

Predictors of Turkish Speaking Preschoolers' Narrative and Vocabulary Competence:

An Ecological Approach

by

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STATEMENT OF AUTHORSHIP

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ABSTRACT

This thesis examines the sources of individual variation in Turkish speaking preschoolers' language skills through an ecological perspective. Specifically, this study investigates the contribution of family socioeconomic background, maternal language skills and stimulating home environment at 3 years of age to children's receptive vocabulary and narrative skills at 4 years of age. The proposed conceptual model of this study surmised that family socioeconomic background will exert its influence on child language skills directly and indirectly through maternal narrative skills and stimulating home environment such as maternal language stimulation and available learning materials at home. Participants were composed of 78 mother-child dyads selected from the ECDET (Early Childhood Developmental Ecologies in Turkey) project with a national sample of 1,052 mothers in Turkey, from whom narrative data were collected. Hierarchical regression analyses revealed that child receptive vocabulary skills at 4 years of age were influenced by family socioeconomic background through its association with maternal narrative skills, and its influence on maternal language stimulation at 3 years of age. Moreover, learning materials available to children at 3 years of age predicted child receptive vocabulary skills at 4 years of age after the role of maternal language skills was controlled. Differently from receptive vocabulary skills, stimulating home environment had less impact on children's narrative skills. Instead SES-related maternal narrative skills predicted children's narrative skills at 4 years of age. The findings highlight the importance of examining the specific influences of proximal and distal factors on children's receptive vocabulary and narrative skills.

Keywords: Socio-economic status, preschool children, language stimulation, narrative skills, receptive vocabulary.

ÖZET

Bu tez, Türkçe konuşan okul öncesi dönem çocuklarının dil becerilerindeki bireysel farklılıkların kaynağını ekolojik bir kuramsal çerçeveden ele almayı amaçlamıştır. Bu çalışmada özellikle çocuklar 3 yaşında iken ölçülen aile sosyo-ekonomik durumunun, anne anlatı becerilerinin ve uyarıcı bir ev ortamının çocuklar 4 yaşına geldiğinde, çocukların alıcı dil ve anlatı becerilerine olan etkisi incelenmiştir. Çalışmanın kavramsal modeli ailenin sosyo-ekonomik durumunun çocukların dil becerilerine hem doğrudan hem de anne anlatı becerileri, annenin dil gelişimi için uyarıcı sağlama ve çocukların ulaşabileceği öğrenme materyallerinin bulunması gibi değişkenler aracılığı ile dolaylı olarak etki edeceğini önermektedir. Çalışmanın örneklemini Türkiye’de Erken Çocukluk Gelişim Ekolojileri (TEÇGE) araştırmasına katılan 1052 katılımcı arasından anlatı örnekleri toplanmış 78 anne-çocuk ikilisi oluşturmaktadır. Hiyerarşik regresyon analizleri, çocuklar 3 yaşında iken ailenin içinde bulunduğu sosyo-ekonomik durumunun çocukların 4 yaşındaki alıcı dil becerilerini, anne anlatı becerileri ve annenin dil gelişimi için uyarıcı sağlama gibi değişkenler aracılığı ile dolaylı olarak yordadığını göstermiştir. Ayrıca, annenin dil becerisinin etkisi kontrol edildiğinde, çocuklar 3 yaşında iken evde erişebilecekleri öğrenme materyallerinin varlığı çocukların 4 yaş alıcı kelime bilgisini anlamlı bir şekilde yordamıştır. Alıcı dil becerilerinden farklı olarak, 3 yaşında sahip olunan uyarıcı bir ev ortamı çocukların 4 yaş anlatı becerilerine daha az etki etmiştir. Bunun yerine 4 yaş çocuklarının anlatı becerilerinin, aile sosyo-ekonomik durumu ile ilişkili olan anne anlatı becerileri tarafından yordandığı bulunmuştur. Bu tezin bulguları çocukların alıcı dil ve anlatı becerilerine etki eden yakın ve uzak etkenlerin farklı etkilerinin araştırılmasının önemini ortaya koymaktadır.

Anahtar kelimeler: Sosyoekonomik statü, okul öncesi dönem çocukları, dil gelişimi için uyarıcı sağlama, anlatı becerileri, alıcı kelime bilgisi.

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Chapter 1

INTRODUCTION

In this thesis, we investigated the variability in children's language development in the framework of an ecological approach. Specifically, we examined the influences on receptive vocabulary and narrative skills of 4-year-old Turkish speaking children examining the following factors: socioeconomic status of the family, maternal linguistic competence (vocabulary and narrative skills during narration), stimulating home environment measured via availability of learning materials to children and maternal language stimulation. In the remainder of this introduction section, we lay out the rationale for examining receptive vocabulary and narrative skills of 4-year-old children in Turkey. We discussed the role of family socioeconomic background, maternal linguistic competence, and stimulating home environment on child language development.

Language development in early years is identified as an important predictor of later verbal IQ, reading proficiency (Fewell & Deutscher, 2002; Storch & Whitehurst, 2002; Snow, Burns, & Griffin, 1998) and later school readiness (Biemiller, 2007; Forget-Dubois, Dionne, Perusse, Tremblay, Lemelin, & Boivin 2009; Muter, Hulme, Snowling, & Stevenson, 2004) as well as later school achievement (Miller, Heilmann, Nockerts, Iglesias & Francis, 2006). However, the current literature falls short of explaining the sources of variation in early language competence in different ecological environments. Indeed, sources of individual variation in language development are studied less frequently than the universal aspects of the acquisition process. Even though the extant literature indicates that children from low socioeconomic circumstances tend to have poorer cognitive and language outcomes than

children raised in families with high socioeconomic background, the processes through which socioeconomic background influences child language outcomes require more research. It is essential to conduct this research that allows an examination of the sources of variability in young children's language skills and detection of the mechanisms and circumstances associated with poorer language outcomes. Such research is important as a guide to intervention efforts in the area of early child language.

Even though there are some studies in the literature which have investigated sources of variation in language development since the 1990s, the major focus of these studies has been on lexical development, or what is more commonly referred to as expressive and receptive vocabulary skills of children (Bornstein, Haynes, & Painter, 1998; Hoff-Ginsberg, 1991; Hoff, 2003; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991; Karras & Braungart-Reiker, 2003; Pan, Rowe, Singer, & Snow, 2005; Roberts, Burchinal, & Durham, 1999). Although vocabulary development is important to study, it reflects only one aspect of children's general language ability (U.S. Department of Health and Human Services, 2002). Examination of children's narratives allows researchers and practitioners to collect information about children's discourse-related competencies (Justice, Bowles, Kaderavek, Ukrainetz, Eisenberg, & Gilliam, 2006) in addition to allowing assessment of lower-level linguistic knowledge such as vocabulary and grammar. The sources of individual differences in how vocabulary and other units of language get expressed and combined in the narrative productions of children need to be examined. Therefore, a conceptual model that explores the predictors of preschooler's vocabulary and narrative skills along with mediators is necessary.

Little work has investigated the sources of variability in narrative development by considering various background factors within an ecological perspective (but see Price, Roberts, & Jackson, 2006; Noel, Peterson, & Jesso, 2008). In studying and explaining variation

in young children's language development, it is important to consider that language development does not occur in isolation but in a rich context that is full of direct and indirect influences. A comprehensive ecological approach should be taken in studying young children's language development. This study adopts Bronfenbrenner's Ecological Systems Theory as one of the theoretical frameworks with an ecological perspective including distal factors that may create individual variability in language development such as family socioeconomic status and mothers' language competence. In addition to distal factors, proximal factors influencing child language development such as provision of learning materials and language stimulation to children are included. In brief, this study intends to contribute to this literature by presenting sources of variability in narrative and vocabulary development of young children using a multivariate, ecological perspective.

This study also addresses another gap, the inadequacy of the number of studies focusing on sources of variability in early language development that include participants other than middle_SES White-American families (Roberts, et al., 1999). This study examines the vocabulary and narrative skills of 4-year-old children growing up in the Turkish culture.

This thesis work is part of a larger study conducted in Turkey called the study of Early Childhood Developmental Ecologies in Turkey (ECDET). In Turkish, the study is referred to as *Türkiye'de Erken Çocukluk Gelişim Ekolojileri (TEÇGE)*. The ECDET project (Baydar, Küntay, Yağmurlu, Gökşen, & Cemalcılar, 2007) is a 5 year, longitudinal study which investigates children's developmental ecologies, and the influence of these ecologies on children's cognitive, social-behavioral and emotional development using a representative sample of 1,052 children aged between 36 and 47 months of age at the beginning of the 5-year period (Baydar & Bekar, 2007). The project includes assessment of various variables related to children's ecologies such as child characteristics, parenting practices, parenting attitudes and

behaviors, marital relationships of parents, home resources, and neighborhood resources as well as preschool education opportunities collected through home interviews and direct assessments (Baydar & Bekar, 2007).

Below we present the conceptual model of the study, developed by employing an ecological approach.

1.1 Conceptual model of the study

In this thesis, a conceptual framework is proposed to explain the links between family socioeconomic background and child language skills (see Figure 1). We intend to examine the influence of distal and proximal factors at 3 years of age (Time 1) on narrative and vocabulary skills of Turkish speaking children at 4 years of age (Time 2). Based on Bronfenbrenner's ecological model, the mechanisms that we anticipate to influence child language development are presented in Figure 1. This conceptual framework proposes that distal factors such as socioeconomic status and maternal narrative skills will influence child language outcomes through proximal factors in the home such as provision of learning materials and language stimulation.

The proposed predictions are:

- the significant association of family socioeconomic background (Time 1) with maternal narrative skills (Time 1);
- the direct influence of family socioeconomic background (Time 1) on language stimulation by mother (Time 1) and learning materials available to the child (Time 1), and child language outcomes (Time 2);

- the direct influence of maternal narrative skills (Time 1) on language stimulation by mother (Time 1) and child language outcomes (Time 2);
- and the direct influence of language stimulation by mothers (Time 1) on child language outcomes (Time 2), and the direct influence of learning materials available to the children (Time 1) on child language outcomes (Time 2).

Also, family socioeconomic background and maternal narrative skill are proposed to have direct influences on language stimulation by the mother which in turn is proposed to mediate the influence of family socioeconomic background and maternal narrative skills on child language outcomes; learning materials available to the children is proposed to mediate the relation between family socioeconomic background and child language outcomes.

The theoretical perspectives forming a ground for the conceptual model will be presented in Chapter 2.

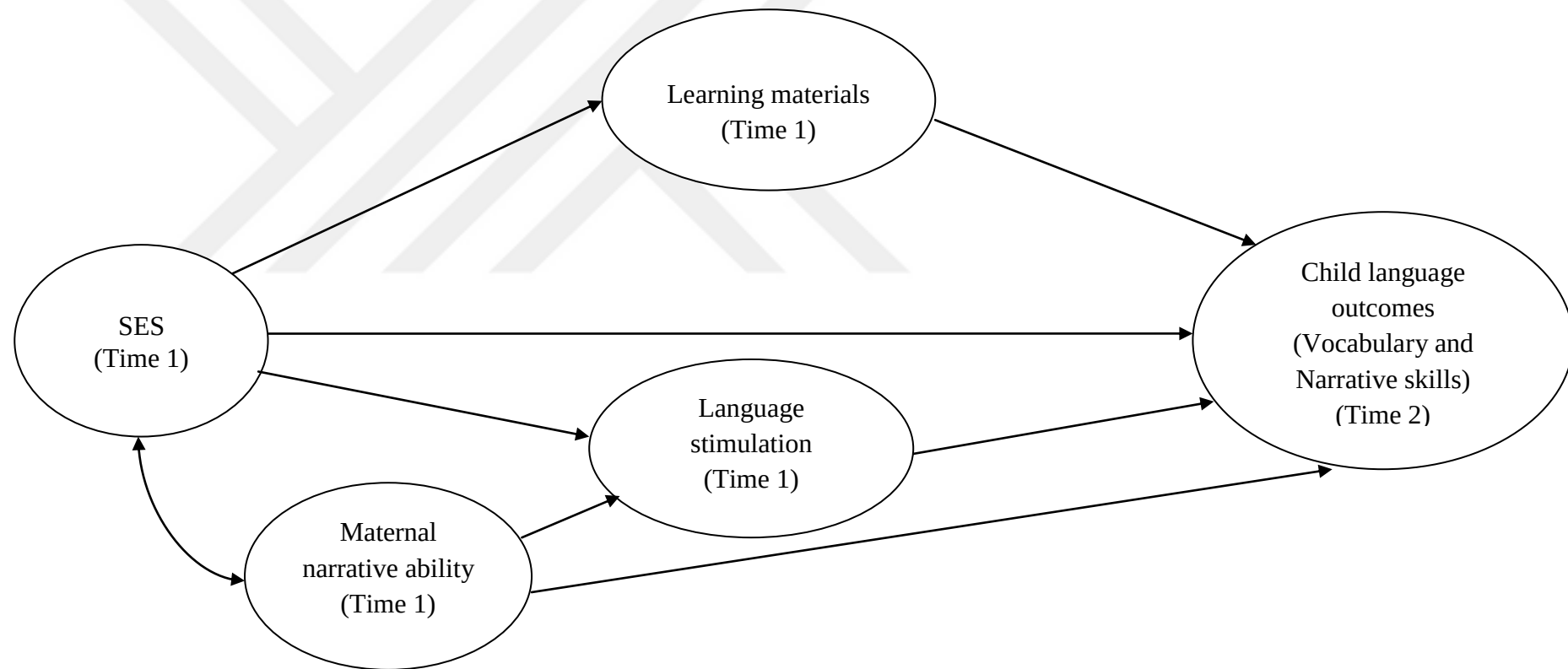


Figure 1.1 The conceptual model of the study.

Note. Time 1 represents the data collected when children were at 3 years of age. Time 2 represents the data collected when the same children were at 4 years of age.

Chapter 2

LITERATURE REVIEW

2.1 Theoretical perspectives supporting the conceptual model of the study

Understanding the process of language development is more important than just knowing the content of language development. The causal processes that underlie language development cannot be understood only with description (Vygotsky, 1978). Figuring out how language development proceeds has important implications for the benefit of children. Knowing about underlying mechanisms that supports or hinders language development enables developmental psychologists to take necessary actions through prevention and intervention programs in order to enhance young children's language development, especially for children at risk. However, the process of development cannot be understood by studying child language in isolation from other factors.

With the proposed conceptual model we intend to provide a framework for understanding direct and indirect influences of contextual factors on children's language development. The conceptual model of this study is based on synthesis of different theoretical perspectives. First, we will review the distal and proximal processes that are expected to influence children's language development within Ecological Systems Theory. The Ecological Systems Theory will be followed by Vygotsky's Socio-Cultural Theory and Bruner's Language Acquisition Support System perspective. Then we will articulate the mechanisms by which the maternal language skills and stimulating home environment may affect Turkish speaking children's language development in early years by synthesizing Bronfenbrenner's Ecological

Systems Theory, Vygotsky's Sociocultural Theory and Bruner's Language Acquisition Support System perspective.

2.1.1 Ecological systems theory

A comprehensive ecological perspective is necessary in studying any area of child development. Bronfenbrenner's Ecological Systems Theory presents such a comprehensive approach in studying human development, opening the way for understanding the process of development and variability in development.

Bronfenbrenner guides research in the area of human development with the *process-person-context-time model*, which includes the joint interaction of the person's characteristics and changing environmental conditions through time in studying and explaining variation in the processes and the outcomes of the human development (Bronfenbrenner, 2005). In addition, he emphasizes the need to consider the ecological context, which includes a set of nested systems, in studying human development. Active, developing children are at the center of all these systems and under the direct influence of immediate contexts called *Microsystems* that include experiences of the developing person with people who have different temperamental, personality characteristics in settings with different physical and material properties (Bronfenbrenner, 1979; Bronfenbrenner, 2005). The *Mesosystem*, the *Exosystem* and the *Macrosystem* are all important ecological structures that are important in studying human development. The *Mesosystem* includes the interrelations among *Microsystems*. The *Exosystem* indicates settings in which children are not actively involved but are still indirectly influenced by what happens in those contexts (Bronfenbrenner, 1979). The *Macrosystem* designates the regularities in the properties of the nested sub-systems such as the microsystem, the mesosystem and the exosystem at the sub-cultural, cultural level or a broader social level

including belief systems, resources, life styles (Bronfenbrenner, 2005; Bronfenbrenner, 1979). In this study, the influence of maternal language skills, a stimulating home environment in the microsystem of the children is studied by considering family socioeconomic background at the exosystem within a collectivistic Turkish culture. At the macro level, the Turkish culture is characterized as a relatively collectivistic culture rather than an individualistic one (Hofstede, 2001; Phaet & Schönpflug, 2001a, Phaet & Schönpflug, 2001b). Yet within culture differences exists in the traditionally collectivist context of Turkish culture (İmamoğlu & Karakitapoğlu-Aygün, 2007; Kağıtçıbaşı, 2005)

Bronfenbrenner (2005) also proposes that continuous increase in the complexity of bidirectional interactions that occur regularly over long time periods between the developing human being and a proximal environment including people, objects and symbols have an important role in human development. These reciprocal interactions occurring in the immediate context are referred to as *proximal processes*. In this study, contributors to proximal processes within the family are parental scaffolding of children's language development through provision of language stimulation and learning materials in the immediate context. Both of these proximal factors may be the predictors for the language development of preschool children.

2.1.2 Vygotsky's socio-cultural theory

According to Vygotsky (1978), adults around the children are very important for children's language development in a way that language usage first develops between people for interpersonal functions before young children internalize social speech for intrapersonal/cognitive use (Vygotsky, 1978). Vygotsky introduces the *zone of proximal*

development in which children can show higher performance with the assistance of an adult or advanced peer than they can on their own until children internalize these processes and become capable of doing things by themselves (Vygotsky, 1978). Based on Vygotsky's theory, the language skills of the primary caregivers and their linguistic interactions with their children are important for children to learn language and improve their language skills.

2.1.3 Language acquisition support system (LASS) perspective

Similar to Vygotsky and Bronfenbrenner, Bruner focuses on the interaction between children and adults as a driving force in the language acquisition process of children. Bruner (1983) points out that young children need regular language input within familiar settings and using known standardized formats from adults for language development. These regular arrangements form the *Language Acquisition Support System* (LASS). Over time, the routines that are familiar to children become increasingly more systematic and lead to the development of more advanced social interaction and discourse (Bruner, 1990). Based on theoretical perspectives of Bronfenbrenner, Vygotsky, and Bruner, parental scaffolding of young children in the immediate context in terms of vocabulary and narrative development might lead children to improve their language skills first at the interpersonal level and then at the intrapersonal level. Parents who have advanced vocabulary knowledge and narrative skills might scaffold their children to improve their language abilities at a faster rate. Via continuous and competent social verbal interaction, children's narrative and vocabulary abilities develop and children become competent language users independent of adult scaffolding.

2.1.4 Integration of ecological systems, socio-cultural and language acquisition support system theories

The perspectives of Bronfenbrenner, Vygotsky, and Bruner allow for a guided examination of child language development by taking the impact of environmental context into consideration. Children learn to use language and symbols from their parents via proximal processes. However, distal processes such as the socioeconomic background of the family impact the proximal processes in the immediate contexts of children. That is, if a family's socioeconomic background is adverse, this external context may influence child language development through their influence on the maternal language skills, parent child verbal interactions and provision of a stimulating home environment with learning materials.

Therefore, as the theoretical rationale suggests, the model used here highlights the importance of family socioeconomic background as a distal context which may have influence on proximal factors such as maternal language competence, and stimulating home environment which in turn may influence Turkish-speaking children's vocabulary and narrative development.

2.2 Literature review about outcome variables

The next two sections will present literature reviews about vocabulary and narrative development in young children respectively.

2.2.1 Vocabulary development

Children start to build vocabulary around 12 months of age. During children's second year, their rate of vocabulary development accelerates. However, there is extensive individual variability across normally developing children in the pace and timetable of the vocabulary development in the early years of life (Clark, 1993; Fenson, Dale, Reznick, Bates, Thal, & Pethick, 1994).

There are different ways to assess vocabulary development. Previous assessment approaches have often viewed receptive and productive vocabulary as two separate constructs (Henriksen, 1999). Productive vocabulary knowledge requires knowledge about a word that enables using it through productive means such as speaking or writing, while receptive vocabulary knowledge necessitates knowledge about a word that allows comprehension of it via receptive ways such as listening and reading (Crow, 1986). The primacy of comprehension over expressive vocabulary allows receptive vocabulary to better present language development without underestimating the children's passive knowledge about vocabulary (Clark, 1993). Therefore, children's receptive vocabulary is important to study to represent children's breadth of lexical knowledge, independent of production and articulation processes.

Vocabulary skills of young children have been extensively studied with different assessment methods (Blewitt, Rump, Shealy, & Cook, 2009; Bornstein & Haynes, 1998; Feldman, Campbell, Lasky, Rockette, Dale, Colborn, & Paradise, 2005; Horton-Ikard & Weismer, 2007; Pan, Rowe, Spier, & Le-Monda, 2004; Stokes & Klee, 2009). The three broad assessment approaches in the study of child vocabulary in early years are standardized norm referenced tests, parental reports, and spontaneous speech/language sample analyses (Law & Roy, 2008; Pan, in press). Also, if researchers were to be interested in the children's acquisition of the target words introduced as part of an intervention program, then researcher-

designed vocabulary assessments are required instead of standardized tests, parent reports, or language sample analyses (Pan, in press).

Among the standardized norm referenced tests, the Peabody Picture Vocabulary Test (PPVT) is widely used in many studies (Blewitt et al., 2009; Dickinson, Anastasopoulos, McCabe, Peisner-Feinberg, & Poe, 2003; Fewell & Deutscher, 2002; Horton-Ikard & Weismer, 2007; Iruka, 2009) including studies conducted with Turkish preschool children using the PPVT (Aksu-Koç, Bekman, & Taylan, 2004). Researchers studying vocabulary development in early years also use parental reports such as the MacArthur-Bates Communicative Development Inventories (CDI) (Feldman et al., 2005; Fenson et al., 1994; Forget-Dubois, Dionne, Perusse, Tremblay, Lemelin, & Boivin, 2009; Marchman & Fernald, 2008; Roberts, Burchinal, & Durham, 1999; Stokes & Klee, 2009). Language sample analysis is also often used in studying young children's language skills in different languages (Acarlar, 2005; Bornstein & Haynes, 1998; Dollagan, Campbell, Paradise, Feldman, Janosky, Pitcairn, & Kurs-Lasky, 1999). Language sample analysis is used in studying Turkish children's vocabulary development as well. Acarlar (2005) investigated vocabulary diversity in the speech samples of 140 Turkish children between 3 and 6 years of age by using the Systematic Analysis of Language Transcripts (SALT) computer program.

Even though the optimal procedure for assessment of child language in early childhood is under debate, comparison of vocabulary competence from different sources shows agreement with each other (Bornstein & Haynes 1998; Pan et al., 2004). In the current study, rather than parental report, a norm reference test was used to get information about Turkish speaking children's vocabulary skills.

Previous literature on vocabulary development shows that early vocabulary competence predicts later verbal IQ, early literacy development, school readiness and reading

comprehension (Bornstein & Haynes, 1998; Dickinson et al., 2003; Fewell & Deutscher, 2002; Forget-Dubois et al., 2009; Muter et al., 2004; Storch & Whitehurst, 2002). Vocabulary size and word recognition speed at 25 months contributed to later expressive language and cognitive abilities through working memory (Marchman & Fernald, 2008). Researchers have also found that the influence of home environment characteristics such as socioeconomic background and reading exposure on school readiness prior to kindergarten entry is partially mediated by children's expressive vocabulary skills measured at 19 and 32 months of age (Forget-Dubois et al., 2009). Biemiller (2007) emphasized the long-term influence of early vocabulary size in one's life, pointing out that the gap between children with smaller vocabularies and children with larger vocabularies continue to persist throughout the life span. Similarly, a long term longitudinal study revealed the significant predictor role of the early vocabulary skills during preschool years in literacy skills of young adults after the influence of family environmental factors such as income, maternal education and quality of home environment were controlled (Baydar, Brooks-Gunn & Furstenberg, 1993). Therefore, understanding sources of variability in children's vocabulary development in a specific ecological context is important for the prediction of later school and related academic problems in that setting.

2.2.2 Narrative development

Generally, the developmental psychology literature reflects a tendency to focus on receptive or expressive vocabulary development in characterizing the entirety of language development. However, language development is more than just vocabulary development. People use and understand words in extended discourse contexts such as conversations, texts, stories, and lectures. Narrative discourse reveals information about the variety of productive

vocabulary and other linguistic forms in addition to showing the extent to which larger extended discourse is coherent (Justice et al., 2006). Since receptive vocabulary and narrative competence reveal different information about children's language competence, the processes that influence these two different outcomes may show differences. Whether the mechanisms that explain the development child receptive vocabulary skills are also valid for child narrative competence requires further investigation. Therefore, in addition to receptive vocabulary competence, narrative skills were also investigated as an outcome of this study.

A narrative can be defined as depiction of events that are real or fictional (Hoff-Ginsberg, 1997). Well-designed narratives have thematic coherence by being structured according to a general plot line with the inclusion of *the onset of the plot* referring to a starting event, *unfolding of the plot* through extending the events of the story, and *resolution of the plot* by reaching to an outcome (Bamberg, 1997; Berman & Slobin, 1994). Bruner (1990) describes plot as sequential events that form a meaningful whole. He further points out that narrative forms provide an opportunity for observing language usage (Bruner, 1990). Similarly, Nicolopoulou (1997) points out that narratives have an important role in organizing language knowledge for communicative purposes. Narratives allow displaying certain functions such as production of sequenced events in a temporal or causal way, organizing background and foreground information successfully, and achievement of a coherent whole. Producing a narrative is different from generating multiple sentences; these sentences should also be connected to each other in a way that reflects coherence (Peterson et al., 1999). In this study we examined mothers' and children's narrative skills.

Examination of children's narratives usually involves different genres such as description of personal past experiences, description of familiar script events such as going to doctor or to a party, and storytelling based on picture books (Hoff-Ginsberg, 1997). In the beginning of the field of narrative development, most focus was on children's narratives about

their own personal past experiences (Chang, 2004; Haden et al., 1997; Noel et al., 2008; McCabe & Bliss, 2004-2005; McCabe et al., 2006; Peterson, et al., 1999). In some other studies, children's narratives of fictional stories were examined through different methods such as a single picture or a few sequenced pictures (Eisenberg et al., 2008; Fiesta & Pena, 2004; Hayward et al., 2009; Justice et al., 2006; Tilstra & McMaster, 2007; Uccelli & Paez, 2007), videos (Shiro, 2003), and wordless picture books (Berman & Slobin, 1994; Diehl et al., 2006; Fiesta & Pena, 2004; Lafranco et al., 2006; Manhardt & Rescorla, 2002; Munoz et al., 2003; Pena et al., 2006; Reynolds & Evans, 2008; Wenner, Burch, Lynch, & Bauer, 2008).

Berman and Slobin (1994), in collaboration with other researchers, conducted a comprehensive study of children's narrative production at different ages including 3-, 5-, and 9-year-old children as well as adults from 5 different cultural and linguistic contexts such as American, German, Spanish, Hebrew and Turkish by using the wordless picture book "Frog, Where are you?". The "frog story" project on narrative development differed from other studies by focusing on production of narratives rather than comprehension or recall of narratives. In addition, narratives were elicited with a lengthier, and an elaborately sequenced picture-book instead of conventionally used elicitation tasks with just few pictures or through prompting of personal past experiences with a presentation of a single-episode (Berman & Slobin, 1994).

Narrative skills at young ages have been shown to be related to later school achievement. Miller, Heilmann, Nockerts, Iglesias, Fabiano and Francis (2006) found that kindergarten oral language assessments based on oral narrative samples collected by using the book "Frog, Where are you?" were found to significantly predict third-grade reading comprehension within and across languages in 1,531 Spanish-English speaking bilingual students. Narratives are considered as the best examples of "decontextualized language", which is considered an important predictor of success in school (Peterson & McCabe, 1994). This

property of narrative development makes it worthwhile to understand factors that contribute to narrative skills in early years.

The studies addressing the maternal influence on children's narratives focus on how the mother-child dyads talk about shared past experiences (Haiden et al., 1997; Peterson & McCabe, 1991; Peterson & McCabe, 1994). Wenner et al. (2008) extended this line of research by examining the association between parental reminiscing style and their 4;8 to 9;2 years old children's fictional narratives based on wordless picture books rather than narratives of personal past experiences. The content of the parents' language usage was coded to see whether parent utterances include the information of *who*, *what*, *when*, *where*, *why* and *how* in a reminiscence task. Children's fictional narrative quality was coded based on a 5-point rating scale indicating the sophistication level of narrative productions from least sophisticated (just description of pictures) to increasingly sophisticated (stories including temporal, causal sequences, referrals to goals of the character, and resolution). Parental provision of evaluations through emphasis of *how* a recent event happened predicted fictional narrative quality of children younger than 7 years of age indicating an evidence of links between parent reminiscence and children's production of fictional narratives. This finding suggests that the information provided by parents during reminiscence narratives serves as an important model for children to become storytellers. However, the specific role of maternal fictional narratives on children's fictional narrative performance has not been investigated. Hence, whether the link found between parent reminiscence and child fictional narrative production is valid for parent and child fictional story productions require further examination. The current study aims to fill this gap by addressing the influence of maternal fictional narrative performance on children's fictional narrative skills using an ecological perspective. Since narrative development is an important contributor for later school achievement, factors that predict child

narrative skills should be studied within an ecological approach which considers distal and proximal processes simultaneously.

2.3 Literature review of empirical findings supporting conceptual model

This section provides a literature review of the factors that influence children's vocabulary and narrative skills within an ecological approach. These factors include socio-economic background of the family, maternal language skills, and the degree of stimulation in the home environment. First, we present empirical findings associated with the direct influence of family socioeconomic background on child language outcomes. Next, we discuss the indirect influence of family socioeconomic background on child language outcomes through SES-related maternal language skills and stimulating home environment. Specifically, the review of mediators between family socioeconomic background and children's language development includes maternal language skills, maternal language stimulation and provision of learning materials.

2.3.1 Family socio-economic background and language outcomes

Studies have found that, family socioeconomic background, which is composed of family income and parents' educational level, is consistently linked to cognitive development and academic proficiency of children (McLoyd, 1998; Nievar & Luster, 2006). Specifically, low socioeconomic background has been found to be linked to low levels of language skills (Fish & Pinkerman, 2003; Hoff, 2006; Raviv, Kessenich, & Morrison, 2004). Young children from low socio-economic background have significantly lower vocabulary skills on

standardized expressive and receptive vocabulary tests than children who come from middle socio-economic backgrounds (Horton-Ikard & Weismer, 2007). Also, in a Latino sample, children of mothers with a high level of education comprehend spoken language in a faster and more accurate way as compared to children with similar age and vocabulary size, but whose mothers had lower levels of education (Hurtado, Marchman, and Fernald, 2007).

The influence of socioeconomic background is shown in children's narrative development as well. Shiro (2003) investigated the influence of social class and age on first grade and fourth grade Venezuelan children's usage of evaluative expressions in fictional narratives based on their favorite film or television program and a silent video shown to them. An interaction effect was found between age and social class. Fourth grade middle class children were found to produce more evaluative narratives than first grade middle class children. However, fourth grade working class children did not differ from first grade working class children in the use of evaluative language in their elicited fictional narratives.

Even though a family's socioeconomic background has been widely documented in previous studies as a marker of environment and conditions in which children develop, this construct does not sufficiently address specific processes in the family that influence child development. Therefore, in studying child language development, in addition to socioeconomic background of the family, we examined potential mediators such as maternal language skills and stimulating home environment in our model.

2.3.2 Maternal language skills and child language outcomes

Parents, especially mothers are important contributors to their children's language development. Previous research shows the direct (Pan, Rowe, Singer, & Snow, 2005) and the

indirect influence of maternal language and literacy skills on child language skills (Bornstein et al., 1998; Pan et al., 2005). In the longitudinal work by Pan et al. (2005) a composite score for maternal language and literacy skills measured through the vocabulary subscale of the Wechsler Adult Intelligence Scale-Revised (WAIS-R) and the letter-word identification part of the Woodcock-Johnson Tests of Achievement (WJ) significantly predicted growth in child vocabulary production both directly and indirectly through maternal input in low-income families. Bornstein et al. (1998) found similar results with middle-class families as well. Maternal verbal skills measured through the Peabody Picture Vocabulary Test-Revised (PPVT-R) significantly predicted child vocabulary competence through maternal vocabulary usage in conversation with their children. These studies suggest that maternal language skill is an important factor to be considered among the predictors of child language development.

Mothers have important roles in development of children's decontextualized language skills as well. Parental behaviors during elicitation of personal narratives from children, such as topic extensions and clarifying questions at 27 and 31 months, were significantly associated with longer child narratives at 42 months of age while parental topic switching behaviors is related to shorter child narratives (Peterson & McCabe, 1991). Similarly, Peterson and McCabe (1994) found that around three years of age, children whose mothers emphasize spatial-temporal context in their narratives give information about the context of the story during narrative elicitation more frequently than children whose mothers do not provide information about where and when the events of the story take place during narrative discourse. Based on these findings we can suggest that mothers who produce richer narratives may have better narrative skills than mothers who produce less elaborated narratives.

Based on earlier research about maternal language and child language, in this study, we expect to demonstrate the direct influence of maternal language skills on children's language

abilities. Also, maternal language skill is expected to indirectly influence children's language development through language stimulation towards children.

2.3.3 Relation of family socioeconomic background to maternal language skills

Maternal education level and socio-economic background have been found to be significantly associated with maternal language (Hoff-Ginsberg, 1991; Rowe, Coker, & Pan, 2004; Vernon-Feagans, Pancsofar, Willoughby, Odom, Quade, & Cox 2008). Rowe, Pan, & Ayoub (2005) examined predictors of variability in mothers' lexical diversity and amount of talk in a sample of 108 low-income families. The results indicated that mothers with high levels of education produced more diverse vocabulary and talked more during interactions with their children than mothers with low levels of education. Similarly, Hoff-Ginsberg (1991) found that mothers from higher SES generate larger variety of words, more and longer utterances as compared to mothers from lower SES. Furthermore, Bornstein et al. (1998) found that SES influences child vocabulary competence through maternal language. Similarly, Hoff (2003) examined maternal speech as a mediator between SES and children's vocabulary development with a sample of 33 high-SES and 30 mid-SES families and their children at 16 to 31 months of age. Socio-economic status was found to influence maternal speech such that mothers from high-SES had more utterances, more diverse vocabulary, and more word tokens and produced more complex sentences with higher mean length of utterances (MLU) than mothers from mid-SES. In addition, the MLU of mothers' clauses was found to predict child vocabulary growth significantly after ten weeks. Moreover, when maternal speech was included in the model, the significance of the SES effect on the outcome variable of child vocabulary growth disappeared indicating a full mediation in which the influence of SES on

child vocabulary growth operated only through maternal speech, without having a direct influence (Hoff, 2003).

In the light of previous literature, it is reasonable to assume that maternal language competence and use may be a primary mediator of the family socioeconomic background on child language outcomes. Since narrative productions allow rich information about individuals' language skills that go beyond lexical diversity (Justice et al., 2006), in this study maternal language skills were studied in terms of maternal narrative skills. Mothers coming from high socioeconomic backgrounds are expected to have more advanced narrative skills than mothers coming from low socio-economic background. Mothers with more advanced language skills are expected to use more sophisticated language structures and a more varied range of vocabulary during mother-child communication, which in turn, were expected to influence child language skills. To sum up, family socioeconomic background is expected to influence child vocabulary growth and narrative skills through maternal narrative skills.

2.3.4 Stimulating home environment as a mediator of family socioeconomic background

The importance of a stimulating home environment on child development has been well established. In this thesis, a stimulating home environment refers to maternal language stimulation provided to children and learning materials available to the children at home.

A stimulating home environment rich in terms of maternal language input is an important factor for children's lexical development. The predictor role of amount and variety of maternal language input on child language outcomes has been well established (Hoff, 2003; Huttenlocher et al., 1991; Pan et al., 2005). In a now classical study, Huttenlocher et al. (1991) found significant correlations between quantity of maternal speech and vocabulary growth of

22 children who were followed from 14 to 26 months of age. Moreover, a direct influence was found between maternal vocabulary types during conversation and vocabulary competence of children in middle-class families (Bornstein et al., 1998). Similarly, in low-income families children of mothers who use different word types during mother-child communication found to have faster and more linear vocabulary development from 14 to 36 months (Pan et al., 2005). Oxford and Spieker (2006) conducted a longitudinal study with 154 children of adolescent mothers to investigate predictors of language development during preschool. The study revealed that being raised in a home environment with poor linguistic resource provision significantly predicted low language performance assessed during preschool, with the influence of intergenerational risk such as grandparent education and welfare support status, maternal verbal ability as measured through the Peabody Picture Vocabulary Test and mother's education being controlled.

Developmental researchers have also examined the processes that explain how socioeconomic factors are related to child language outcomes. These studies help understanding the influence of proximal factors such as provision of a stimulating home environment on language development of children. Previous studies have shown that children from poor families have less access to learning materials than children from high income families (Bradley, Corwyn, Burchinal, McAdoo, & Garcia-Coll, 2001; Bradley & Corwyn, 2002). Raviv, Kessenich, and Morrison (2004) investigated the influence of socioeconomic status as a distal factor on language abilities of 3-year-old children with a sample consisting of 1,016 families from the NICHD study of Early Child Care Research and Youth Development. They found that proximal processes such as maternal sensitivity and cognitive stimulation at home partially mediated the influence of socioeconomic status on children's verbal comprehension and receptive and expressive verbal abilities. They also found a direct influence of socioeconomic background on child language. Similarly, in a longitudinal study, Brooks-

Gunn et al. (2002) investigated the direct and indirect effects of family income on child cognitive development with a sample consisting of 493 White and African American low-birth weight infants followed from birth to 5 years of age, based on the data from the Infant Health and Development Project (IHDP). Their results indicated a partial mediation between family income and child cognitive development via a cognitively stimulating environment.

Specifically, family income had a significant direct influence on cognitive development of young children assessed by Stanford-Binet and Wechsler Preschool and Primary Scale of Intelligence (WPPSI). Also, a significant indirect effect was reported in which family income significantly influenced the home environment measured by the Home Observation for Measurement of the Environment scale, which, in turn, influenced children's cognitive development even after controlling for some covariates such as maternal education and maternal language ability. Roberts et al. (1999) studied individual variability in low-income African American children's vocabulary knowledge between 18 months to 30 months of age and found a significant influence of a responsive and stimulating environment assessed by the HOME scale on children's vocabulary development. Children who are exposed to more responsive and stimulating environments had better vocabulary scores than children from less responsive and stimulating home environments (Roberts et al., 1999). Iruka (2009) found a significant predictor role of a stimulating home environment on children's receptive language skills at 36 months of age with 2,777 Early Head Start Research and Evaluation Study (EHSRES) participants from low socioeconomic and diverse ethnic backgrounds. In addition, Roberts, Jurgens, & Burchinal, (2005) investigated the predictor role of the overall quality of the home environment on children's receptive vocabulary, expressive and receptive language as well as early literacy competence in a sample of 72 African American children followed from 3 to 5 years of age.

The current study proposes to show the direct and indirect influence of family socioeconomic status on children's vocabulary and narrative skills via provision of a stimulating home environment including learning materials and language stimulation to children. Specifically, children from high socioeconomic status are expected to display higher language skills than children from low socioeconomic background. Also, high family socioeconomic status is expected to lead to high quality home environments with more learning materials and maternal language stimulation provided to children, which, in turn, are expected to lead to higher vocabulary and narrative skills at 4 years of age.

2.4 Specific aims and hypotheses of the present study

Previous literature on language development has two main shortcomings. First, previous studies mostly merely address child vocabulary skills for evaluating children's language outcomes. However, lexical-semantic development is only one of the components of language development. Other aspects of language use such as in extended discourse and narrative need to be examined. Second, there is an inadequate number of studies that study language development with different samples other than middle-SES Western samples and using a longitudinal design although longitudinal data are more likely to capture sources of variability in children's language skills. Therefore, examining the influence of factors brought about by family socioeconomic background on narrative and vocabulary skills of children with a sample other than middle-SES American samples is an important goal.

In this study the sources of variability in Turkish-speaking children's vocabulary and narrative development was investigated through visiting children's natural home environments at two time points. The main independent variables are socio-economic status of the family, maternal

narrative skills, learning materials and language stimulation provided towards children. In the light of previous literature, the hypotheses of this study are the following:

- 1- Mothers from high socio-economic backgrounds are found to have higher language skills than mothers from low socio-economic backgrounds (Bornstein et al., 1998; Hoff-Ginsberg, 1991; Rowe et al., 2005). Accordingly, it is expected that mothers from high socioeconomic status are expected to have higher narrative abilities than mothers from low socioeconomic backgrounds.
- 2- Maternal language stimulation is expected to be directly influenced by family socioeconomic background and maternal narrative skills.
- 3- The family socioeconomic background is expected to have a direct influence on learning materials provided towards children. Specifically, it is expected that in high socioeconomic backgrounds learning materials available to the children will be higher than in low socioeconomic backgrounds (Brooks-Gunn et al., 2002; Raviv et al., 2004).
- 4- Family socioeconomic background at 3 years of age is expected to have a direct influence on child receptive vocabulary and narrative competence at 4 years of age.
- 5- High maternal linguistic ability measured when children are 3 years of age is expected to lead to high levels of child language outcomes in terms of vocabulary and narrative competence at age 4. Maternal narrative ability is expected to have a direct and an indirect effect on children's language levels through language stimulation provided to children (Bornstein et al., 1998; Pan et al., 2005; Peterson & McCabe, 1991).
- 6a- A rich amount of language stimulation by mothers provided at age 3 is expected to lead to better receptive vocabulary scores and narrative performance at age 4. Previous

studies suggest that exposure to richer linguistic interactions lead to high language performance in young children (Hoff, 2003; Oxford & Spieker, 2006; Pan et al., 2005)

6b- High amount of learning materials provided at age 3 is expected to predict better receptive vocabulary scores and narrative performance at age 4. Exposure to a stimulating home environment was found to lead to high language performance in young children (Raviv, Kessenich, & Morrison, 2004; Roberts et al., 1999; Roberts, Jurgens, & Burchinal, 2005).



Chapter 3

METHOD

This chapter is composed of 6 main sections in which information is provided about the design, the procedure, the participants, the measures, the transcriptions, the coding and the new variables created that were used in the analyses.

3.1 Design and Procedure

The data analyzed for this thesis come from the Early Childhood Developmental Ecologies in Turkey (ECDET) project designed to study child development by following children and their families for 5 years with a longitudinal design (Baydar, Küntay, Gökşen, Yağmurlu, & Cemalcılar, 2010).

The ECDET project has a nationally representative sample which includes 1,052 children at 36-47 months of age at the beginning of the study period and their mothers. The families were selected through a stratified sample selected through a stratified clustered sampling procedure from 19 provinces of 24 communities in Turkey. From the ECDET study, a subsample of 126 children and their mothers from the four largest metropolitan areas (i.e., İstanbul, Ankara, İzmir and Adana) were selected to participate in more detailed observations including a narrative elicitation protocol. These families from diverse socioeconomic backgrounds were followed at two time points, when the children were 36-47 months of age and a year later, when they were at 48-59 months of age.

Eligible children in the chosen districts were identified through screening of the neighborhoods by interviewers with the help of local officials, public health clinics serving target neighborhoods or through door-to-door screening. Home visits were made as soon as usual caretakers of the eligible children gave consent for participation in the study. If the visit could not be done immediately, an appointment was done for another day by talking to the regular caretaker of the child. Regular caretakers were mostly children's biological mothers. However, if the mother was not the primary caretaker living with the child, then someone other than the biological mother, such as the grandmothers participated in the study.

3.1.1 Main study

The research team or the supervisors trained by the research team trained interviewers who collected the ECDET data through home visits lasting 2-3 hours. 57 interviewers and 8 supervisors were informed about the ECDET study, and they were trained on the instructions of every section of the assessments including questionnaires, observational protocols and assessments of children. Interviewers were also informed about how to establish rapport with participant mothers and children. In order to enhance learning in training, role playing, practice and evaluations were conducted with the interviewers (Akçınar, 2009).

Besides training, manuals including information about the implementation of the items and examples were prepared to assist interviewers during the field work. Through manuals, interviewers were provided with additional information about the expected behaviors from the interviewers as a visitor, ways to complete the visits successfully, the ideal sequence to be followed in implementing the assessments, general information about the characteristics of 3- and 4-year-old children, and ways for coping with problems that might arise during field work.

3.2 Participants

The participants of this thesis were drawn from a larger sample of 1052 mother-child dyads participating in the first and second waves of the ECDET study in which children were 36-48 months and 48-60 months of age respectively. The data to be analyzed come from 108 families who agreed to be audio-taped and from whom maternal narrative data were collected. However, in the Adana district interviewers applied slightly different data collection procedures rather than the standard protocol. Due to this problem some children did not supply narratives in our second visit. Thus, we had to exclude those families from the analyses that predict children's narrative performance. The data where the children produced narratives come from 80 children. Among these, 78 participants who did not have missing data on socioeconomic status were included in the analyses. From the first visit of the study, maternal narratives were available even though collected with different procedure in the Adana district. In order to test whether results differ with higher sample size we replicated the analyses with 104 or 108 participants who did not have missing data on any of the independent variables by representing data collection problems through a dummy variable, i.e., data collected from Adana or not (i.e., in other locations).

Table 3.1 presents the demographic characteristics of the participants. Among the 108 children in the sample, 56.5% ($n=61$) of them were girls. The average age of the children was 53.49 months old ($SD=3.89$) during the 2nd year assessments when language measures were taken.

The average age of the mothers was 29.68 ($SD=5.79$) during the 1st year assessments. Among 108 mothers, 78.7% ($n=85$) were living in urban area, 58.3% ($n=63$) of them graduated from elementary school or had less education, whereas 41.7% ($n=45$) of the mothers had an education level higher than elementary school. In addition to maternal

education information, a composite factor score was obtained for the family socioeconomic background that is based on the level of maternal and paternal education, materials that the family owns such as household appliances, television, car, summer house, and family total monthly expenditure estimate. Of the 108 mothers, four of the mothers had missing data on family socioeconomic background variable so descriptive analyses provided here include 104 mothers. Among 104 mothers 26% ($n=27$) had low SES, 36.5% ($n=38$) had middle SES, and 37.5% ($n=39$) had high SES.

Table 3.1 Demographic information about participants gender, age, education level, living in urban area ($N=108$) and family socioeconomic background ($N=104$).

Characteristics	Sample Size ($N= 108$)
Age of the child at time 2 (in months)	53.49 (3.89)
Male children ($n=47$)	43.5%
Age of mother at time 1 (in years) ($n=100$)	29.68 (5.79)
Living in urban area ($n=85$)	78.7 %
Mother's educational level	%
Not completed elementary school ($n= 14$)	13 %
Graduated from elementary school ($n=49$)	45.4 %
Not graduated from high school ($n=16$)	14.8 %
Graduated from high school ($n=22$)	20.4 %
Graduated from university or higher degree ($n=7$)	6.5 %
Socioeconomic Background of Mothers ($N=104$)	%
Low SES ($n=27$)	26 %
Middle SES ($n=38$)	36.5 %
High SES ($n=39$)	37.5 %

Note. Means are provided with the standard deviations in parenthesis.

We were concerned that the participants of this study were different than the larger sample and ran a comparison test to determine whether the participants visited for narrative recordings differ from the larger sample of the ECDET study. These two samples significantly differ on years of maternal education $t(1026) = 2.24, p < 0.05$. The mean level of years of maternal education was higher in the current sample ($M = 6.79, S.D. = 3.79$) than in the larger sample ($M = 5.96, S.D. = 3.63$). Also, the current sample differed from the larger sample in terms of family socio-economic background $t(1012) = 2.70, p < 0.01$, in which families of the current sample are coming from more advantageous backgrounds than the participants of the larger sample.

3.3 Measures

This study included qualitative data collection methods such as narrative recordings as well as quantitative data collection methods such as questionnaires administered to the participant mothers. In the following section we present quantitative and qualitative measures respectively.

3.3.1 Quantitative measures

Socioeconomic status used in the following statistical analyses is a composite measure created by computing a factor score based on maternal reports about maternal and paternal education level, materials that the family owns such as household appliances, television, car, summer house, and family total monthly expenditure estimate. Factor scores above .5 represent

high SES mothers, below -.5 represent low SES mothers and factor scores between -.5 and .5 represent middle SES mothers (Akçınar, 2009).

3.3.1.1 TIFALDI Receptive Language Test

Children's receptive vocabulary knowledge was assessed through the TIFALDI Receptive Language Test (Berument, 2000; Berument & Güven, 2010). It is an individually administered test which includes a total of 83 items 2 of which are additional warm-up questions. In the application of TIFALDI-Receptive, children are asked to choose a picture among 4 pictures that best represents the word read to them. There is increasing number of items for each age: 9 items produce a baseline level; the level of age 3 is composed of 18 items, the level of age 4 has 15 items; the level of age 5 is composed of 24 items; and the level of age 6 is composed of 15 items. The administration of the test is terminated if the child answers two thirds of the questions for that age incorrectly. In the development of a scoring system of the TIFALDI-Receptive, a three-parameter logistic Item Response Theory (IRT) model was used on 81 test items (Baydar, 2008).

To demonstrate the convergent validity of TIFALDI-Receptive, the scores' correlation with other relevant measures was calculated. The scores on TIFALDI-Receptive was found to be associated with scores on the Corsi Block Tapping Task, a working memory measure ($r = 0.36, p < .05$), ACEP maternal vocabulary test ($r = 0.39, p < .05$), maternal education in terms of years completed ($r = 0.31, p < .05$), and paternal education in terms of years completed ($r = 0.27, p < .05$).

3.3.1.2 Home Observation for Measurement of the Environment (HOME) –TR

The quality of the home environment was assessed with the Turkish version of the Home Observation for Measurement of the Environment (HOME) adopted by the ECDET project. The original HOME inventory measures the quality and the quantity of stimulation directed towards children in the home environment by using observation and interview techniques (Bradley, 1981; Bradley & Caldwell, 1984). The preschool version of the original HOME inventory contains 55 items with eight subscales such as “(1) toys, games, and reading materials, (2) language stimulation, (3) physical environment, (4) pride, affection, and warmth, (5) stimulation of academic behavior, (6) modeling and encouragement of social maturity, (7) variety of stimulation, and (8) physical punishment” (Bradley & Caldwell, 1984, pp.804). The present study utilized the Turkish version of HOME inventory, which was adapted by Baydar and Bekar (2007) to the Turkish early preschool population. The Turkish version of the HOME inventory is a structured and closed-ended interview technique that consists of 52 items adapted by taking into account Turkish children’s living conditions. These 52 items clustered into seven subscales and 2 subscales named learning materials and language stimulation were used in this study. Cronbach’s alpha values were calculated for each subscale based on the data from the first wave of the main ECDET study (Baydar et al., 2008):

a) *Learning materials*

This subscale has an internal consistency of $\alpha=0.91$ and includes 10 items such as “Child has toys which teach colors, sizes, and shapes” and “Child has at least three children’s books”.

b) Language stimulation

This subscale has an internal consistency of $\alpha=0.84$ and this subscale has 7 items such as “Parent teaches child simple verbal manners: please, thank you, I’m sorry”, and “Mother uses correct grammar and pronunciation”.

3.3.2 Qualitative Measures

3.3.2.1 The Frog Story

Previous studies conducted on narrative development display variations in how narratives are elicited from the participants. In some studies, narrative development is studied based on children’s narratives of their personal experiences (Chang, 2004; Haden, Haine, & Fivush, 1997; Noel, et al., 2008; McCabe, & Bliss, 2004-2005; McCabe, Peterson, & Connors, 2006; Peterson, Jesso, & McCabe, 1999). In some other studies, wordless picture books such as “Frog, Where are you?” (Mayer, 1969) which was considered as an assessment device by the U.S. Department of Health and Human Services, 2002 was employed as a narrative elicitation procedure (Berman & Slobin, 1994; Diehl, Bennetto, & Young, 2006; Fiesta & Pena, 2004; Manhardt & Rescorla, 2002; Miller et al., 2006; Munoz, Gillam, Pena, & Gulley-Faehnle, 2003; Reynolds & Evans, 2009; Verhoeven & Strömqvist, 2001) as well as picture books other than “Frog, Where are you?” (Lafranco, Pena, & Bedore, 2006; Pena, Gillam, Malek, Ruiz-Felter, Resendiz, Fiestas et al., 2006). In some studies, single pictures (Eisenberg, Ukrainetz, Hsu, Kaderavek, Justice, & Gillam, 2008; Fiesta & Pena, 2004; Hayward, Schneider, & Gillam, 2009; Justice et al., 2006; Tilstra & McMaster, 2007; Uccelli & Paez, 2007) and animated wordless videos (Shiro, 2003) were used as prompts. In this study, the wordless

picture book “Frog, Where are you?” (Mayer, 1969) was used in order to elicit narratives from both children and their mothers. This method was used extensively in previous cross-linguistic narrative studies, proving to be useful in collecting extended discourse samples from diverse cultures (Slobin & Berman, 1994; Verhoeven & Strömquist, 2001).

The book *Frog, Where Are You?* was selected for our narrative elicitation task since it allows gathering narratives with rich temporal and causal relations between events. The book represents the story of a boy whose pet frog escapes from its jar while the boy and his dog are sleeping. The boy and the dog experience a sequence of different events in the forest with other animals like bees, an owl and a deer while searching in the forest for their pet frog. After a series of adventures, the boy and the dog find their pet frog in the final picture. This book enables narrators to relate sequential events to each other, to elaborate on them, to describe the temporal-spatial background, to mention simultaneity of events that are co-occurring in the story, and to shift the focus between characters since there is a boy and a dog as the two main protagonists (Berman & Slobin, 1994). In addition, this book enables children to generate stories that include many episodes (Munoz, Gillam, Pena, & Gulley-Faehnle, 2003).

3.3.2.2 Narrative coding criteria

In this study we analyzed maternal and child narrative skills based on three different aspects of narrative: plot complexity, lexical richness and length, linguistic complexity.

We coded the narratives based on criteria discussed in Berman and Slobin (1994). The assumption is that narrators with discourse competence explicitly mention the major themes and subcomponents of these themes in their stories. The thematic organization of the stories was coded in terms of three plot components: plot onset, plot unfolding and plot resolution.

The onset of the plot refers to starting event such as boy's realization of the frog's escape. Plot unfolding refers to referring to elaborated actions in the story during searching of the lost frog and interacting with other story characters. Plot resolution refers to whether the narrator mentions about finding of the lost frog. In addition, we coded whether the narrator included reference to the search theme by noting whether the narrator explicitly mention the missing of the frog and search for it as well as reiteration of the search theme later on with additional mentions.

Plot complexity components were scored based on presence of plot sub-components; presence of each element received 1 point. The plot onset was scored based on presence of plot sub-components such as precedent event, temporal location, characters (the boy/child, the dog, the frog), main characters' discovery of something have happened, depiction of inference about the frog's disappearance and the response of the protagonist. Based on the presence of these elements one can get 0 to 8 points for the plot onset component. The plot unfolding component was scored based on the presence of subcomponents such as seeking for the lost frog in the home, interaction with bees, with gopher, with owl, with deer and falling down. In cases of failure to correctly label the animals, the scoring criterion was explicit mention of the interaction with the inferred animals. Based on the presence of these elements one can receive 0 to 6 points for the plot unfolding component. Plot resolution component was scored based on mention about finding of the lost frog by the protagonists and presence of this element received 1 point. Search theme component includes sub-components such as explicit mention of lost frog and reiteration of search theme. 1 point was given for each aspect of the search theme: explicit mention for the lost frog and protagonist's search for the frog. Reiteration of the search theme was scored based on whether the search theme was reiterated additionally. No additional mention received 0 point, 1 or 2 additional mentions received 1 point and more than 2 additional mentions received 2 points. Based on the presence of search theme sub-component

elements one can receive 0-4 points for search theme component. In cases of mothers or adults asking leading questions such as the “Do bees attack the dog?” before the children’s relevant contribution to the narrative, the answers of these questions did not receive any credit. Based on the onset, elaboration, resolution and search theme scores a composite factor score was obtained and used in the analyses as narrative plot complexity score.

Table 3.2 presents more detailed information about coding for plot complexity with definitions and examples.

Table 3.2 Definition and examples of coding for plot complexity

Core Plot Components	Plot Sub-Components	Examples and Explanations
Plot onset	Precedent Event	The boy wakes up
	Temporal Location	In the morning/evening/night
	Characters	The boy/child, the dog, the frog Scoring ranges between 0-3. Only one character=1; Two of the characters= 2 Three characters=3
	The main characters (boy, dog) learn something	The boy discovers/realizes that frog is gone away Child looks to the frog and could not find the frog When the boy and the dog wake up and look for the frog, they could not see the frog
	Depiction of inference about the frog’s disappearance	The jar is empty The frog run away from the jar The frog left its jar The frog disappeared
	The response of protagonist	The boy gets surprised/worried

Core Plot Components	Plot Sub-Components	Examples and Explanations
Plot Unfolding	Seeking for the lost frog in the home	Child looks for the frog somewhere in the house
	Encountering with bees	The bees attack to dog, child The dog wants to catch the bees
	Interacting with gopher	Gopher bites the nose of the child Gopher becomes angry to the child Gopher comes while child is calling for the frog
	Interacting with owl	Owl attacks to the child Child is afraid of the owl
	Interacting with deer	Child gets on to the deer Deer throws the child to the lake
	Falling down	Child and the dog fall down into the lake/pond/pool/sea Child falls down to the ground
Resolution	Protagonist finds lost frog	The boy found the missing frog
Search Theme	Explicit mention of lost frog	Whether the narrator explicitly mentions that the frog is missing and the boy was searching for him (range: 0-2). 1 point for mentioning each aspect of initiating the search theme: frog missing, boy looking. -The frog is missing -The boy looking for the frog * Just mentioning that the frog leaves its jar did not get point
	Reiteration of search theme	Whether the search theme was reiterated later. (range: 0-2). No additional mention = 0; 1 or 2 additional mentions = 1; Multiple additional mentions = 2.

3.3.2.3 Plot complexity factor score

By using factor analysis, plot complexity components comprising onset, action elaboration, resolution, and search theme scores were extracted to one factor and saved as a composite plot complexity measure, separately for mother and child narratives. The mean of the new summary composite plot complexity score was 0 and the standard deviation was 1.

3.3.2.4 Lexical richness and length

The narratives were also coded in terms of their linguistic complexity calculating number of word tokens, number of different word types (different roots), number of word-form types, number of clauses, number of words per clause by using the FREQ program of CLAN (Computerized Language Analysis) program of Child Language Data Exchange System (CHILDES) (MacWhinney, 2000).

1. *Number of different word types*: This measure is calculated by taking different word roots into account. For example: *yatıyor* (lie - PROGRESSIVE) and *yattı* (lie - PAST) are counted as 1 different word since both *yatıyor* and *yattı* have same root of *yat* (lie).
2. *Number of word tokens*: This measure gives the total number of words used by the narrator.
3. *Number of word-form type*: This measure includes number of different word forms used. Alternate word forms were counted as two different word-form types. For instance; *yatıyor* (lie - PROGRESSIVE) and *yattı* (lie - PAST) are counted as two different forms of words.

4. *Number of clauses*: The clauses are identified based on the clause definition of Berman and Slobin (as cited in Berman & Slobin, 1994, p.657) such as “any unit that contains a unified predicate” which “expresses a single situation (activity, event, or state)”. For instance: “*kurbağa kaçmış*”, “*çocuk uyanmış*”.
5. *Words to clause ratio*: This measure is calculated by dividing total number of word tokens to the number of clauses used in the narratives elicited.

3.3.2.5 Linguistic complexity

Narratives were reanalyzed based on the linguistic complexity in narratives. Table 3.3 presents the number of language structures such as subordinate marker, multi-clause utterance coordination, multi-clause utterance-subordinate, subordination with converbs, infinitives used in the narrative was calculated.

Table 3.3 Definitions and examples of coding for linguistic complexity

Linguistic Complexity Components	Definitions	Examples and Explanations
Subordinate Marker	Clauses with a subordinated verb without a main verb.	- <i>yürüyen çocuk</i> , - <i>ağaçta asılı olan arı kovarı</i> , - <i>kütüğün dibinde oturan iki kurbağa</i> , - <i>geldikleri yer</i>
Multi-Clause Utterance-Coordination	A coordinate conjunction such as “ and ”, “ but ”, “ and then ”, “ then ”, “ however ”, “ at last ” joins two single clauses, even if they are under the different intonation contour in which there is pause more than 2 seconds. - “ Then ”, “ and then ” coded as Multi-clause-coordination if has syntactic function of combining two predicates rather than just a pragmatic function.	- <i>sonunda kurbağasının ailesiyle birlikte kurbağayı orada görüyor ve hep birlikte eve dönüyorlar</i> . - <i>balon almış, oynamış</i> - <i>bir yere yatmış havucunu yiyor</i> - <i>ağlıyor, balonu istiyor diye</i> . e.g. ‘ <i>Balon uçmuş. Sonra da üzülmüş çok, ağlamış.</i> ’ (syntactic function) ‘ <i>Sonra oynuyor. Sonra elinde tutuyor balonu. Sonra balonu bırakıyor, uçuyor. Sonra evine geliyor</i> ’ (pragmatic function)

Linguistic Complexity Components	Definitions	Examples and Explanations
Multi-Clause Utterance-Subordinate	A subordinate conjunction such as ‘when’, ‘because’, ‘after’, ‘while’, ‘so’, ‘that’ etc. joins two single clauses	-Her türlü muzurluğu yapmasına rağmen canı çok sıkınmış. -Onu arıyoruz o yüzden çağırıyoruz. -Kurbağa korkup kaçabiliyormuş ya ondan ötürü kavanoza koymuşlar. -At gittiği için ağlıyor. -Köpek suya düşecek gibi çağırıyor. -Also, “geyik çıkışında”, “Biraz daha dikkatli baktığında”, “çocuk sabahleyin uyandığında”, “uyandığı zaman”, “o sırada” o arada” uses were counted as Multi-Clause Subordinate.
Subordination with converbs	Usage of constructions such as V+ken (koşarken), V+ince (koşunca), V+ip (koşup), V+erek (koşarak), V+a ...V+a (koşa koşa) etc.	- Balon uçup gidiyor. - Eve ağlayarak gidiyor
Infinitives	Usage of constructions such as –mak, -mek	- köpek kovarı almaya çalışıyor - kurbağayı bulmaya çalışıyorlar.

3.4 Procedure

To collect the data for this study, two visits with a year interval to the children’s homes were made when the children were at the age of 36-47 months and 48-59 months. All the data were collected as part of the larger ECDET study, where multiple assessments were applied to the child and interviews were conducted with the mother.

3.4.1. Demographic Information Questionnaire

During the visits first the demographic information such as child gender, age, parental education was collected through interviews with parents (Appendix A). In the application process of the Demographic Information Questionnaire, all the questions were read to mothers and their answers were recorded by the interviewers.

3.4.2. TIFALDI-R

Children's receptive vocabulary skills were assessed through TIFALDI Receptive Language Test (Berument & Güven, 2010). Children were shown four pictures on a page and asked to show the correct picture that depicts the meaning of the word which was read aloud by the interviewer. Before starting the assessment, two examples were completed with the children and if necessary corrective feedbacks were provided to them. The number and the content of the test items showed variance based on the performance of children. After the examples, administration of the test started from the page determined for that age group. The number of the pictures pointed by the children was recorded to the answer sheets. For the wrong answers, 1 point was written to the "wrong" column of the answer sheet. For children who made any 3 errors (consecutive or not) the test restarted to be applied from the previous age level. For each age group a stopping rule was implemented as well. The test was terminated in cases of giving incorrect answers for the 2/3rd of the questions. In this thesis, children's receptive vocabulary knowledge at 4 years of age was the outcome. Four years old assessment was started from the 30th page which was determined as the starting page for that age group. The test was terminated when children made 10 or more errors among the 15 questions (2/3rd of the questions) determined for that age group. For children's receptive

vocabulary knowledge, age standardized latent vocabulary ability scores were created (Baydar et al, 2008) and these z-scores were used in the analyses of this study.

3.4.3 The Frog Story

Frog story protocol was applied in order to collect narrative data (Appendix B, C). In the first visit the frog story narratives were collected from both mothers and their children. In the second visit, the frog story narratives were collected only from the children. In collecting narratives the participants' names, the date of the recording, the city and the participant id number of participants were recorded on a digital audio-recorder. Then, the book was shown to the participants. The researcher pointed at the three main characters on the cover page of the book, saying, "There is a book here. In this book, there is a boy (pointing), a dog (pointing), and a frog (pointing) in this story." Then the participants were told "First, look all the pictures of this book carefully, and then tell a story about what is happening in these pictures while looking at the pictures for a second time". The participants were not restricted with time and the researchers waited until the participants finished looking at all the pictures of the book one by one. The child participants were sometimes assisted in the turning of the pages from left to right. Towards the end of the participants' looking through the pages, the researchers turned on the audio recorder and asked participants to begin to tell the story. The microphone of the voice recorder was kept oriented towards the mouth of the participants. During the recording time, the researcher paid attention to avoid sitting next to the participants and looking at the pictures of the book. Researchers were instructed to sit quietly and if necessary approving with only head movements. In case of need, children were encouraged by verbal remarks such as "yes, ok, hıı" or "what else is happening?" If the child asked about the name of an object in the book, the researcher could provide the label but

could say anything else about the contents of the story. After the storytelling ended, researcher thanked the participants and turned off the recording device.

3.4.4 HOME-TR

The quality of the home environment was assessed through HOME-TR (Baydar et al., 2007) based on the observations of the interviewers (Appendix D). During home visits, interviewers observed and filled the questions of HOME-TR. For the items that could not be observed information was provided through reports of the mothers or the primary caregivers. In this thesis, subscales of the HOME-TR assessing language stimulation and availability of learning materials were used.

3.5 Transcription

Trained undergraduate students in the psychology department fully transcribed the recorded narratives elicited from the mothers and the children following the CHAT conventions of the Child Language Data Exchange System (CHILDES; MacWhinney, 2000). In order to correct any transcription errors, all of the transcribed narratives were checked by the first author. A second undergraduate research assistant in the ECDET study who was trained for narrative transcription and blind to the study rechecked all of the transcriptions. Disagreements between the two transcribers were resolved through listening to the recordings once more.

3.6 Coding and Inter-rater reliability

All of the narratives were coded by the author of this thesis. To establish reliability, another undergraduate psychology student who voluntarily participated to the ECDET study as a research assistant and who was blind to the participant's background information, design and the hypotheses of the study received training about the application of coding system for 3 days. For training purpose 5 mothers and 5 children narrative data were randomly selected. The first author explained and gave detailed examples for coding system by recoding one of the mothers and one of the children's transcription with the second-coder for training purpose. The second-rater then recoded the narratives selected for the training purpose independently and discrepancies were discussed until an agreement was provided. Following the training, this second rater independently coded narratives of eleven mother out of 108 participants (10.2%) and 11 children out of 80 participants (13.8%) which were randomly selected. Inter-rater reliability was assessed in three main coding types which were linguistic complexity, lexical richness and length, and plot complexity. The discrepancies were discussed until an agreement was reached.

The inter-rater reliability for plot complexity measures were assessed through percentage of agreement which is calculated by dividing total number of agreements by the sum of number of agreements and disagreements. The inter-rater reliability was obtained for all measures and inter-rater reliability for plot complexity ranged from 90% to 100% accuracy.

The correlations between linguistic complexity measures (subordinate marker, multi clause coordination, multi clause subordination, subordinate with converbs and infinitives) coded by the first author and the second rater were analyzed through correlation analyses and ranged from .97 to 1.

Similarly, lexical richness and length measures (number of clauses, number of word token, number of different word roots, and number of different word types) coded by the first author and the second rater were analyzed through correlation analyses and ranged from .99 to 1. The result of inter-coder reliability indicates consistent and reproducible coding decisions.



Chapter 4

RESULTS

The results are presented in two main sections. The first section includes the relations between family socioeconomic background, maternal language skills, amount of stimulation in the home environment and the child language outcomes. The second section presents the analyses to explore the results of the conceptual model quantifying the effects of family socioeconomic background, maternal narrative skills, amount of language stimulation by mother and learning materials available to the child at 3 years of age (Time 1) on child receptive vocabulary and narrative skills at 4 years of age (Time 2).

4.1 Bivariate analyses

The simple bivariate correlations among the three different narrative measures (linguistic complexity, lexical richness and length, and plot complexity), child receptive vocabulary as outcome variables and predictor variables (family socioeconomic background, language stimulation by mother, learning materials available to the children) are presented in three separate sections.

4.1.1 Relation of predictor variables to linguistic complexity measures

Table 4.1 presents the associations of mother and child narratives regarding linguistic complexity measures (usage of multi-clause coordination, multi-clause subordination,

infinitives, subordinate marker, and subordination with converbs) with family socioeconomic background, maternal language stimulation, and learning materials available to the child.

Based on bivariate analyses:

- Family socioeconomic background was found to be significantly correlated with language stimulation by the mother, learning materials available to the child, child receptive vocabulary score assessed by Tifaldi, and the converb usage of children.
- Language stimulation by the mother was found to be significantly correlated with learning materials available to the child and the child receptive vocabulary.
- Learning materials available to the child were significantly associated with child receptive vocabulary.
- Maternal usage of multi-clause coordination was found to be significantly associated with other maternal linguistic complexity (multi-clause subordinate, subordinate marker, subordination with converbs, infinitives) as well as child usage of multi-clause coordination.
- Maternal usage of multi-clause subordinate was found to be significantly associated with other maternal linguistic complexity measures and child usage of multi-clause coordination and subordination with converbs.
- Maternal usage of subordinate marker was significantly related to maternal usage of subordination with converbs.
- Mothers' production of subordination with converb was significantly associated with the maternal usage of infinitives.
- Child usage of multi-clause coordination was significantly associated with child usage of multi-clause subordination, subordinate marker and infinitives.
- Child usage of multi-clause subordination was found to be significantly related to child usage of subordinate marker, subordination with converb, and infinitives.

- Child usage of subordinate with converbs was found to be significantly associated with child usage of infinitive productions and child receptive vocabulary skills.



Table 4.1. Associations between SES (N=78), language stimulation, learning materials and linguistic complexity measures of children and mothers (N=80)

	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SES	.16	.07	.07	-.11	-.21	.43**	.72**	.15	.12	.19	.23*	.08	.33**
2. MultiClause Coord_Mother		.46**	.26*	.48**	.38**	.25*	.17	.33**	-.00	-.03	.13	.06	.16
3. MultiClauseSubord_ Mother			.41**	.47**	.36**	.18	.09	.29**	.11	.11	.26*	-.08	.01
4. Subordinate Marker_ Mother				.24*	.20	-.01	-.08	.09	-.01	.12	.17	-.05	-.14
5. SubordwConverb_ Mother					.49**	.19	-.04	.01	.02	.07	-.02	-.09	.00
6. Infinitive_ Mother						.06	-.13	.16	.08	-.05	.05	.05	-.06
7. LangStim_ Mother							.64**	.22	.08	-.01	.19	.08	.39**
8. LearnMater								.11	.13	.14	.11	-.05	.34**
9. MultiClause Coord_Child									.40**	.45**	.04	.25*	.15
10. MultiClause Subord_Child										.36**	.32**	.43**	.11
11. Subordinate Marker_Child											.11	.24*	.08
12. Subord wConverb_Child												.23*	.22*
13. Infinitive_Child													.11
14. Tifaldi													1

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Note: Abbreviations are as follows: **SES** = family socio-economic status; **MultiClauseCoord_Mother** = Multi clause coordination usage by mother; **MultiClauseSubord_Mother** = Multi clause subordination usage by mother; **Subordinate Marker_Mother** = Subordinate marker usage by mother; **SubordwConverb_M** = Subordination with converb usage by mother; **Infinitive_Mother** = Infinitive usage by mother; **LangStim_Mother** = language stimulation provided by mother; **LearnMater** = Learning materials available to the child; **MultiClause Coord_Child** = Multi clause coordination usage by child; **MultiClause Subord_Child** = Multi clause subordination usage by child; **Subordinate Marker_Child** = Subordinate marker usage by child; **SubordwConverb_C** = Subordination with converb usage by child; **Infinitive_Child** = Infinitive usage by child.

4.1.2 Relation of predictor variables to lexical richness and length measures

Beyond linguistic complexity measures, maternal and child narratives were investigated in terms of lexical richness and length measures such as number of words, number of different word types, and number of different word roots. Table 4.2 demonstrates the relation of the predictor variables to maternal and child lexical richness and length measures.

Based on correlation analyses:

- Children who produced high number of clauses in their narratives also produced high number of words, different word roots and different word form types.
- Children who produced high number of words in their narratives also produced high number of different word roots and different word form types.
- Children's usage of different word roots and different word form types was significantly and positively correlated with child receptive vocabulary.
- Mothers who produced high number of clauses in their narratives also used high number of words, different word roots and different word form types.
- Mother's usage of different words during narratives was significantly positively correlated with maternal production of different word roots and different word form types.
- Mothers who produced high number of different word roots produced high number of word form types.
- None of the child and maternal and child lexical richness and language length measures were found to be associated with socioeconomic background of the family, language stimulation by the mother and learning materials available to the child.

Table 4.2. Associations between SES (N=78), proximal factors, and lexical richness and language length measures of children and their mothers (N=80)

	2	3	4	5	6	7	8	9	10	11	12
1.SES	.43**	.72**	-.19	-.10	.00	-.04	-.03	.04	.09	.10	.33**
2.LangStim		.64**	.03	.12	.22	.19	.09	.14	.22	.19	.39**
3.LearnMater			-.20	-.12	-.03	-.05	-.12	-.05	.02	.03	.34**
4. Clause #_M				.96**	.90**	.93**	.18	.16	.14	.12	-.00
5. Word #_M					.94**	.97**	.19	.18	.14	.13	.02
6.WordRootN_M						.98**	.21	.22	.21	.20	.04
7. WordFormType_M							.18	.18	.17	.15	.05
8.Clause #_C								.91**	.83**	.86**	.07
9.Word #_C									.89**	.95**	.12
10.WordRoot #_C										.98**	.30**
11.WordFormType_C											.26*
12.RecepVocab_C											1.00

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Note: Abbreviations are as follows: **SES** = family socio-economic status; **LangStim** = language stimulation provided by mother; **LearnMater**= Learning materials available to the child; **Clause #_M** = Clause number mother; **Word #_M** = Word number mother; **WordRootN_M** = Word Root Number Mother; **WordFormType_M** = Word form type mother; **Clause #_C** = Clause Number Child; **Word #_C** = Word number child; **WordRoot #_C** = Word Root Number Child; **WordFormType_C** = Word Form Type child; **RecepVocab_C** = Child receptive vocabulary.

4.1.3 Relations of predictor variables to plot complexity measures

Table 4.3 presents the associations of family socioeconomic background, language stimulation by mother, learning materials, child receptive vocabulary score with maternal and child plot complexity factor scores. Based on these results, the socioeconomic background of the family, amount of language stimulation by mother and maternal plot complexity factor score were significantly correlated with child plot complexity factor score.

Table 4.3. Associations between SES (N=78), proximal variables and plot complexity measure of children and their mothers (N=80).

	2	3	4	5	6
1. SES	.43**	.72**	.25*	.25*	.33**
2. LangStim		.64**	.30**	.31**	.39**
3. LearnMater			.21	.20	.34**
4. PlotComplexity_M				.32**	.35**
5. PlotComplexity_C					.34**
6. RecepVocab_C					1.00

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Note: Abbreviations are as follows: **SES** = family socio-economic status; **LangStim** = language stimulation provided by mother; **LearnMater** = Learning materials available to the child; **PlotComplexity_M** = Plot complexity factor score of Mothers; **PlotComplexity_C** = Plot complexity factor score for children; **RecepVocab_C** = Child receptive vocabulary.

Among the three narrative measures which are plot complexity, linguistic complexity (usage of multi-clause coordination, multi-clause subordinate, subordinate marker, subordinates with converbs and infinitives) and lexical richness and length measures (number of clauses, number of words, number of word roots, and number of word form types), only the

plot complexity composite scores of the mothers and the children were significantly associated with the predictor and the mediating variables. As depicted in Table 4.3, maternal language stimulation was significantly related to family socioeconomic background and to the maternal plot complexity. Child plot complexity as an outcome variable was significantly associated with both the predictor variable and the mediating variables (maternal plot complexity and language stimulation). Thus, the plot complexity scores of both mothers and children were used in the further statistical analyses to test the mediated relations presented in section titled as the *conceptual model of the study*.

4.2 Exploratory analyses

This section includes results of the multiple regression analyses conducted to test the hypothesized predictors and mediated relations in the proposed conceptual model of the study. Baron and Kenny (as cited in Raviv et al., 2004, p.535) mention the necessity of demonstrating significant relations between predictors, mediators and the outcomes in testing mediated relations. As presented in Table 4.3 significant associations found between predictors, mediators and the outcomes satisfied the first condition for testing mediational relations. Next, multiple regression analyses were utilized to test whether family socioeconomic background and maternal narrative skills predict maternal language stimulation.

4.2.1. SES and maternal narrative skills as predictors of the maternal language stimulation

Multiple regression analyses were conducted to address the question of whether family socioeconomic background and maternal narrative skills predict maternal language stimulation (Table 4.4). First family socioeconomic background was entered as a predictor of

maternal language stimulation and predicted 17% of the variability in maternal language stimulation ($F(1, 76)=17.16, p < 0.001$). High family socioeconomic background was associated with high maternal language stimulation ($\beta = .43, p < .001$). Maternal narrative skills was added in model 2 and accounted for an additional 3% of the variability in maternal language stimulation, with significant change in the model ($\Delta R^2 = .03, F(2, 75) = 10.58, p < .001$). The effect of family socioeconomic background remained significant when maternal narrative skills were included into the model. Also, the influence of maternal narrative skills on maternal language stimulation approached the level of significance ($\beta = .20, p < .08$) in the presence of family socioeconomic background. High levels of maternal narrative skills was associated with high levels of maternal language stimulation ($\beta = .20, p < .08$). The magnitude of the influence of family socioeconomic background as a predictor of maternal language stimulation (outcome) was reduced when maternal narrative skills was included into the model ($\beta = .38, p < .01$). Taking all these findings into account, we can propose that both family socioeconomic background and maternal narrative skills have independent contribution to variance in maternal language stimulation. In other words, maternal language stimulation was predicted by family socioeconomic background and maternal narrative skills as proposed in the second hypothesis and conceptual model of the study.

Table 4.4 Hierarchical regression analyses for SES and maternal narrative skills predicting maternal language stimulation (N=78)

Variables	Model 1			Model 2		
	B	SE B	β	B	SE B	β
SES	6.46	1.56	.43***	5.74	1.58	.38**
Maternal narrative skills				3.08	1.66	.20†
Adjusted R^2	.17			.20		
F for change in R^2	17.16***			3.44†		

Note. † $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Due to the aforementioned data collection problems in Adana sample, analyses represented in Table 4.4 were conducted with 78 participants without including the Adana sample. However, in order to improve the power of statistical analyses, the same analyses were conducted with 104 participants including participants from Adana. Data collection difference was controlled by entering a dummy variable representing the “Adana sample” and “other” which includes samples from other cities into the analyses (Table 4.5). With larger sample size the influence of maternal narrative skills on maternal language stimulation reached to a higher significance level ($\beta = .23, p < .01$) while previously with 78 participants the influence was marginally significant ($\beta = .20, p < .08$). Still, the influence of family socioeconomic background remained significant after maternal narrative skills was entered into the model ($\beta = .37, p < .001$). In order to control for interactive effect of maternal narrative skills and data collection differences on language stimulation a new variable representing the “Maternal narrative skills by Adana” was integrated into the model. The interactive effect of maternal narrative skills and data collection differences in Adana district on maternal language stimulation approached significance ($\beta = .18, p < .07$).

Table 4.5 Hierarchical regression analyses for SES and maternal language skills predicting maternal language stimulation with larger sample size (N=104)

	Model 1			Model 2			Model 3		
Variables	B	SE B	β	B	SE B	β	B	SE B	β
SES	7.65	1.66	.43***	6.65	1.65	.37***	6.92	1.63	.39***
Control for data collection difference									
Adana vs. other	-7.55	3.99	-.18†	-7.28	3.87	-.17†	-5.96	3.88	-.14
Maternal narrative skills				4.36	1.60	.23**	2.78	1.78	.15
Maternal narrative skills*Adana							7.23	3.7	.18†
R^2	.26			.30			.32		
F for change in R^2	19.05***			7.45**			3.66†		

Note. † $p < .07$. * $p < .05$. ** $p < .01$. *** $p < .001$.

The proposed mediational relations were tested separately for child receptive vocabulary and narrative skills through utilizing multiple regression analyses.

4.2.2 Relation of SES, maternal narrative skills and language stimulation by mother to child receptive vocabulary

Additional multiple regression analyses were conducted to estimate the variance in child receptive vocabulary at 4 years of age (Time 2) that can be attributed to SES, maternal narrative skills, and language stimulation by the mother at 3 years of age (Time 1). As presented in Table 4.6, results indicated that SES, maternal narrative skills and language stimulation by the mother at Time 1 accounted for 22% of the variance in child receptive vocabulary at Time 2.

Table 4.6. Hierarchical regression analysis for variables (SES, maternal narrative skills and language stimulation) predicting child receptive vocabulary skills (N=78)

	Model 1			Model 2			Model 3		
Variables	B	SE B	β	B	SE B	β	B	SE B	β
SES	.22	.07	.33**	.17	.07	.26*	.11	.08	.16
Narrative Skills_Mom				.21	.08	.30**	.18	.08	.25*
Language Stimulation							.01	.01	.26*
Adjusted R^2	.10			.17			.22		
F for change in R^2	9.42**			7.91**			5.07*		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4.6 presents the results of regression analyses predicting child receptive vocabulary at 4 years of age. First, family socioeconomic background at Time 1 were entered in the model 1 and predicted 10% of the variability in child receptive vocabulary at Time 2, $F(1,76)=9.42$, $p<.01$. High family socioeconomic status at Time 1 was associated with high receptive vocabulary at Time 2 ($\beta = .33$, $p < .01$).

Maternal narrative skills at Time 1 were added in model 2 and accounted for an additional 7% of the variance in child receptive vocabulary skills at Time 2, $\Delta R^2 = .07$, $F(2,75) = 9.10$, $p < .001$. High maternal narrative skills at Time 1 was related to high child receptive vocabulary skills at Time 2, ($\beta = .30$, $p < .01$). The effect of family socioeconomic background was reduced relative to its initial level of effect with the inclusion of maternal narrative skills ($\beta = .26$, $p < .05$).

Maternal language stimulation at Time 1 was entered in model 3 and predicted an additional 5% of the variance in child receptive vocabulary at Time 2, $\Delta R^2 = .05$, $F(3,74) = 8.08$, $p < .001$. High language stimulation provided by mother at Time 1 was associated with high child receptive vocabulary skills at Time 2, ($\beta = .26$, $p < .05$). With the inclusion of maternal language stimulation, the influence of family socioeconomic background was no longer significant, ($\beta = .16$, $p = .16$). Also, the influence of maternal narrative skills on child receptive vocabulary was reduced in the presence of maternal language stimulation ($\beta = .25$, $p < .05$) yet remained significant. These results indicated full mediation because the relation between family socioeconomic background and child receptive vocabulary was no longer significant with the inclusion of maternal narrative skills and maternal language stimulation. In the conceptual model of this study, family socioeconomic background was proposed to have direct influence on child receptive vocabulary. However, this expectation was not supported because family socioeconomic background indirectly influenced child receptive vocabulary through maternal narrative skills and maternal language stimulation. Therefore, it can be concluded that maternal narrative skills and maternal language stimulation fully mediated the relation between family socioeconomic background and child receptive vocabulary.

In order to improve power of statistical analyses, similar analyses were conducted with 104 participants who did not have missing data on family socioeconomic background and maternal narrative variables after the interactive effect of maternal narrative skills and data collection problem in Adana sample on child receptive vocabulary skills was removed. The results were consisted with the results conducted without including the Adana sample (Table 4.7). The insignificant interaction effect found between maternal narrative skills and data collection problem in the Adana district indicated that differences in the data collection procedure did not influence the way maternal narrative skills influence child receptive vocabulary skills.

Table 4.7 Hierarchical regression analysis for variables (SES, maternal narrative skills and language stimulation) predicting child receptive vocabulary skills with larger sample size (N=104)

Variables	Model 1			Model 2			Model 3			Model 4		
	B	SEB	β	B	SE B	β	B	SE B	β	B	SE B	β
SES	.26	.07	.29***	.20	.07	.23**	.14	.07	.15	.15	.08	.16†
Control for data collection difference												
Adana vs. other	-1.06	.18	-.49***	-1.05	.17	-.49***	-.97	.16	-.45***	-.95	.17	-.44***
Narrative Skills_Mom				.25	.07	.26***	.20	.07	.22**	.18	.08	.19*
Language Stimulation							.01	.00	.20*	.01	.00	.19*
Narrative Skills_Mom*Adana										.14	.16	.07
R ²	.43			.49			.52			.52		
F for change in R ²	40.13***			13.27**			5.89*			.77		

Note. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

4.2.3 Relation of learning materials available to the child to child receptive vocabulary

Another aim of the study was to investigate the influence of socioeconomic background on child receptive vocabulary at Time 2 through learning materials available to the child. However, availability of learning materials was not analyzed in the regression analyses that include SES due to the high multicollinearity of the two measures¹. To address this problem, the most exogenous variable, i.e., the socioeconomic status of the family is not included in the model. The influence of maternal narrative ability and learning materials on child receptive vocabulary were tested. According to the regression analysis presented in Table 4.8, maternal narrative ability and learning materials available to the child explained 18% of the variability in child receptive vocabulary skills. Based on the results, maternal narrative ability and learning materials available to the child at Time 1 significantly predicted child receptive vocabulary skills at Time 2 (Table 4.8).

As expected high maternal narrative skills ($\beta = .29, p < .01$) and high amount of learning materials available to the children ($\beta = .28, p \leq .01$) at Time 1 were associated with high child receptive vocabulary skills at Time 2.

¹ In order to examine any potential multicollinearity problem between predictor variables collinearity statistics were examined through VIF statistics. VIF values were found higher than 2 revealing a multicollinearity problem when the variable learning materials available to the child included into the models including either SES and maternal language stimulation. Therefore, the influence of learning materials was analyzed separately.

Table 4.8 Hierarchical regression analysis for variables (maternal narrative skills and available learning materials) predicting child receptive vocabulary skills (N=80)

Variables	Model 1			Model 2		
	B	SE B	β	B	SE B	β
Narrative Skills_Mom	.25	.07	.35***	.21	.07	.29**
Learning Materials				.01	.00	.28**
Adjusted R^2	.11			.18		
F for change in R^2	11.09***			6.95**		

Note. * $p < .05$. ** $p \leq .01$. *** $p \leq .001$.

Similar results were revealed with 108 participants as well. These analyses were conducted again in order to improve statistical power of the analyses by controlling data collection problems through dummy a variable (Table 4.9).

Table 4.9 Hierarchical regression analysis predicting the variance in child vocabulary at time 2 attributable to maternal narrative skills and learning materials available to the child at time 1 controlling for the data collection problems in Adana (N=108)

Variables	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Narrative Skills_Mom	.26	.07	.29***	.22	.07	.24**	.20	.08	.22**
Control for data collection difference									
Adana vs. other	-1.14	.16	-.54***	-.88	.18	-.42***	-.87	.18	-.42***
Learning Materials				.01	.00	.24**	.01	.00	.24**
Narrative Skills_Mom*Adana							.07	.16	.04
Adjusted R^2	.41			.45			.45		
F for change in R^2	38.60***			7.92**			.19		

* $p < .05$. ** $p \leq .01$. *** $p \leq .001$.

In table 4.9, the significant negative influence of dummy variable should not be interpreted as a good predictor of child receptive vocabulary skills. Instead it indicates the necessity of controlling the data collection differences in the analyses.

4.3 Predicting child narrative skills at age 4

Another set of analyses was conducted for the other child outcome, which is child narrative skill at 4 years of age (Time 2). Since child narrative data are not available due to problems in data collection procedures in Adana, the Adana sample was excluded from the sample. As previously stated within narrative measures, plot complexity factor scores were the only narrative measures that were found to significantly related to the predictor variables (socioeconomic background of the family, maternal language stimulation) (Table 4.3). Thus, in the following statistical analyses, the plot complexity factor score was used as the measure of child narrative skills.

4.3.1 Relation of family socioeconomic background, maternal narrative skills and maternal language stimulation to child narrative skills

Multiple regression analyses were conducted with 78 participants to estimate the variance in child narrative skills at 4 years age (Time 2) that was attributable to SES, maternal narrative skills and maternal language stimulation measured when children were 3 years of age (Time 1). Table 4.10 demonstrates the results of these regression analyses predicting child narrative skills at Time 2. First, family socioeconomic background at Time 1 was entered in model 1 and accounted for 5% of the variance in child narrative skills at Time 2,

$F(1,76)=5.04, p<.05$. High family socioeconomic status at Time 1 was associated with high child narrative skills at Time 2, ($\beta = .25, p < .05$).

Next, maternal narrative skills at Time 1 was added in model 2 and predicted for an additional 7% of the variability in child narrative skills at Time 2, $\Delta R^2 = .07, F(2,75) = 6.31, p < .01$. High maternal narrative skills at Time 1 was related to high child narrative skills at Time 2 ($\beta = .30, p < .01$). With the inclusion of maternal narrative skills, the influence of family socioeconomic background on child narrative skills was no longer significant, ($\beta = .18, p = .11$), indicating a full mediation between family socioeconomic background and child narrative skills through maternal narrative skills.

Next, maternal language stimulation at Time 1 was entered in model 3 and accounted for an additional 2% of the variance in child narrative skills at Time 2, $\Delta R^2 = .02, F(3,74) = 5.21, p < .01$. However, the influence of maternal language stimulation at Time 1 on child narrative skills at Time 2 was not as significant as maternal narrative skills ($\beta = .20, p = .10$).

In sum, the results revealed that maternal narrative skills fully mediated the relation between family socioeconomic background and child narrative skills. However, different from child receptive vocabulary skills, child narrative skills were mainly predicted by maternal narrative skills rather than by maternal language stimulation.

Table 4.10 Hierarchical regression analysis for variables (SES, maternal narrative skills and language stimulation) predicting child narrative skills N=78

	Model 1			Model 2			Model 3		
Variables	B	SE B	β	B	SE B	β	B	SE B	β
SES	.23	.10	.25*	.16	.10	.18	.10	.11	.10
Narrative Skills_Mom				.29	.11	.30**	.25	.11	.26*
Language Stimulation							.01	.01	.20
Adjusted R^2	.05			.12			.14		
F for change in R^2	5.03*			7.17**			2.72**		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.3.2 Relation of maternal narrative skills, and available learning materials to child narrative skills

Since data were available for the predictors (maternal narrative skills and available learning materials at Time 1) and outcome variable (child narrative skills at Time 2) for 80 participants, the analyses were conducted with 80 participants.

Table 4.11 demonstrates the influence of maternal narrative skill and available learning materials at Time 1 on child narrative skills at Time 2. Maternal narrative skills at Time 1 significantly predicted child narrative skills at Time 2 ($\beta = .29, p < .01$). Learning materials available to the children at Time 1 was not significantly related to child narrative skills at Time 2 ($\beta = .13, p = .23$).

Table 4.11 Hierarchical regression analysis for variables (maternal narrative skills and available learning materials) predicting child narrative skills (N=80)

	Model 1			Model 2		
Variables	B	SE B	β	B	SE B	β
Narrative Skills_Mom	.32	.11	.32**	.29	.11	.29**
Learning Materials				.00	.00	.13
Adjusted R^2	.09			.10		
F for change in R^2	8.93**			1.47		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

4.4 Summary of the findings

This part summarizes the findings of the study presented in the Results section.

As expected by the first hypothesis family socioeconomic background was significantly positively associated with maternal narrative skills. Mothers coming from advantaged socioeconomic backgrounds were found to have higher narrative plot complexity scores than mothers coming from adverse socioeconomic backgrounds. Mothers from high socioeconomic backgrounds were more likely to mention necessary elements of a story such as onset, actions, resolution and main theme in their narratives than mothers coming low socioeconomic backgrounds.

In addition, maternal language stimulation towards children was significantly predicted by family socioeconomic background and maternal narrative skills as expected in the second hypothesis of the study.

In the third hypothesis of the study, family socioeconomic status is expected to have a direct influence on learning materials provided to children. Significant positive correlation found between family socioeconomic background and learning materials available to the children supported this hypothesis. High family socioeconomic background was associated with high amount of learning materials available to the children.

In the fourth hypothesis, family socioeconomic background as a distal factor measured at 3 years of age was expected to have a direct influence on child language skills at 4 years of age even after the influence of proximal factors such as maternal language skills and stimulating home environment were controlled. However, based on the statistical analyses this hypothesis was not supported. The significant influence of family socioeconomic background measured at 3 years of age on child receptive vocabulary at 4 years of age disappeared when factors such as maternal language skills and stimulating home environment were included into the hierarchical regression analyses. The effect of family socioeconomic background at Time 1 on child receptive vocabulary at Time 2 was fully mediated through maternal language skills and maternal language stimulation provided to children at Time 1. Consistently, child narrative skills at Time 2 were influenced by family socioeconomic background through maternal narrative skills at Time 1.

In the fifth hypothesis, maternal linguistic ability measured when children were 3 years of age was expected to have a direct and indirect influence on child vocabulary and narrative skills at 4 years of age through maternal language stimulation. As expected maternal narrative skills at Time 1 directly influenced child receptive vocabulary and narrative skills at Time 2. The indirect effect of maternal narrative skills on child language outcomes through maternal language stimulation was found only for child receptive vocabulary skills at Time 2 but not for child narrative skills.

As stated in hypothesis 6a, a rich amount of language stimulation by mothers provided at age 3 was expected to lead to better receptive vocabulary scores and narrative performance at age 4 (hypothesis 6a). This expectation was confirmed for child receptive vocabulary skills but not for child narrative skills. Different from receptive vocabulary skills maternal language stimulation at Time 1 had less influence on child narrative skills at Time 2.

In hypothesis 6b, it was proposed that high amount of learning materials provided at age 3 is expected to predict better receptive vocabulary scores and narrative performance at age 4 (hypothesis 6b). As expected learning materials available to the children at Time 1 significantly predicted child receptive vocabulary skills at Time 2. However, results differed for child narrative skills, learning materials available to the children at Time 1 did not predict child narrative skills at Time 2.

In conclusion, the processes that foster 4-year-old children's receptive vocabulary and child narrative skills appear to be somewhat different. The variability in children's narrative skills was positively related to maternal narrative skills but not related to stimulating home environment. The significant influence of maternal language stimulation and available learning materials on children's receptive vocabulary skills was not found for children's narrative skills when the effect of maternal narrative skills was controlled. In other words, maternal narrative skills was found to be an important predictor of child narrative skills while stimulating home environment was also found to be important predictor of child receptive vocabulary at 4 years of age. Thus, these findings suggest that there may be different mechanisms operating to support receptive vocabulary and narrative skills of Turkish speaking children.

Chapter 5

DISCUSSION

This chapter includes three sections. The first section provides a review of the purpose of this thesis and a discussion of the main findings. The next section focuses on the contributions as well as implications of the findings of this thesis. The remaining section addresses the limitations and suggestions for further studies.

5.1 Purpose of the thesis and summary of the main findings

The main purpose of this study was to investigate the processes through which family socio-economic background influences Turkish speaking preschoolers' receptive vocabulary and narrative skills. With this thesis the influence of family socioeconomic background on Turkish speaking children's receptive and narrative skills was investigated through an ecological perspective.

5.1.1 Maternal narrative skills

Research revealed significant relation between family socioeconomic background and maternal language skills measured through standardized assessments (Baydar et al., 2011; Bornstein et al., 1998; Pan et al., 2005). Mothers from high socio-economic backgrounds were found to have higher language skills than mothers from low socio-economic backgrounds. The result of this study supported the previous findings and corroborated the importance of family socioeconomic context as covariant of maternal language skills. Mothers coming from high socioeconomic backgrounds were found to have more advanced narrative construction skills

than mothers coming from low socioeconomic backgrounds. High SES mothers produced more elaborative narratives with coherent thematic organizations than did low SES mothers.

The influence of SES-related maternal narrative skills on child language development may be explained by the family stress perspective (Baydar et al., 2011; Conger, Conger, & Martin, 2010; Yeung, Linver, & Brooks-Gunn, 2002). The family stress perspective guides recent research in explaining how family's financial difficulties may adversely influence parent-child relationships primarily through parents' responses to financial difficulties (Conger et al., 2010). The family stress perspective suggests that economic difficulties may exert economic pressure to the families that influence parent's psychological well being which in turn creates interparental conflict between parents and distrupts parenting practices (Conger & Conger, 2002; Conger et al., 2010). According to the family stress perspective, mothers coming from low socio-economic status may experience emotional distress which in turn may negatively influence the production of elaborative narratives during narrative elicitation. In order to test this explanation, additional analyses were conducted by testing whether family socio-economic background influences the way maternal narrative skills influence child receptive vocabulary and narrative skills (Appendix E). However, the results revealed a non-significant interaction between family socio-economic background and maternal narrative skills (Table 4.12, 4.13). Therefore, findings suggest that the family stress perspective will not be able to explain the finding the influence of SES-related maternal narrative skills on child language competence.

Another explanation for this finding may be due to the fact that high SES mothers have higher levels of education than do low SES mothers. The similar features of narratives with written language such as being decontextualized and having a certain schema make narratives as an important element of school curriculum (Heillman, Miller, Nockerts, & Dunaway, 2010; Hester, 2010). Therefore, mothers coming from high socioeconomic background with high

levels of education are expected to have specific language skills that are necessary to produce coherent narratives owing to their more extended instruction in reading and writing.

This study specifically examined the role of maternal narrative skills rather than only vocabulary skills of mothers, which is a narrower linguistic capacity. Narrative capacity not only includes vocabulary knowledge and usage but also goes beyond it. Narratives give information about usage of linguistic structures such as conjunctions, noun phrases, grammatical complexity, productivity (total number of words, total number of different words, etc.) as well as thematic coherence and story organization skills (Justice et al., 2006; Heillman et al., 2010). This study extended previous findings by revealing the specific influence of maternal narrative skills which is a broader analysis of maternal language skills than vocabulary skills on both child receptive vocabulary and narrative skills of 4 years old Turkish speaking children. Additional analyses were also conducted in order to examine the influence of maternal vocabulary by using a test that measures maternal word knowledge named ACEP (Gülgöz, 2004). However, results indicated that in the presence of maternal narrative skills, maternal vocabulary knowledge did not significantly influence child receptive vocabulary and narrative skills (Appendix F, Table 4.14, 4.15, 4.16, and 4.17). These findings suggest that maternal narrative skills provide more information about maternal language skills that better explain child language outcomes than maternal vocabulary knowledge. In addition, understanding the specific influence of maternal fictional narrative skills on children's receptive vocabulary and narrative skills may have practical implications. It might be important for early intervention programs to focus on low-SES mothers' narrative production skills. Mothers from low-SES may be trained in production of coherent and elaborative stories including information related to setting, temporal location, characters, events that take place in the story and resolution around a main theme. Through being exposed to effective use of narrative devices mothers from low-SES may learn to generate coherent stories. If mothers in

the immediate contexts of young children regularly provide coherent and sophisticated narratives, they become an important model to their young children which in turn support children's fictional narrative skills as well as receptive vocabulary. Such an intervention may provide opportunity to support children's early language skills which are important for later school success.

5.1.2 Children's vocabulary skills

This study was designed to investigate the mechanisms through which family socioeconomic background affect preschool children's language skills, specifically receptive vocabulary and narrative competence. Based on the results, family socioeconomic background at 3 years of age (Time 1) predicted children's receptive vocabulary at 4 years of age (Time 2) through maternal narrative skills and language stimulation provided towards children (Time 1). The significant effect of family socioeconomic background at 3 years of age on 4-year-old children's receptive vocabulary skills disappeared when maternal language skills assessed through narratives and maternal language stimulation were entered into the hierarchical regression models. This implies that the variability in receptive vocabulary skills between a group of children coming from diverse socioeconomic backgrounds was fully mediated by maternal narrative skills and language stimulation directed towards children. This current study adds to the observation of Hoff (2003) in which family socioeconomic background influenced children's productive vocabulary via maternal speech. The present findings suggest that both maternal language skills and language stimulation directed to the children are the pathways of mediation between family socioeconomic background and child language skills. Family socioeconomic background as a distal factor explains the variability in maternal language skills and language stimulation. That is, the mothers coming from high socioeconomic background

also have higher language skills than the mothers coming from lower socioeconomic backgrounds. Additionally, findings revealed a direct influence of family socioeconomic background and maternal narrative skills on maternal language stimulation, suggesting that mothers coming from high-SES and have high language skills direct more language stimulation to their children than low-SES mothers and who have poor language skills. Thus, children who have mothers with higher language skills and who receive language stimulation from their mothers may find opportunity to hear rich and advance language devices which in turn may support their receptive vocabulary skills. On the contrary, children who have mothers with poor language skills and who receive less amount of maternal language stimulation may not be able to develop advance receptive vocabulary skills.

Also, family socioeconomic background was positively and significantly associated to learning materials available to children. Due to high collinearity problem we could not investigate the independent contributions of maternal language stimulation and provision of learning materials at 3 years of age to the children's receptive vocabulary skills at 4 years of age in the same model. However, we analyzed the influence of provision of learning materials and maternal narrative skills on children's receptive vocabulary skills in a different model. Both maternal narrative skills and provision of learning materials at 3 years of age significantly predicted child receptive vocabulary skills at 4 years of age. This finding implies the role of provision of learning materials in supporting children's vocabulary skills even after the role of maternal narrative skills was taken into account. These findings are consistent with the findings of the studies mostly conducted with European and American samples that revealed the importance of a stimulating home environment as a proximal factor affecting children's cognitive and language outcomes (Vernon-Feagans et al., 2008; Brooks-Gunn, Linver, & Kohen, 2002).

5.1.3 Children's narrative skills

A converging body of research supports a linkage between family socioeconomic background and child language skills (Fish & Pinkerman, 2003; Hoff, 2006; Horton-Ikard & Weismer, 2007; Raviv, Kessenich, & Morrison, 2004). Consistent with previous findings, in this study family socioeconomic background at the age of 3 predicted Turkish speaking children's narrative skills at 4 years of age through maternal narrative skills.

Even though maternal language stimulation and presence of learning materials in the home significantly influenced children's receptive vocabulary skills, presence of learning materials did not significantly predict child narrative skills and maternal language stimulation has less influence on child narrative skills than maternal narrative skills. The effect of family socioeconomic background on child narrative skills was fully mediated through maternal narrative skills. This finding may suggest that the pathways that explain the vocabulary and narrative skills of preschool children are different from each other. Different from vocabulary skills, narrative skills include grammar knowledge as well as usage of both vocabulary and grammar forming a coherent discourse about the narrated events (Jurgen et al., 2006; Heillman et al., 2010). Additionally, Miller et al. (2006) highlighted the important contribution of oral narrative skills to the acquisition of reading. This may suggest that narrative skills include language processes that go far beyond the vocabulary skills by providing mechanisms that are necessary for development of literacy skills. Hence, different developmental or pedagogical mechanisms might play a role in fostering of vocabulary and narrative competence which was considered as a link to literacy development. Supporting this idea, a recent finding shows evidence for different pathways found in the development of vocabulary skills and literacy skills such as reading comprehension (Demir, Applebaum, Levine, Petty, & Goldin-Meadow, in press). Children's vocabulary comprehension at kindergarten was predicted by parent

education and description of pictures during parent-child book reading interaction around 2 years of age, while reading comprehension skills at the end of 1st grade was predicted by usage of extending topic utterances during book reading interaction. It is possible that exposure to new vocabulary through language stimulation, availability of different learning materials and description of pictures in book reading activity contribute to children's vocabulary development. However, it is likely that different processes take place in the development of literacy related skills such as oral narrative skills and reading comprehension.

Further, there can be different explanations for the specific influence of maternal narrative skills on children's narrative skills. One interpretation may be the genetic heritability view so that mothers who have high narrative ability have children with high narrative skills. Another interpretation may be related with the influence of maternal narrative skills on child narrative skills via its influence on the mother-child language interaction (Pan et al., 2005). Based on Vygotskian theory and consistent with previous findings, children's narrative skills are likely to develop through interactions and conversations with the adults around them (Melzi, 2005). Also, among the narrative genres, fictional narratives are the most complex narrative genre (Schick & Melzi, 2010). In that case maternal narrative skills specific to fictional narratives may carry an important scaffolding role in the development of children's narrative skills. Children who hear more coherent, well-structured stories may become more likely to produce stories that are more coherent, including an onset, action elaboration and a resolution of the story. Supporting this explanation, a recent study revealed that preschoolers around 4 years of age who were repeatedly exposed to narrative-style TV programs such as embedded narratives which incorporate a story within a story and traditional narratives with prototypical storybook format following a story line with a problem and solution, had higher story knowledge scores measured through tasks involving sequencing of a set of pictures and generating a story than did children who were assigned to no viewing or expository viewing without narrative format

in it. Also, children in the embedded narrative condition who could explicitly hear the story dimensions received higher narrative retelling scores by producing narratives that includes main story dimensions such as setting, characters, problem, solution and resolution as compared to children who were assigned to no viewing, expository and traditional narrative conditions (Linebarger & Piotrowski, 2009). These findings also support the importance of repeated exposure for certain story dimensions in the development of narrative production skills. All in all, the explanations concerning the role of maternal narrative skills on children's narrative competence rests on the implicit assumption that mothers with higher narrative skills also expose their children to the essential narrative devices and components more frequently than mothers with lower narrative skills.

5.2 Contributions

This thesis contributed to the quest about the mechanisms through which family socioeconomic background influences preschool children's language skills by using an ecological perspective with participants other than White Americans or Europeans. Studying sources of variability in language development across different cultures may provide insight about the boundaries of the universal aspects of the mechanisms that explain processes of language development. In addition, understanding mechanisms that are specific to language development of Turkish speaking preschool children within an ecological perspective suggest important directions for designing culturally appropriate prevention studies that will locally address the needs and the contexts of children in high risk conditions for later language and literacy development. For instance studies conducted to explain the mechanisms through which SES influence child language skills with Western cultures may not depict the pathways between family socioeconomic background and child language skills correctly for Turkish

culture since high or low SES may refer to different education levels or welfare status in those different contexts. This study expands our knowledge that the proximal processes such as maternal language skills and stimulating home environment are important mediating mechanisms that explain the association between family socioeconomic background and child language outcomes in a Turkish sample. Thus, enrichment of Turkish speaking children's language experiences through enhancing maternal language skills and stimulating home environment might have beneficial impact on low-SES children's language outcomes.

This study also contributes to the existing literature by examining the specific processes that explain both receptive vocabulary and narrative skills of preschool children separately. Findings highlight that processes that explain only one aspect of language skills such as vocabulary may not be applicable to all other aspects of general language ability. This finding confirms the need for investigation of different aspect of language skills in a comprehensive way in order to explain specific mechanisms that take place in different language outcomes. This study revealed that the factors predicting Turkish children's receptive vocabulary did not significantly predict their narrative skills. Instead, maternal fictional narrative skill was an important contributor for children's fictional narrative skills. To our knowledge previously child receptive vocabulary and narrative competence were not investigated within the same sample and with the same predictor variables. Also, with this finding, this study contributes to the literature by examining the role of maternal fictional narrative skills as an important factor that influences child language outcomes especially for child fictional narrative skills. To sum up, determining the early predictors of child vocabulary and narrative skills helps us to identify possible markers for at risk status early on and to better establish the necessary steps in future intervention studies.

5.3 Limitations of the study and suggestions for future research

Although this thesis contributes to the existing literature, it has some limitations. In this study maternal narrative skills were assessed but literacy activities and the interactive process between the mother and the child during story telling was not studied. Research supports that home literacy environments (Kuşcul, 1993), shared reading and frequency of book reading (Raikes et al., 2006), parent-child reading interaction (Backen & Fischel, 2008) as well as nature of parent-child book reading interactions have implications for children's language and literacy skills (Demir et al., in press). Therefore, future research should address the specific pathways through which home literacy environments, the frequency and nature of story reading, and maternal scaffolding techniques influence children's narrative skills.

One of the main aims of this thesis was to understand the mechanisms that explain language development by addressing family socioeconomic background as a distal process and proximal processes such as maternal narrative skills and stimulating home environment. However, other proximal processes such as maternal stress, parenting practices that are likely to influence child language development were not addressed in this study. Previously maternal depression (Pan et al., 2005) and maternal sensitivity was found to be associated with young children's language skills (Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009; Raviv et al., 2004).

The study presented here is important in understanding the proximal processes through which family socioeconomic background influences children's language skills. However, additional work is necessary. This thesis focused on the predictors of vocabulary and narrative skills but not trajectories of change in narrative and vocabulary development. Longitudinal examination of narrative and vocabulary development would permit investigating the factors that explains the rate of development in vocabulary and narrative abilities. Therefore, studying

Turkish speaking children's narrative abilities at age 5 and 6, just before they enter the formal school system, may give a clear picture of the developmental progression of Turkish speaking children's narrative skills.

5.4 Conclusion

The purpose of this study was to investigate the factors that predict receptive vocabulary and narrative skills of children. Given that so little research has been done on non-English-speaking children's narratives, this study is important for understanding the predictors of variations in the vocabulary and narrative skills of a group of Turkish children.

The significant role of vocabulary and narrative development in later school success and literacy development makes it worthwhile to examine the sources of variability in the development of these skills in preschool children. The review of the literature in the area of child language development reveals two main limitations of previous research in this field. First, few studies go beyond vocabulary development to examine the sources of variation in language development within a multivariate, ecological perspective. Second, most studies are conducted with White-American middle class families (Roberts et al., 1999). This current study extends the literature by focusing on narrative and vocabulary skills of young Turkish children from diverse socio-economic backgrounds using an ecological perspective. Also, it has been reported that some early protective factors such as healthy prenatal practices and postnatal nutrition might not be enough to prevent the gap in early cognitive growth between middle social class White American populations and lower social class Latino preschoolers (Fuller, Bridges, Bein, Jang, Jung, Rabe-Hesketh, et al., 2009). Therefore, it is important to examine the factors that sustain cognitive and linguistic development in children over the

course of the first few years. We hope this research will provide pointers to situations in which early language skills show degradations in addition to providing contributions to the literature about the “resilient” aspects of the language development process.



Sample mother-child narratives

Excerpt 1 Mother A

- *MOT: {bir gün} bir gün bir çocuk yolda bir kurbağa bulmuş.
- *MOT: onu almış
- *MOT: kavanoza {a} koymuş.
- *MOT: bu çocuğun bir de köpeği varmış.
- *MOT: çocuk köpeği ile birlikte yatakta uyurken
- *MOT: kurbağa da kavanozda uyuyormuş.
- *MOT: ama birde:n kavanozdan çıkmış.
- *MOT: çocuk sabahleyin uyandığında
- *MOT: kavanozun içinde kurbağayı görememiş.
- *MOT: çabuk çabuk üstünü giyerken.
- *MOT: köpek birden kavanoza kafasını sokmuş.
- *MOT: çocuk {camını açı:p}# camını açıp kurbağaya seslenmeye başlamış.
- *MOT: o arada köpek camdan aşağı düşmüş.
- *MOT: ve kafasındaki kavanoz {kırılı:p} kırılmış \$diyelim\$.
- *MOT: daha sonra köpek ile çocuk birlikte ormana gitmişler.
- *MOT: ormanda kurbağayı aramaya başlamışlar.
- *MOT: çocuk yerdeki köstebek yuvalarına
- *MOT: köpek de yukarıdaki arı kovanına bağırarak.
- *MOT: köstebek çıkmış.
- *MOT: arılar da {köpekleri} köpeği kovalamaya başlamış.
- *MOT: daha sonra çocuk ı bir ağacın kavuğuna bakmış.
- *MOT: daha sonra ağacın tepesinden aşağıya düşüvermiş.

- *MOT: çünkü orası bir baykuşun yuvasıymış.
- *MOT: daha sonra çocuk bir {taşın} taşların aralarına bakmaya çalışmış.
- *MOT: bir şahin gelip.
- *MOT: çocuğu korkutmuş.
- *MOT: daha sonra çocuk o taşın tepesine çıkmış.
- *MOT: taşın arkasında bir geyik duruyormuş.
- *MOT: geyiğin boynuzlarına takılıvermiş çocuk.
- *MOT: birden geyik koşmaya başlamış.
- *MOT: bir uçurumun kenarında:n
- *MOT: çocuğu fırlatmış aşağıya.
- *MOT: daha sonra da köpek ayağı kayıp,
- *MOT: uçurumdan aşağıya düşmüş.
- *MOT: ikisi birlikte göle düşmüşler.
- *MOT: çocuk gölün içinde bir tahta parçası bulmuş.
- *MOT: tahta parçasının sağına soluna bakarke:n.
- *MOT: birde:n kurbağayı görmü:ş.
- *MOT: kurbağa yavrularının yanına gitmiş.
- *MOT: daha sonra kurbağa ailesinin yanına gitmiş.
- *MOT: daha sonra çocuk kurbağayı alıp,
- *MOT: tekrar evine geri dönmü:ş.
- *RES: teşekkür ederim.

@End

Excerpt 2 Child A

*RES: hıh anlat bakalım.

*CHI: bir varmış bir yokmuş.

*CHI: evvel zaman içinde kalbur zaman içinde

*CHI: bir gün köpek bir {ku} kurbağaya bakıyormuş.

*CHI: o da çocuğu izliyormuş.

*CHI: <hey ne yapıyorsun>.

*CHI: kurbağaya bakıyorum {diyo} dedi.

*CHI: <hav hav> diye bağırdı.

*CHI: gece olduğu zaman

*CHI: <oğlu:m yatma vakti>

*CHI: <tamam anne> demiş.

*CHI: o da uyumaya kalkmamış.

*CHI: {gözleri daha ımm} ondan sonra uykuya dalmış.

*CHI: kurbağa da gizli gizli odasından çıkmış.

*CHI: köpekler kulaklarından onu duymuş.

*CHI: ondan sonra <oooo nerde kurbağam> demiş.

*CHI: hemen kalkmaya kalkmış.

*CHI: ondan sonra

*CHI: \$bunların yazıları yok mu\$

*RES: Şişte sen anlat diye yazı yazmamışlar, bak ne güzel anlatıyorsun\$

*CHI: çünkü çünkü

*RES: hıh

*CHI: kurbağa çok sıkılmıştı.

*RES: hıh

*RES: sayfaları aç istersen

*CHI: {he:y köp} her yere bakmış.

*RES: hıh

*CHI: köpek köpek hiç fark etmemişti.

*CHI: {bakarak} bakmıştı.

*CHI: ama köpek kulübenin #

*RES: hıh

*CHI: vazonun içinde kalmış.

*CHI: <haav haav> ben burda sıkıştım diye söylemiş.

*CHI: ondan sora

*CHI: <aa>

*RES: hıh

*CHI: nasıl çıkarıcam

*RES: demiş hıhı

*CHI: <he:y kurbağacık kurbağacık nerdesi:n> [zil çalıyor]

*CHI: he:y he:y nerdesin diye bağırdı.

*CHI: {ondan sonra köpeğin} ondan sonra atlıyarak

*CHI: yanlışlıkla yere düşürmüş.

*CHI: \$bunun adı neydi ya\$

*RES: \$o çocuk istersen isim takabilirsin ona\$

*CHI: <çok çok çok özür dilerim>.

*CHI: <seni düşürmek istememiştım> demek istedi.

*CHI: ama köpeğine çok kızdı.

*CHI: {çünkü} çünkü gizlice yaladı onu.

*CHI: <he:y bi daha beni yalama> dedi.

*CHI: ondan sora <he:y he:y nerdesin>

*CHI: <kurbağacık kurbağacık> diye bağıyor.

*CHI: {o da} kuşlar duydu

*CHI: ben görmedim dedi.

*CHI: köpek de yukarı bakmış.

*CHI: kargalar uçuşuyormuş.

*CHI: <hav hav hav hav hav hav haaav>

*CHI: ondan sora ormana çıkmış.

*CHI: kaybolmuş.

*CHI: arılar çıkmaya başlamış.

*CHI: <hey burda bir ses mi geldi> demiş.

*CHI: kuşların sesiymiş o da.

*CHI: kuşlarda <vak vak> diye ötüyormuş.

*CHI: {onların yüzün} kurbağaların yüzünden hiç şey yapamamış.

*CHI: sincapmış.

*CHI: bu da kokarcaymış.

*CHI: <kokarca kokarca> {kokar sin} sincapmış.

*CHI: sincap <ooo pis kokuyorlar arılar>.

*CHI: ee ne yaparsan yap

*CHI: hiçbir şey bulamadı.

*CHI: {köpek sin köpek} sincap arıları yakalamasına {seb} sebep oldu.

*CHI: bundan sonra köpek çok kaybolmuş.

*CHI: {fare de on} sincap da kaçmaya başlamış gizlice.

*CHI: arılar da çıkmaya başlamış.

*CHI: o yüzden kaçmaya çalışmış.

*CHI: ama kaymış elleri.

*CHI: o yüzden çıkmadığı için Endır da <he:y köpekci:k>

*CHI: ikisini birden ayıramıyormuş.

*CHI: biraz ara vermesi zamanı gelmiş ama köpek

*CHI: \$değiştir\$

*RES: hıhı bitti mi.

*CHI: \$hıhı\$

*RES: evet.

*CHI: {ondan sonra köp} ondan sonra baykuş çok özür dilerim xxx köpeğimi buluyordum da dedi.

*CHI: <bir daha benim evime gelme>.

*CHI: <burası benim evim> diye bağırdı.

*CHI: ondan sonra

*CHI: \$burayı anlatmadım\$

*CHI: \$öyle mi\$

*CHI: ondan sora köpek (Sinco) bulmaya çalışmış kardeşini

*CHI: ama bulamamış.

*CHI: o yüzden koşmaya başlamış.

*CHI: taşın bir çarpmış ki

*CHI: yere düşüyor.

*CHI: bağılıyor bağılıyor.

*CHI: çığlık atıyor.

*CHI: <he:y he:y köpekci:k nerdesin>.

*CHI: {bütün} bütün insanlar ona bakıyordu.

*CHI: <{neden} neden sessiz olamazsın>

- *CHI: <uyuruz biz bu saatte> dedi.
- *CHI: {o da} baykuş gelmiş.
- *CHI: <bir daha bizi uyandırma:>
- *CHI: <nerden duydun> dedi
- *CHI: <insanlar söyledi>
- *CHI: <insanlarla sen konuşamazsın> dedi.
- *CHI: {os} ondan sonra bir bakmış ki
- *CHI: bir tane {bir çocuk} karga gelmiş.
- *CHI: hemen sırtına aldı onu.
- *CHI: eve götürdü onu.
- *CHI: kaçırdı .
- *CHI: ondan sonra <ne oldu ki>
- *CHI: <beni nereye götürüyorsun> dedi.
- *CHI: ondan sonra köpek (Sinco) yere düşmek üzereydi.
- *CHI: o yüzden onun üstüne binmeye çalıştı
- *CHI: ama kardeşlerini kurtaramadı.
- *CHI: o yüzden {yere atıp} köpek de yere atılıp
- *CHI: düştüler.
- *CHI: <hayır:> diye bağırdılar.
- *CHI: ondan sonra ormanda ikisi kayboldular.
- *CHI: keçi düşmek üzereydi.
- *CHI: o yüzden onların ayağı kaydığı için
- *CHI: üstüne düşemediler.
- *CHI: çünkü ayıp olmasın diye.
- *CHI: o yüzden köpek üstüne çıktı.

*CHI: çünkü yüzmeyi sevmiyormuş.

*CHI: <he:y he:y>

*CHI: <vrak vrak vrak vrak vrak> diye bağıriyormuş.

*CHI: <hey kurbağamı buldu:m yehu:>

*CHI: <hiç kimseye vermeyeceğim artık.>

*CHI: <verme> diye bağırdı.

*CHI: \$anne kapı\$

*MOT: \$efendim kızım\$

*CHI: \$kapı\$

*CHI: ondan sonra denize gittiği zaman

*CHI: \$tamam baktı annen\$

*CHI: ondan sonra çıkmaya çalışmışlar.

*CHI: \$anne kapı:\$

*CHI: diye bağıriyormuş.

*CHI: <he:y şışşş {birisiler} biriler uyuyor> diye bağırmış.

*RES: hıhı

*CHI: <şşşş>

*CHI: herkes sessiz olsun demiş. [kısık sesle söylüyor]

*CHI: ama herkes sessiz.

*CHI: <neden sessiz olalım ki> diyor xxx baykuş.

*CHI: şşşşş

*CHI: konuşmayı:n [fısıldıyor]

*CHI: diye bağırmış.

*CHI: ondan sonra ne olduğunu merak etmiş

*CHI: burda keçiymiş.

*CHI: köpek düşmek üzereymiş.

*CHI: <(köpek) hav hav hav hav hav yardım et hav hav hav yardım e:t > diye bağırması.

*CHI: \$ senin xxx şey yok mu\$

*CHI: ondan sonra bunlar kurbağa ailesiymiş.

*CHI: keçi değilmiş.

*CHI: ne güzel

*CHI: köpek ve (Sinca) bakmaya çalışmış.

*CHI: <o: çok merak ettim>

*CHI: ailelerimi küçük (torunlarımı)

*CHI: <o bu yüzden kaçtı kurbağacık> dedi oğlan.

*CHI: bu yüzden çok çok ama çok sevindiler

*CHI: ailesini bulmaya

*CHI: ve almış.

*CHI: {bu yüz} bu yüzden kurbağayı alıp

*CHI: <{hoş} hoşçakal hoşçakal> diye bağırması.

*CHI: kurbağalar da ona el sallamış.

*CHI: çok gülümsemişler.

*CHI: kurbağa burada kaldığı için

*CHI: çok üzgün.

*CHI: bir tane de serçe (geldi).

*CHI: \$bu so:n\$

*RES: \$bitti mi çok tesekkür ederim\$

*CHI: \$çok\$

@End.

Excerpt 3 Mother B

*RES: evet, evet abla

*MOT: \$herhalde oynuyor deęil mi\$.

*RES: hı hı

*MOT: ondan sonra ıı çocuk yatıyor.

*MOT: yataęına köpek çıkmıř.

*RES: hı hı

*MOT: burda da aynı řekilde {kuca} {řey} köpek çocuęun sırtına çıkmıř yataęına

*MOT: burda \$nedir bu\$

*MOT: # çocuk burda yine köpekle oynuyor.

*MOT: cama girmiřler

*RES: hı hı

*MOT: pencere.

*MOT: burda yine pencereye girmiř çocuk.

*RES: hı hı

*MOT: köpeęe bakıyor \$herhalde\$

*MOT: burda köpeęi kucaęına almıř.

*RES: hı hı

*MOT: burda da dıřarda aęacın altında oynuyorlar.

*MOT: (kar) mı var ne var orda

*MOT: yine burda köpekle oynuyorlar.

*MOT: ondan sonra burada oturmuř.

*RES: hı hı

*MOT: yanında köpek \$kurbaęa mı ne o\$

*RES: evet çok iyi gidiyorsunuz.

*MOT: ee burda yine köpek var.

*MOT: ağaç {tırma} tırmalıyor

*MOT: kurbağa var.

*MOT: burda çocuk ağaca çıkmış.

*RES: evet

*MOT: burda yine (karın) üstünde mi bu

*MOT: oyun oynuyor.

*MOT: köpek var

*MOT: koşuyor.

*RES: hı hı

*MOT: # burda da \$herhalde\$ kayanın üstüne çıkıyor

*MOT: \$değil mi\$

*MOT: burda {şeye} çıkmış

*MOT: tırmalamış.

*MOT: kayanın üstüne çıkmış.

*MOT: # bu hazalın şeyine çıkmış

*MOT: \$değil mi\$.

*MOT: boynuzlarına atmış bacaklarını

*RES: hı hı

*MOT: #burda da şey ı hazalın tepesine çıkmış

*MOT: koşuyor.

*MOT: burda da yine tekrar oynuyorlar.

*MOT: bunu \$geyik miydi hazal mıydı neydi\$

*RES: geyik

*MOT: geyikle oynuyorlar.

*MOT: # burda (yine) oyun oynuyor.

*MOT: burda şeyi kucağına almış.

*RES: evet.

*MOT: \$kurbağa mıydı neydi\$

*MOT: # burda ağacın dibinde

*MOT: \$yüzüyor mu ne yapıyor bu.\$

*MOT: \$köpek midir nedir o\$

*MOT: oyun oynuyor.

*MOT: burda yine ağacın üstüne çıkmışlar.

*MOT: yine aynı şekilde oyun oynuyorlar.

*MOT: burada da aynı.

*MOT: burada denizin içinde

*MOT: \$değil mi\$

*MOT: \$göl mü nedir\$ yüzüyorlar.

*RES: hı hı

*MOT: kurbağa da çıkmış ağacın üstüne.

*RES: teşekkürler.

@End.

Excerpt 4 Child B

*CHI: köpek

*RES: hmm

*CHI: çocuk

*RES: hım

*CHI: # kurbağa

*CHI: ## kurbağa

*RES: hım

*CHI: köpek

*RES: hım

*CHI: çocuk

*RES: hım

*CHI: ## çocuk

*CHI: kurbağa

*CHI: ## çocuk

*CHI: köpek

*CHI: oğlan

*CHI: (xxx)

*CHI: çocuk

*CHI: köpek

*CHI: ## çocuk

*CHI: köpek ##

*RES: köpek ne yapıyor İremcim ?

*RES: ne yapıyor köpek, köpek ne yapıyor ?

*CHI: (ona) kafana koydu.

*RES: kafasına koydu.

*RES: burada ne yapıyor köpek ?

*RES: masal anlat bana.

*CHI: kafasına koydu.

*CHI: (xxx)

*CHI: (dövdü.)

*RES: sonra ne oldu İremcim ?

*RES: sonra ne yaptılar ?

* CHI: (dövdü.)

*CHI: çocuk.

*CHI: köpek.

*RES: sonra ?

*CHI: kuş.

*CHI: ## o ne?

*RES: söyle bakalım ne ?

*CHI: # çocuk

*CHI: köpek.

*RES: sonra ?

*CHI: kuş

*RES: sonra ne yapıyorlar ?

*CHI: (orda) onlar

*CHI: köpek ##

*RES: evet söyle bakalım.

*CHI: bu (xxx)

*RES: evet.

*CHI: çocuk

*RES: ne yapıyor çocuk ?

*CHI: (bakıyor.)

*CHI: # çocuk.

*RES: evet.

*CHI: kuş.

*RES: ne yapıyorlar ?

*RES: ne yapıyor köpek ?

*CHI: yüzüyor.

*RES: nereye gidiyor köpek ?

*CHI: # çocuk

*CHI: köpek

*CHI: ağaç.

*CHI: çocuk.

*CHI: # köpek.

*RES: ne yapıyorlar burada ?

*CHI: (xxx)

*RES: ne o ?

*CHI: hayvan.

*RES: ne yapıyor hayvan ?

*CHI: gidiyor.

*RES: urada ne yapıyor ?

*CHI: gidiyor.

*RES: ne yapıyor çocuk ?

*RES: çocuk ne yapıyor ?

*CHI: düřtü.

*RES: çocuk düřtü.

*RES: burada ne yapıyor İrem ?

*CHI: düřtü.

*RES: nereye düřtü çocuk ?

*CHI: (xxx)

*RES: bak burada

*CHI: köpek çocuk.

*RES: \$ aferin kızıma teşekkür ederiz.\$

*CHI: çocuk.

*RES: \$ tamam \$

@End

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APPENDICES

Appendix A

ANKETİN BAŞLANGIÇ SAATİNİ KAYDEDİNİZ::	
DEMOGRAFİK SORULAR	
Çocuğun cinsiyeti (ANKETÖR: Anneye sormadan doldurunuz)	1> Kız 2> Erkek
Sizinle en son görüşmemizden bu yana, yani [ANKETÖR: BURADA SON GÖRÜŞMENİN TARİHİNİ SÖYLEYİN] tarihinden beri, medeni durumunuzda herhangi bir değişiklik oldu mu?	0> Hayır→ Soru 4'e geçiniz 1> Evet→ Soru 3'e geçiniz
Şu anki medeni durumuzu söyler misiniz?	1>Evli → Soru 3a'ya geçiniz 2> Dul → Soru 3b'ye geçiniz 3> Boşanmış → Soru 3c'ye geçiniz 4> Evli ama eşinden ayrı yaşıyor → Soru 3d'ye geçiniz
En son eşinizle hangi tarihte evlendiniz	_____Ay_____Yıl → Soru 4'e geçiniz

Eşiniz ne zaman vefat etti?	_____ Ay _____ Yıl → Soru 4'e geçiniz		
Ne zaman boşandınız?	_____ Ay _____ Yıl → Soru 4'e geçiniz		
Ne zamandır eşinizden ayrı yaşıyorsunuz?	_____ Ay _____ Yıl → Soru 4'e geçiniz		
Sizinle son görüşmemizden bu yana ailenize yeni bir çocuk katıldı mı veya yeni bir bebeğiniz oldu mu?	0> Hayır → Soru 5'e geçiniz 1> Evet → Soru 4a'ya geçiniz		
(ANKETÖR: Lütfen sizinle son görüşmemizden bu yana doğan ilk çocukta başlayarak aşağıdaki tabloyu doldurun)			
	İsim	Doğum tarihi (bilmiyorsa yaş) Gün/Ay/Yıl veya Yaş	Cinsiyet 1> Kız 2> Erkek
1. çocuk	_____	____/____/____ _____	

2. çocuk	_____	____/____/____ _____	
3. çocuk	_____	____/____/____ _____	
Şu an bebek bekliyor musunuz?		0> Hayır 1> Evet	
Evinizde tüm çocuklar dahil kaç kişi yaşıyor?		(Yazınız)	
Evinizde siz, eşiniz ve çocuklarınız dışında aile bireyleri var mı?		1>Evet 2>Hayır → Bölüm 2'ye geçiniz.	
Bu kişiler hakkında şimdi size bazı sorular soracağım.			

İsim	Akrabalık İlişkisi (anneye göre)	Yaş	Cinsiyet 1> Erkek 2> Kadın	Bu kişi şu anda: 1> Öğrenci 2 >Çalışıyor 3 >Çalışmıyor- iş arıyor 4 >Çalışmıyor 5 >Emekli 6 >Ev Hanımı
_____ Yazınız	_____ Yazınız	_____ Yazınız	_____ Yazınız	_____ Yazınız

Appendix B

KURBAĞA HİKAYESİ PROSEDÜRÜ – ÇOCUK-

1. Kayıt cihazına çocuğun katılımcı No'su, adı-soyadı, kayıt tarihi ve çekimin yapıldığı şehir ismi okunur. Gerekliyse kayıt cihazı durdurulur ('pause') fakat kapatılmaz ('stop' a basılmaz).
2. Çocuk rahatça bir masaya, koltuğa, ya da yere oturtulur, kitap önüne konur.
3. Anketör parmağıyla kapaktaki üç karakteri işaret ederek şöyle der:
 “Bak burada bir kitap var. Bu kitapta bir çocuk (kapaktaki resmi parmağınızla gösterin), bir köpek (kapaktaki resmi parmağınızla gösterin) ve bir kurbağanın (kapaktaki resmi parmağınızla gösterin) hikayesi var. İlk önce bu kitaptaki resimlerin hepsine dikkatlice bakmanı istiyorum. Sonra resimlerde neler olduğunu bana masal gibi anlatmanı istiyorum. Ama unutma, bu kitapta neler oluyor, çocuğun, kurbağanın ve köpeğin başına neler geliyor onu anlatacaksın”.
4. Çocuğun, kitabın sonuna kadar teker teker resimlere bakması beklenir. Sayfaları çevirmede gerekirse yardım edilebilir. Örneğin, eğer soldan sağa çeviriyorsa, sağdan sola çevirmesi sağlanmaya çalışılır.
5. ***Çocuğun kitaba bakması biterken kayıt cihazı açılır.***
6. Çocuk bütün sayfalara baktıktan sonra, araştırmacı çocuğun karşısına geçer:
 “Evet şimdi bana hikayeyi anlatabilirsin” der. Kayıt aletinin mikrofon kısmı çocuğa yakın olmalıdır.
Kayıt süresince araştırmacının katılımcının tam yanına oturmaması ve araştırmacının kitap resimlerini görmeyecek bir durumda olması önemlidir.
7. Çocuk anlatırken fazla duraklarsa araştırmacının genelde sessiz kalması ya da onaylayıcı bir şekilde kafasını sallaması tercih edilir. Çok gerekirse “evet, tamam, hııı” gibi sözler ya da “sonra, sonra ne oluyor, başka? tamam” gibi hikayenin devam etmesini destekleyici sözler söylenebilir. ***Eğer çocuk resimdeki bir nesnenin ismini sorarsa söylenebilir, başka bir şey söylenemez. Eğer çocuk hikayeyi kısmen anketöre anlattırmak için ısrarcı davranırsa anketör “sen çok güzel anlatıyorsun, ben seni dinlemeyi çok sevdim” gibi sözler söylemeli ve anlatma yardımında bulunmamalıdır.***
 Çocuk bitirince “Çok güzel anlattın, teşekkür ederim” denilip, kayıt cihazı kapatılır.

Appendix C

KURBAĞA HİKAYESİ PROSEDÜRÜ – ANNE-
1. Kayıt cihazına katılımcının numarası, adı soyadı, tarih ve kaydın yapıldığı il ismi okunur. Gerekliyse kayıt cihazı durdurulur ('pause') fakat kapatılmaz ('stop' a basılmaz). 2. Katılımcı bir masaya ya da koltuğa oturtulur, kitap önüne konur. 3. Anketör parmağıyla kapaktaki üç karakteri işaret ederek şöyle der: “Bakın bu bir kitap. Bu kitapta bir çocuk (kapaktaki resmi parmağınızla gösterin), bir köpek (kapaktaki resmi parmağınızla gösterin) ve bir kurbağanın (kapaktaki resmi parmağınızla gösterin) hikayesi var. Sizden ilk önce bu kitaptaki resimlerin hepsine dikkatlice bakmanızı, daha sonra bunu bir hikâye-bir masal şeklinde anlatmanızı isteyeceğim, ben de sizin sesinizi kaydedeceğim. Ama unutmayın, bu kitapta neler oluyor, onu anlatacaksınız”. 4. Katılımcının, kitabın sonuna kadar teker teker resimlere bakması beklenir. BU SIRADA ANKETÖR HOME GÖZLEM MADDELERİNİ DOLDURMALIDIR. 5. Katılımcı bütün sayfalara baktıktan sonra, anketör katılımcının karşısına geçer ve kayıt cihazını çalıştırıp “evet şimdi anlatabilirsiniz” der. Kayıt aletinin mikrofon kısmı katılımcıya yakın olmalıdır. Kayıt süresince araştırmacının katılımcının tam yanına oturmaması ve kitap resimlerini görmeyecek bir durumda olması önemlidir. 6. Katılımcı anlatırken fazla duraklarsa araştırmacının genelde sessiz kalması ya da onaylayıcı bir şekilde kafasını sallaması tercih edilir. Çok gerekirse “evet, tamam, hıı” gibi sözler ya da “sonra, sonra ne oluyor, başka? tamam” gibi hikayenin devam etmesini destekleyici sözler söylenebilir. Katılımcı bitirince “çok güzel anlattınız, teşekkür ederim” denilip, kayıt cihazı kapatılır.

Appendix D

HOME GÖZLEME DAYANAN MADDELER		
Çocuğa yönelik materyaller	Evet	Hayır
Çocuğun değişik renkleri (renk kontrastları) olan, farklı büyüklükleri ve şekilleri ayırtıran oyuncakları var.	1	2
Çocuğun en az bir tane yap bozu var.	1	2
Evde çocuğun yaşına uygun müzik çalabilmek için en az iki tane kaset ya da CD si (SİDİ si) var.	1	2
Çocuğun yaratıcılığını destekleyecek (bloklar, legolar, oyun hamuru gibi) oyuncakları var.	1	2
Çocuğun el becerilerini destekleyen oyunları veya oyuncakları var (ipe dizmek için boncuk, küçük bloklar, oyuncak bebeğe giydirmek için giysiler, vb.).	1	2
Çocuğun, sayıları öğrenmesine yardımcı olan oyuncakları veya oyunları var.	1	2
Çocuğun en az üç tane çocuk kitabı var.	1	2
Çocuk dışında ailenin diğer üyelerinin okuyabileceği en az 10 kitap var.	1	2
Çocuğun kullanabileceği boya, tebeşir veya kalem gibi malzemeleri var.	1	2
Çocuğun kullanabileceği gerçek ya da oyuncak müzik aleti var.	1	2

Dil için uyarma	Evet	Hayır
Anne çocuğa lütfen, teşekkür ederim, özür dilerim gibi basit nezaket cümlelerini öğretiyor/öğretmiş.	1	2
Anne, çocuğun anlattıklarını dinliyor ve onu konuşması için teşvik ediyor.	1	2
Kahvaltı ya da öğle yemeğinde çocuğun kendi isteklerini dile getirmesine izin veriliyor (Örneğin; kahvaltıda reçel-ekmek yemek istiyorum gibi).	1	2
Anne doğru bir dilbilgisi ve telaffuz kullanıyor.	1	2
Annenin ses tonu, çocuğa olumlu duygular (sıcaklık, şefkat, sevgi vb) taşıyor.	1	2
Anne çocukla olgun bir cümle yapısı ve olgun kelimeler kullanarak konuştu.	1	2
Anne, çocuğun tam ifade edilmemiş cümlelerini olumlu bir tavırla (kızmadan ve alay etmeden) kendi tamamlayarak düzeltiyor	1	2

Appendix E

Analyses investigating the interactive effect of family socio-economic background and maternal narrative skills on child language outcomes

In order to investigate whether family SES moderates the influence of maternal narrative skills on child language outcomes, additional analyses were conducted in prediction of child receptive and narrative skills, each separately

Receptive vocabulary as outcome:

A new variable was computed named as SES* Narrative Skills_Mom to represent the interaction between family ses and maternal narrative skills and included into the regression analyses. However, inclusion of the interaction variable did not create a significant *F* change in the model indicating a nonsignificant interaction between family socio-economic background and maternal narrative skills on child receptive vocabulary skills.

Table 4.12 Hierarchical regression analysis for variables (SES, maternal narrative skills, language stimulation and SES*maternal narrative skills) predicting child receptive vocabulary skills (N=78)

Variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
SES	.23	.07	.33**	.18	.07	.26*	.11	.08	.16	.11	.08	.16
Narrative Skills_Mom				.22	.08	.30**	.18	.08	.25*	.19	.09	.26*
Language Stimulation							.01	.01	.26*	.01	.01	.25*
SES*Narrative Skills_Mom										-.02	.07	-.03
<i>R</i> ²	.10			.17			.22			.21		
<i>F</i> for change in <i>R</i> ²	9.42**			7.91**			5.07*			.07		

Note. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

Narrative skills as outcome:

Similar analyses were conducted in order to examine interactive effect of family SES and maternal narrative skills on children's narrative skills. Again, the influence of maternal narrative skills on child narrative skills at 4 years of age was not moderated by family SES (Table 4.13.)

Table 4.13. Hierarchical regression analysis for variables (SES, maternal narrative skills, language stimulation and SES*maternal narrative skills) predicting child narrative skills (N=78)

Variables	Model 1			Model 2			Model 3			Model 4		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
SES	.24	.11	.25*	.17	.10	.18	.10	.11	.10	.10	.11	.10
Narrative Skills_Mom				.29	.11	.30**	.25	.11	.26*	.27	.12	.28*
Language Stimulation							.01	.01	.20	.01	.01	.19
SES* Narrative Skills_Mom										-.03	.10	-.04
R^2	.05			.12			.14			.13		
F for change in R^2	5.04*			7.17**			2.72			.11		

Note. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

Appendix F

Additional analyses controlling for the influence of maternal word knowledge (ACEP) on child language outcomes

Prediction of child receptive vocabulary skills at 4 years of age

Maternal narrative skills was found to be significantly correlated with maternal word knowledge measured by ACEP (Gülgöz, 2004) ($r=.28$, $p<0.05$). Therefore, additional analyses were conducted in prediction of child receptive vocabulary and narrative skills by including maternal word knowledge (ACEP) into the regression models.

Previously, family SES, maternal narrative skills, and language stimulation were included into the model in prediction of child receptive vocabulary skills. However, maternal word knowledge (ACEP) was found to be significantly correlated with family SES ($r=.72$, $p<0.001$) so when both family SES and ACEP were included into the same model the VIF values were found higher than 2, revealing a multicollinearity problem. Thus, the influence of maternal word knowledge (ACEP) on child receptive vocabulary was analyzed in the presence of maternal narrative skills, and language stimulation. Yet, maternal word knowledge (ACEP) did not significantly predict child receptive vocabulary skills at 4 years of age in the presence of maternal narrative skills and language stimulation variables.

Table 4.14 Hierarchical regression analysis for variables (maternal word knowledge, maternal narrative skills, language stimulation) predicting child receptive vocabulary skills (N=80)

Variables	B	SE B	β
ACEP	.01	.02	.04
Narrative Skills_Mom	.18	.08	.25*
Language stimulation	.01	.01	.30*
Adjusted R^2	.19		
F for change in R^2	7.00***		

Note. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

Additional analyses were conducted to investigate the influence of maternal word knowledge (ACEP) score in the presence of maternal narrative skills and learning materials. Again, maternal word knowledge (ACEP) did not significantly influence child receptive skills when the influence of maternal narrative skills and learning materials available to the children was controlled.

Table 4.15 Hierarchical regression analysis for variables (maternal word knowledge, maternal narrative skills, learning materials) predicting child receptive vocabulary skills (N=80)

Variables	B	SE B	β
ACEP	.00	.02	.00
Narrative Skills_Mom	.21	.08	.30**
Learning materials	.01	.00	.28*
Adjusted R^2	.17		
F for change in R^2	6.22***		

Note. * $p < .05$. ** $p \leq .01$. *** $p < .001$.

Prediction of child narrative skills at 4 years of age

Another set of analyses was conducted in order to investigate the role of maternal word knowledge on children's narrative skills in the presence of maternal narrative skills, and language stimulation. Based on the results, children's narrative skills were not predicted by maternal word knowledge (ACEP).

Table 4.16 Hierarchical regression analysis for variables (maternal word knowledge, maternal narrative skills, language stimulation) predicting child narrative skills (N=80)

Variables	B	SE B	β
ACEP	.00	.02	-.05
Narrative Skills_Mom	.26	.11	.26*
Language stimulation	.02	.00	.25*
<i>Adjusted R²</i>	.12		
<i>F</i> for change in <i>R²</i>	4.61**		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

The influence of maternal word knowledge on child narrative skills was also investigated in the presence of learning materials and maternal narrative skills. Maternal word knowledge (ACEP) did not have significant influence on child narrative skills at 4 years of age.

Table 4.17 Hierarchical regression analysis for variables (maternal word knowledge, maternal narrative skills, learning materials) predicting child narrative skills (N=80)

Variables	B	SE B	β
ACEP	.00	.02	-.04
Narrative Skills_Mom	.29	.11	.30**
Learning materials	.01	.00	.16
<i>Adjusted R²</i>	.09		
<i>F</i> for change in <i>R²</i>	3.48*		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.