comparison demonstrated both similarities and differences in private and social speech (See Appendix 3). The similarities can be listed as follows. In both types of speech, function words and particles which include demonstratives, conjunctions, personal pronouns, *-mI* question particle and postpositions are used in the same order of frequency with slight differences across ages. In addition, the frequency of the demonstratives *bu*, *şu* and *o* is the same with *bu* being used the most frequently followed by *şu* and *o*. In the same way, in both types of speech, conjunctions were *dA*, *ama*, *sonra* and *ve* consecutively with an additional one, *önce*, in social speech which is explained with more interactive and communicative nature of social speech leading to a variety in the use of conjunctions. It is also found out that there are more nouns than verbs in both types of speech due to the need for naming objects and locations more than the actions, similar to Pellegrini's (1981) study. In terms of postposition usages, in both types of speech, spatial postpositions were preferred more than the others. This might be due to the nature of the task that requires placing items in suitable places in the toy house.

Another similarity between private and social speech is that the use of abbreviated utterances show a decrease in both social and private speech contexts. On the other hand, partially internalized utterances demonstrated an increase in both contexts.

We can explain the reason for the decrease of abbreviated utterances in social speech by referring to Vygotsky (1986) who explains that social speech may also have an abbreviated character due to both parties' being familiar with the topic at hand and

feeling the uselessness of all the constituents of the sentence. In the same way, Goudena (1992) explains that not only adults, but also young children produce abbreviated social speech when interacting with an adult in a task setting. This abbreviated nature of social and private speech provides evidence for private speech being the continuation of social speech and sharing similar characteristics as also stated by Wertsch (1979). In line with the findings of the present study, Goudena (1992) asserts that three and four-year-olds are used to forming abbreviated utterances in their social speech during collaborative problem solving tasks due to being familiar with the focus of attention, which is also assumed as given information. It should be noted that in Goudena's study abbreviated utterances refer to the predicated ones which is not equivalent to the abbreviated utterances in Turkish.

The last similarity is partially internalized utterances that display an increase both in private speech and in social speech. This result is parallel to the findings in the literature (Vygotsky, 1978; Kohlberg et. al., 1968, Winsler, 2003) and demonstrates the most precise proof of abbreviation of Turkish private speech.

Analyses on the semantic content of private speech also demonstrated similarities between private and social speech. Both private speech and social speech contained the highest amount of usages that include *description of the task*, *questions* and *plans*. In addition, in both contexts, *motivational* and *evaluative* statements were the lowest. This similarity in the semantic content and order of usage is parallel with Vygotskian theory, which asserts that content and language of private speech is a continuation of social speech, more specifically that of the zone of proximal development. Vygotsky proposes that through language, children are able to regulate their behavior, in that, private speech helps children develop their behavioral self-control and self-regulation. In the present study, in their private speech, by describing their own actions, asking questions and planning, children try to draw a frame of the task and plan for the solutions just as they do when they are with a more experienced other in the zone of proximal development. Consequently, in line with Vygotsky's theory, in the present study it is proved that the language and content of private speech is a continuation of social speech.

Another researcher who studied characteristics of private speech and social speech is Mang (1998). Parallel to our findings, Mang (1998) found out that private speech and social speech which was obtained in a similar context as in our study, shared

similar dialogic features and content and structure of private speech is similar to that of social speech.

On the other hand, comparing private speech and social speech revealed certain differences between the two. About the differences between private speech and social speech in general, Furrow (1984) explains that in social speech, regulatory, informative and attention related functions are more than private speech, while self-regulatory, expressive and describing one's own activity functions are encountered more in private speech than in social speech. He asserts that particular functions like regulatory functions need social interaction before its consequences, while others like self-regulatory functions do not need this intervention. This might be one of the reasons of the differences between private and social speech. Specifically about this study, the differences between private speech and social speech can be summarized as follows. In line with the expectations, there are more utterances in social speech than in private speech. The reason might be due to the requirement of frequent interactions between the mother and the child during such a problem solving context and also the mother's facilitation of interaction. Another difference is that utterances in five-year-olds' private speech were longer with more words when they interacted with another interlocutor. This finding is opposite to the findings in the literature in that private speech shows a tendency to be abbreviated and internalized as children get older (Vygotsky, 1978; Feigenbaum;1992, Berk and Spuhl, 1995; Winsler et. al., 2003). Compared to private speech, utterances of three-year -lds social speech were slightly longer than the other age groups. The reason might be because young children enjoy it when adults take them as conversation partners, ask questions, and provide opportunities to respond and keep their right to speak (Pan and Snow, 1999). In addition, in private speech, the mean number of function words in total tended to show a decrease in three and four-year-olds' but increased in five-year-olds' private speech. The reason for this might be the lexical growth and keeping the language of zone of proximal development and using more demonstratives as in adult-child problem solving situations, instead of using the actual words that is the content words. However, in social speech, function words and particles demonstrated a developmental decrease from age three to five. It could be interpreted that the decrease in function words and particles is both related to the decrease in the amount of utterances and the change in the content of the speech as children get older. When they get older, the function of the speech shifts from just pointing at the objects

by using demonstratives to problem solving language which is more complex and requires a richer context with the use of content words.

A similar decrease can be observed in the use of overt subject pronouns. While their amount fluctuated across age groups in private speech with an increase at the age of five, it displayed a decrease in social speech. Five-year-olds used overt subject pronouns more frequently in their private speech when they were playing with the toy family figures, allocating roles to them and getting them do their part. Feigenbaum (1992) explains such a difference among older children with the evolution of the structure and purpose of the private speech from just pointing at the object to problem solving language which is more complex and rich in content. However, about the decrease of overt subject pronouns in the social speech, it could be assumed that older children are more aware of the subject and focus of attention and do not need to articulate them when they were in interaction with mothers.

Furthermore, although nouns outnumbered verbs in both speech contexts, amount of verbs fluctuated across ages in private speech, but there is a decrease in the amount of verbs in social speech. The reason might be the dialogical nature and ongoing tension of the mother-child interactions and problem-solving task. As children get older, we can assert that they are involved in more complex language and play. In the present study, mothers and children first placed the household items and created a make-believe play context with the toy family figures. During these exchanges, children might be dropping the verbs when responding mothers as well as focusing on what things are and where they should go rather than what they do. Additionally, another reason might be when they are doing the task together and sharing the joint attention, they do not need to utter words related to actions as they are already performing them physically.

5.2. Summary

In this chapter, findings of this study were presented along with research questions and discussions of the related literature. The discussions included lexical features, syntactic abbreviatedness, content and task relevancy of private speech. In addition, similarities and differences of private speech and mother-child interactions were discussed in various linguistic, semantic and syntactic aspects.

CHAPTER 6

CONCLUSION

6.0. Introduction

In this chapter, conclusions and implications of the present study in English Language Teaching field are presented. It also includes recommendations for further studies to be conducted in this area.

6.1. Conclusion

This study aimed to investigate various linguistic properties of Turkish children's private speech. More specifically its purpose was to demonstrate lexical, syntactic, content, and task relevancy features. It also intended to compare all these features with the speech that children used when they were in interaction with their mothers that is social speech. It is presumed that as a typologically different language from Indo-European languages, Turkish would demonstrate certain the linguistic properties which are different from the languages in private speech literature so far. In order to address these issues, the following research questions were formed:

1. What are the lexical characteristics of 3-5 year olds' private speech?
 - a. What are the function words and particles used by children in their private speech?
 - b. Do children prefer verbs or nouns among content words in their private speech?
2. What are the syntactic characteristics of Turkish private speech?
 - a. Is the syntax of 3-5 year old children's private speech abbreviated/incomplete in the same line with Vygotsky's 'predication'?
 - b. Is there any change in the clausal density of 3-5 year old children's private speech?
3. What is the content of utterances children use in their private speech?
4. Are children's productions in private speech task relevant or not?

5. Is there a resemblance between the children's private speech and the language they use when they are in interaction with a person present?

In order to investigate these questions, firstly private speech data from three, four and five-year-old children were obtained when they were playing with a toy house on their own. Then, five of the same children in each age group and their mothers were recorded when completing the same task. Data was transcribed and analyzed with respect to the research questions.

As there has not been such a comprehensive study which analyses linguistic properties of private speech in Turkish, this study is one of the first studies that drew conclusions on self-regulation and planning function of Turkish private speech along with linguistic properties of Turkish private speech. It is found out that Turkish children's private speech is object oriented that contains more nouns than action oriented words, namely verbs.

It is also concluded that internalization and syntactic abbreviation of private speech is not performed in the same way as Vygotsky's predication. That is, predication which refers to "omitting the subject of a sentence and all words connected with it, while preserving the predicate" (Vygotsky, 1934/1986, p. 236) does not apply to Turkish language due to its being a pro-drop and agglutinative language. Internalization is only observed through the increase of partially internalized and inaudible utterances.

Another subject we investigated is the task relevancy properties of private speech. It is revealed that private speech was task relevant in all age groups. Although private speech was more task relevant when children were the youngest, decrease in the task irrelevant utterances as children got older supported Vygotsky's proposal on the private speech being more task relevant with age.

This study also aimed at comparing private speech of the children with the social speech that is produced when children completed the same task with their mothers. According to the results, there were both similarities and differences between the two speech contexts in terms of both the language and content. Similarities proved that private and social speech shared similar dialogical features, content and structure. While differences indicated that it also serves some other functions in different forms than the social speech.

6.2. Implications of the Study for L2 Learning

This study investigated private speech of children in first language acquisition. This speech starts to be produced by normally developing children as early as two years old, peaks and disappears, or goes underground in Vygotsky's terms, at around age seven. It serves many functions such as self-regulation, planning and problem solving and plays an important role in improving executive functioning skills. Although it becomes internalized and turns to inner speech, it still performs many functions and help adults in many ways. Studies prove that it is used in L2 learning context and accelerates this process by helping adults organize their thoughts and rehearse the language in the process of learning a language.

There are various studies examining the private speech among adults within second language learning context (DiCamilla & Anton, 2004; Guerrero, 2005; Lee, 2008). They present different functions of private speech and its use in varying ages and levels of L2 proficiency in different cultures. In terms of the functions of private/inner speech in L2 learning, Lee (2008) focuses on the forms of mediation and regulation in a dialogic capacity within the framework of Vygotskian sociocultural theory. He examined the video- and audio-recordings of seven native Korean university students with advanced English proficiency while studying for an exam in a private room for three hours. He also looked into the audio-recordings of stimulated recall interviews with each participant to interpret their thoughts on their language use. He found that the participants used three types of co-expressive gestures along with private speech for self-regulation: nodding, beats, and deictic gestures (pointing). These gestures were discussed to serve to processes such as memorization, drawing, self-scaffolding, or self-teaching. In other words, he argues that using private speech in L1 or L2 to direct speech to the self, facilitates L2 learning process, particularly in self-regulation. Similarly, Guerrero (2005) argues that L2, thought, and gestures are all connected. Therefore, promoting the use of private speech in the process of learning English by Turkish learners might also help their language proficiency.

Similarly, in another study on the functions of private speech in L2 learning, DiCamilla and Anton (2004) studied the use of self as the addresser and addressee in private speech in second language learning. Arguing that the speech directed to self aims to regulate task performance, DiCamilla and Anton (2004) investigated the role of private speech in a collaborative interaction among Spanish learners. They gave a

collaborative writing task to 14 pairs of first-year, second-year, and third-year university students studying Spanish in a language laboratory. The analysis of the transcriptions of their speech discussed on eight excerpts showed that the externalized private speech for thought found in the collaborative work of these students served to two functions: focusing attention and creating psychological distance. Named differently by various researchers as ‘concentration of speaker’s attention’, ‘focus of attention’, ‘speaker’s responsibility/concern’ etc., focus of attention is one of the cognitive operations that private speech is externalized. The second one, distance, is marked when they stopped and reflected on the task performance. It is concluded that the deictic form of their speech in collaborative interaction with others is not actually directed to others, but to the self, to regulate performance. Therefore, the private speech is also closely related to the social speech by facilitating the former and in turn, it helps the language learners focus and regulate their performance.

Mental rehearsal is another function of inner speech in L2 learning. It is found out that L2 inner speech through repetition, production, practice and playback can lead to memorization, speech production, learning and monitoring (Guerrero, 2005). As this point, Guerrero’s earlier studies revealed that a) inner speech in L2 increased with proficiency, b) the most frequently used structures were syntactic abbreviations and simplification, as in L1 inner speech (see Sokolov, 1972, Vygotsky, 1986), c) they serve to mnemonic, instructional, preparatory, evaluative, dialogic, and affective functions, d) at higher levels, inner speech content becomes not only limited to L2 topics, but extends to be another tool for thinking of anything, and e) the role of L1 in L2 inner speech is still arguable.

In terms of the effects of environment on L2 private speech, in her example of Spanish-English bilinguals, Guerrero (2005) explains that thinking in a foreign language is not simply expressing thoughts in that language because expressing thoughts in foreign language first goes through a fast translating phase before producing it. Guerrero reports Cohen’s (1998) study in which 15 children in a Spanish immersion program were given mathematical problems to observe how external environment influenced their inner language. It was found that only three students conducted all the process in Spanish while the others switched back to English when they had difficulty. Thus, it was discussed that as learners choose L1 for language of thought, an underground L1 is processing in L2 material.

Dwelling on thinking in L2 in terms of verbal thought, self-reconstructions, gestures in L2 inner speech, internalization of L2, L2 reading and writing, mental rehearsals in L2 and neuroimaging research of L2 inner speech, Guerrero (2005) presents a number of studies that focus on inner speech and L2 learning. Studies also focus on the effects of inner speech on L2 learning as in one of the studies by Pavlenko and Lantolf (2000). In their study, late L2 learners' self-narratives were analyzed for their L2 learning experiences and the role of inner speech to form a new L2 identity was emphasized. In another one, Guerrero refers to Sokolov's (1972) study in respect to the connection between inner speech and L2 reading and writing. In this study, the participants' 'think aloud' protocols while translating texts of varying difficulty from English to Russian were analyzed. It was hypothesized that one main structure of inner speech is the verbal semantic complexes and for the beginning learners, the difficulty of the text can be observed in their reading aloud, whispering, or moving lips. This experiment shed light on the impact of inner speech on the mental processes of L2 reading, translation and comprehension.

From another perspective, private speech in children's L1 and adults' L2 learning process display some similarities in terms of internalization. Guerrero (2005) exemplifies Ushakova's (1994) study that suggests how improvement of L2 inner speech depends on present L1 schema as compared to John-Steiner's (1992) study that investigates how two languages actually indicate unity at thought level based on self-report data from adult L2 learners. It is explained in the latter that two languages internally unify at the meaning and thought level and undergo a 'temporary loss or inhibition' processes, i.e. when mixed in note-taking. Guerrero (2005) also views private speech of L2 learners in two ways: externalization of L1 inner speech as well as internationalization of L2 structures. As for the internalization, one implication could be the seemingly passive but silently involved students in L2 classes through inner speech, while another implication can be drawn focus of attention of the learner and the teacher could be different since focus is a self-directed experience.

In addition, regarding Vygotsky's (1986) argument on the conversion from private speech to inner speech, Guerrero (2005) reports her earlier study in which she investigated the way this transformation takes place. She explains four L2 inner speech behaviors as concurrent processing of language during listening and reading, recalling of language heard, read, or used previously, preparation before writing or speaking, and

silent verbalization of thoughts for private purposes. These are summarized as the early activities of internalizing external L2 inner speech.

Vygotsky argued that children use language to transform their cognitive abilities into intrapersonal abilities through private speech. This self-regulation also becomes the point in question in L2 private speech research. In terms of the similarities in both L1 and L2 contexts, McCafferty's (1994) review presents seven studies on adult L2 private speech. One of them that investigates the connection between children's and adult L2 learners' use of private speech reveals similarities between the two. Another one dwells on the metacognitive, cognitive, social and affective aspects of L2 private speech from the Vygotskian point of viewing private speech as a problem-solving tool in cooperation with others. McCafferty (1994) also cites the development of private speech classified into three: object -regulation for problem-solving, other-regulation for adult directing, and self-regulation for personal modification. In addition, pedagogical approaches are needed to be reconsidered for exposure to L2 as McCafferty (1994) highlights, "(...)In most classrooms students are afforded little opportunity to become self-regulated because by and large they are deprived of the opportunity to use the L2 for communicative purposes." (p. 424). Other studies show that learners' exposure to mixed languages increases their private speech production. Therefore, adult L2 learners should be engaged in more real communication contexts. However, their L2 private speech is suggested not to be corrected for pedagogical concerns.

With respect to the cross-cultural comparison of the use of private speech among ESL learners, McCafferty (1992) found a significant difference between Hispanic and Asian participants with more progressive aspects in the former group. The results of this study shed light on the importance of the difference on sociocultural background in terms of the amount of private speech among adult L2 learners. In another study, comparing native and non-native speakers' private speech, Appel (1986) found that natives are more fluent and productive with less pauses while non-natives are more silent while in operation, which also requires investigating the cultural constraints.

In conclusion, considering all these studies on L2 and the results of this study on L1 private speech, it can be suggested that private and inner speech are and should be promoted when teaching and learning an L2, since the findings of the present study reveals that children use description of the task and description of the self statements and ask and answer questions to themselves when producing private speech. These usages indicate that in L2 learning in and/or out of the classroom using private speech

facilitates self-regulation and planning which helps learners become competent in the target language. Using private speech in the classroom also puts forward variations in personal, cultural, and contextual features.

6.3. Recommendations for Further Research

This is one of the initial studies analyzing linguistic properties of Turkish children's private speech. The age range that was analyzed in the present study was between three and five. Various properties of private speech from older children should also be studied in order to identify linguistic and functional changes and trace internalization of private speech.

In this study, data was gathered through a problem solving task. Further studies should be carried out through various tasks as it might have an effect on the content of private speech. Additionally, longitudinal studies are needed to trace the developmental trajectory of private speech. Studies on Turkish L2 learners' inner speech in language learning context are also needed.

6.4. Summary

In the present chapter, conclusions gathered from the findings of the study were presented. Furthermore, implications of this study on L2 learning and recommendations for future research in the area were also given.

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APPENDICES

Appendix 1. Consent and Demographic Form

Sayın Veli,

İngiliz Dili Eğitimi Anabilim Dalı'nda Prof. Dr. Hatice Sofu danışmanlığında, çocukların kendi kendine konuşmalarındaki dilsel özellikler ile ilgili doktora tezi hazırlamaktayım. Tezimin verisi için çocuklarla ve anneleriyle video çekimi yapmam gerekmektedir. Çekimler esnasında çocuk, parçaları takıp çıkarılabilen büyük ahşap oyuncak bir evle kendi kendine 30 dakika boyunca oynayacak, araştırmacının çocukla etkileşimi olmayacaktır. Aynı gün veya birkaç gün içinde anneye çocuk aynı oyuncak evle oynarken on beş dakika süren bir çekim daha yapılacaktır. Çalışmanın katılımcılarının gerçek isimleri ve görüntüleri hiçbir yerde kullanılmayacak, çekimler yazıya aktarılıp sadece çocukların ve annelerin kullandıkları dilsel yapılar incelenecektir.

Üniversitemiz öğretim elemanı ve anaokulunda oğlu olan bir anne olarak hassasiyetlerinizi anlıyor ve hak veriyorum. Bu nedenle konuyla ilgili sorularınızı yanıtlamaktan mutlu olacağımı belirtmek isterim. Ayrıca anne-çocuk çekim seansı için annenin anaokuluna gelmesi konusunda vakit olduğu sürece şahsi aracımınla gidiş gelişin sağlanması için gerekeni yapacağım konusunda da emin olmanızı isterim.

Saygılarımla

Okutman Emel Uçar

Çukurova Üniversitesi

Yabancı Diller Yüksek Okulu



Kabul ediyorum



Kabul etmiyorum

Çocuğun:

Adı Soyadı:

Doğum tarihi:

Cinsiyeti:

Sınıfı:

Velinin:

Adı Soyadı:

Eğitim Düzeyi:

Çalıştığı Birim:

Cep Telefonu Numarası:

Varsa Dahili Numarası:

Ailedeki çocuk sayısı ve yaşları:

Çocuğunuz okula nasıl geliyor?:



Appendix 2. An Example of Private Speech Data with Semantic and Task Relevancy Coding

CHI 3, Female, 3;5.

Birth Date: 21 August 2011, Recording Date: 17 February 2015.

Abbreviations:

TR1: Task Relevant 1

TR2: Task Relevant 2

TI: Task Irrelevant

PI: Partially Internalized

QA: Question-Answer

DesET: Description of Environment and Task

DesSELF: Description of Self

Trans: Transitional Statements

NonW: Nonwords(Wordplay and Noises)

Plan: Plans

Private Speech Data

Bunu hmm? TR1 QA

Aa çağıruyo. TR2 DesET

Çağıruyo. TR2 DesET

Geliyolar. TR2 DesET

Buraya mı koyuluyo? TR1 QA

Hıh. TR1 Trans

Burda ayna. TR1 DesET

(Fısıltı) PI

Evet TI Trans

Tamam TR1 Trans

Hımmm TI NonW

Baba. TR1 DesET

Hi hi. TI Other

Hıh. TR1 Trans

Örttüm. TR1 DesSELF

Bu böyle olur. TR1 DesET

Bu neydi? TR1 QA

Hah tamam. TR1 Trans

Bunu alalım. TR1 Plan

Şunu buraya koyalım. TR1 Plan

(Fısıltı) PI

Bu nasıl oluyodu? TR1 QA

Bu pil. TR1 DesET

Pil. TR1 DesET

Buraya koyim. TR1 DesSELF

Çocuklar ıslanıyo. TR2 DesET



Appendix 3. Similarities and Differences between Private Speech and the Speech in Mother-Child Interactions (Social Speech)

Similarities	Differences	
	Private Speech (PS)	Social Speech (SS)
• Function words and particles used in the same order of frequency • Use of the same demonstratives in the same frequency (with <i>önce</i> ‘before’ added in social speech due to the richer interaction with another party) • More nouns than verbs • Decrease in abbreviated utterances; increase in partially internalized speech • In terms of content, <i>Description of the environment and task, questions and answers</i> and <i>plans</i> are the highest, <i>motivational</i> and <i>evaluative statements</i> are the lowest. • Highest TR1 and TR2 speech by three-year-olds	• Five-year-olds’ PS is longer than their SS • Three and five-year-olds’ function words are almost similar but four-year-olds’ usage decreased • Fluctuation in the use of Overt Subject Pronouns in PS • Amount of verbs fluctuated in PS	• More t-units in SS • Three-year-olds’ SS is slightly longer than their PS • Overt Subject Pronoun use decreased in SS • Amount of verbs decreased in SS • Highest TI speech by four-year-olds

CURRICULUM VITAE

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December 2018

A. EDUCATION

- 2008-2018 Çukurova University, Ph.D.
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- 2009- today Instructor, Çukurova University, School of Foreign Languages
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C. SUBJECTS TAUGHT AT UNIVERSITY

- 2009-today English Language for beginner, intermediate and advanced students.
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- 2009-2010 Spring Semester Listening and Pronunciation Skills at Anadolu University,
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D. GRANTS

- 2011** Çukurova University, Unit of Scientific Research Projects, Project No: EF2011D4,
- 2009** Cukurova University, Unit of Scientific Research Projects, Project No: YADIM 2009BAP
- 2007-2010** Tubitak, Study as project assistant in *Türkçe'de erken sözcük ve dilbilgisel gelişimi ölçme ve değerlendirme çalışması (Turkish Communicative Development Inventory)* (PI: Dr. Ayhan Aksu-Koç, Boğaziçi University)

E. CONFERENCE ORGANIZATIONS

In the Conference Organizing Committee of 25th National Conference on Turkish Linguistics held on 5-7 May 2011, Adana, Turkey.

F. ORAL PRESENTATIONS IN NATIONAL CONFERENCES

Sofu, H., Uçar, E. (2013) Çocuklarda Kendine Yönelik Konuşmada Kullanılan Sözcüklerin Özellikleri, 27th *National Conference on Turkish Linguistics*, 3-4 May 2013, Antalya, Turkey.

Uçar, E. Çocuk Kitaplarında Kullanılan Dilin Türkçe İletişim Gelişimi Envanteri ile Ölçülen Gerçek Dil ile Uyumu / Uyumsuzluğu. 3. *Ulusal Çocuk ve Gençlik Edebiyatı Sempozyumu*, 5-7 September 2011, Ankara University, ÇOGEM, Ankara, Turkey.

Çubukçu, H., Uçar, E. Politik Tartışmalarda Söylemsel Yapılanma. 25th *National Conference on Turkish Linguistics held on 5-7 May 2011*, Adana, Turkey.

Türkay, F., Sofu, H., & Uçar, E. Soru Adıllarının Edinimi. 24th *National Conference on Turkish Linguistics*, 17-18 May 2010, METU, Ankara, Turkey.

G. ORAL PRESENTATIONS IN INTERNATIONAL CONFERENCES

Uçar, E., Existence/Non Existence of Syntactic Abbreviation in Turkish Children's Private Speech. 17th *Conference on Turkish Linguistics*, 3-5 May 2014, University of Rouen, France.

Uçar, E. & Akyol, Ö. Preschoolers' use of politeness strategies in request acts. 6th *International Symposium on Politeness 11-13 July 2011 METU, Ankara*.

Uçar, E., Sofu, H., & Uçar, L. Innovations and Coinages in Child Lexicon. 15th *International Conference on Turkish Linguistics / 20-22 August, 2010 – Szeged, Hungary*.

Sofu, H., Uçar, E. & Uçar, L. Content and Language in Children's Private Speech: Findings from a Case Study. 15th *International Conference on Turkish Linguistics / 20-22 August, 2010 – Szeged, Hungary*.

Uçar, E., Sofu, H. The Match/Mismatch between Language Used in Children's Books and Actual Language Used as Measured by Turkish CDI. *Children's Books from 0 to 3: Where Literacy Begins, 19-21 March 2009, Bonn, Germany.*

H. PUBLICATIONS

Uçar, E., & Bal, Ö. A. (2015). Preschoolers' Use of Requests. *Dilbilim Araştırmaları Dergisi*, 2, 25-43.

Sofu, H., Uçar, E. & Uçar, L. (2012) Content and Language in Children's Private Speech: Findings from a Case Study. In Kincses-Nagy, E. & Biacsi, M. (Eds.) *The Szeged Conference: The proceedings of the 15th International Conference on Turkish Linguistics / 20-22 August, 2010 – Szeged, Hungary.*

Türkay, F., Sofu, H., & Uçar, E. (2011) Soru Adıllarının Edinimi. *Proceedings of the 24th National Conference on Turkish Linguistics, 17-18 May 2010, METU, Ankara, Turkey.*