DEVELOPMENTAL RELATIONS BETWEEN TURKISH PRESCHOOL CHILDREN'S THEORY OF MIND SKILLS AND THEIR ABILITY TO TRACK CHARACTER REFERENCES IN NARRATIVE DISCOURSE

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in Narrative Discourse

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Thesis Abstract

Burcu Ünlütabak, "Developmental Relations between Turkish Preschool Children's Theory of Mind Skills and Their Ability to Track Character References in Narrative Discourse"

This thesis investigates the developmental relationship between young children's theory of mind (ToM) abilities and their competence in organizing narratives through character references, to see how ToM contributes to the emergence of the narrative skills. For this purpose, narrative competence of 75 Turkish speaking children (ages 3;0 to 6;0) was assessed; focusing on how adequately they refer to characters in different discourse contexts where mutual knowledge was blocked: i) story-retelling, ii) picture-elicited stories with 1MC and 2MC, iii) picture-elicited story acted out with toys. For the assessment of ToM skills, children were presented with the tasks scaled by Wellman & Liu (2004). In addition, working memory (WM) measures were included as control variables. It was hypothesized that children's adequate use of referential expressions in all types of discourse would increase with age and ToM development would be positively related to referential adequacy.

A one-way MANOVA revealed that except for the story-retelling, referential adequacy performances in different story contexts increased with age; 4 and 5-year-olds performed better than 3-year-olds. Also, children refer more adequately to characters in stories with 1MC than in stories with 2MC. Hierarchical regression analyses show that forward word span performance was positively associated with referential adequacy in story-retelling. ToM skills were also positively associated with referential adequacy in 1MC stories while the association between ToM skills and referential adequacy in 2MC stories was marginally significant. Finally it has been found that WM performance was positively and strongly associated with ToM skills.

Following the adequacy analyses, the specific linguistic forms Turkish children are using in their narratives for introduction, maintenance and reintroduction functions were examined. Age and story type affected the patterns for using different linguistic forms. Three-year-old children were not yet capable of using indefinite forms for introducing characters; instead, they mostly used zero pronouns and on some occasions bare noun phrases. The use of bare noun phrases increased with age and almost 50% of children used bare noun phrases for the first character introductions in all story types except story retelling in which the proper name was used as it was given when the story was first told. The use of indefinite noun phrases began to appear at ages four and five. When maintaining reference to the same character, children in all age groups preferred using zero pronouns. In addition, children mainly used zero pronouns for character reintroductions and age-related increase in the use of definite forms for reintroduction function was not observed in any of the story types.

Tez Özeti

Burcu Ünlütabak, "Okul Öncesi Dönemde Çocukların Anlatılarındaki Kişi Gönderimlerinin Dinleyici Açısından Anlaşılabilirliği ile Zihin Kuramı Yetenekleri Arasındaki Gelişimsel İlişki"

Çalışmanın amacı okul öncesi dönemde çocukların anlatılarındaki kişi gönderimlerinin dinleyici açısından anlaşılabilirliği ile zihin kuramı gelişimi arasındaki ilişkiyi incelemektir. Araştırma İstanbul'daki anaokullarında 3-6 yaş arası Türkçe konuşan tek dilli 75 çocuk (35 kız, 40 erkek) ile yapılmıştır. Çocuklardan üç farklı yöntemle anlatı elde edilmiştir: i) sözel olarak sunulan bir hikâyeyi tekrar etme, ii) resimlerle sunulan tek ana karakterli ve iki ana karakterli hikâyeleri anlatma, iii) resimlerle sunulan iki ana karakterli hikâyenin dinleyen tarafından oyuncaklarla canlandırılmasını sağlamak amacıyla anlatma. İşlem belleği için düz ve ters sözcük dizisi testleri yapılmıştır. Zihin kuramı ise Wellman & Lui (2004)'nin skalasını oluşturan yedi ayrı işlem ile ölçülmüştür. Anlatılardaki kişi gönderimlerinin anlaşılabilirliği her cümlede bahsedilen kişinin kim olduğunun açık olup olmadığının değerlendirilmesi yoluyla yapılmış ve her çocuk için anlaşılabilirlik puanı elde edilmiştir Anlaşılabilirliğin yaşla birlikte artacağı ve zihin kuramı gelişimi ile aralarında pozitif bir korelasyon olacağı öngörülmüştür.

Çok değişkenli varyans analizi sonuçları, farklı hikâye türlerindeki kişi gönderimlerinin dinleyicinin anlayabileceği şekilde kullanılmasında yaşın anlamlı etkisi olduğunu göstermiştir. Sözel hikâye tekrarı dışındaki hikâye türlerinde yaşla birlikte kişi gönderimleri kullanımında anlaşılabilirlik artmış, dört ve beş yaşındaki çocuklar üç yaşındaki çocuklardan daha başarılı olmuşlardır. Yinelenmiş ölçüler tasarımı ile yapılan varyans analizi, hikâye türünün etkisinin anlamlılık düzeyine yaklaşan bir eğilim gösterdiğini ortaya koymuştur. Üç yaşındaki çocukların tek ana karakterli hikâyedeki kişi gönderimlerinin diğer türlerdekilere kıyasla daha anlaşılabilir olduğu bulunmuştur. Zihin kuramı ve işlem belleği başarı düzeylerinde de yaşın anlamlı etkisi bulunmuştur. Düz sözcük dizisi hikaye tekrarında anlaşılabilirliği yordarken, zihin kuramı yetisi kişi gönderimlerinin anlaşılabilirliğini tek ana karakterli resimli hikâyelerde anlamlı iki ana karakterli resimli hikayelerde ise anlamlıya yakın bir biçimde yordamıştır.

Karakterin tanıtımı, aynı karaktere atıfa devam ve bir karakterden diğerine geçiş durumlarında Türkçe'de kullanılan dilbilgisel yapılar incelenmiştir. Yaşın ve hikaye türünün farklı dilbilgisel yapıların kullanılmasını etkilediği görülmüştür. Üç yaşındaki çocuklar henüz belirsiz yapıları kullanamazken, daha çok sıfır gönderim ve bazı durumlarda sadece ad kullanmışlardır. Yalın ad kullanımı yaşla birlikte artmıştır ve hikaye tekrarı dışında tüm hikaye türlerinde çocukların yaklaşık %50'si ilk karakterin tanıtımında yalın ad tercih etmiştir. Belirsiz adlar ise 4 ve 5 yaşından itibaren kullanılmaya başlanmıştır. Aynı karaktere atıfa devam ederken tüm yaş gruplarındaki çocuklar sıklıkla sıfır gönderim kullanmayı tercih etmişlerdir. Bir karakterden diğerine geçişte ise belirli yapılar yerine çocuklar yine sıfır gönderimden faydalanmışlardır ve belirli yapıların kullanımında yaşla birlikte bir artış gözlemlenmemiştir.

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CHAPTER 1

INTRODUCTION

When using language, people should exchange attention and demonstrate that they are taking heed of what the other says because people could communicate as long as they attend to each other and know that the other is an intentional agent as well. In addition to that, when narrating stories, people should consider the knowledge and the attention state of the listener because these narrations become available not only internally for the individual but also externally for other people's minds. As soon as a child comes into world, his/her meaning making enterprise begins. S/he acquires language; begins to comprehend and produce sentences and becomes a member of "community of minds" by sharing his/her experiences with people, learning about their experiences, creating mental representations about their intentions and behaviors in various contexts and acting accordingly (Nelson, 1998). Interesting questions worth exploring are when and how children develop these skills and to what extent their language development and their narrative competence in particular, are related to their cognitive abilities.

From this point of view, the aim of the present study is to investigate the developmental relations between Turkish preschool children's theory of mind (ToM) skills and their ability to track referents in narrative discourse. Within this framework, how children's linguistic strategies for tracking reference to characters in narrative change by age, and what this process involves in terms of underlying mindreading skills are examined. The age of onset for taking the perspective of the other and for choosing appropriate referential forms by young children are explored.

The reason for the focus on characters in narratives is that characters, through the roles they take in plot constitutive events, provide continuity and contribute to narrative coherence. Research has shown that shared knowledge between speakers and listeners has determining effect on choice of referential devices (O'Neill, 2005; 1996; Hickmann, Kail & Roland, 1995; Kail & Hickman, 1992; Wong & Johnston, 2004). Furthermore, findings demonstrate that from two years of age on, children are capable of understanding desires and intentions of other and by age four, they become aware that others might have beliefs different from their own and from the state of reality (O'Neill, 2005; Doherty, 2009; Wellman, 2002; Miller, 2006; Tomasello, Kruger & Rantner, 1993). Together, these developmental findings suggest thatthe development of theory of mind (ToM) abilities and use of referential expressions for considering the needs of the listener in narrative discourse could be related and ToM development could contribute to the emergence of narrative competence. Emphasizing the function of mutual knowledge, the present study investigated not only children's use of linguistic forms appropriately but also the conceptual underpinnings of this use.

Definitions of the Specific Terms

In order to explore how children's ToM abilities underlies pragmatic competence in narrative discourse, we specifically focused on the adequacy of character references children use in different discourse contexts. In this study, adequacy is defined as the identifiability and the understandibility of the character by a naive listener who hears the narratives for the first time.

Reference to characters in narrative involves the realization of three discourse functions: introduction, maintanence, and reintroduction. Introduction signifies the

first mention of character in the discourse. Maintenance means children are still referring to the same character. On the other hand, reintroduction means children are shifting reference back to a previously mentioned character to remind the listener of that character. When realizing these discourse functions, children are expected organize their references by considering the newness and givenness of the information for the listener. While introductions are new for the listener, maintenances and reintroductions present given (old) information. Moreover, children are expected to use appropriate linguistic forms for these discourse functions. For instance, indefinite forms for first introductions, pronominal or null forms (i.e. zero pronouns or nominal ellipsis) for maintaining reference to that character and a more informative definite noun phrase or pronominal for reintroducing a previously referred, a mutually known protagonist.

Investigating this relationship in Turkish is also interesting because Turkish does not have a formal article system to differentiate between definite and indefinite forms and allows for the use of bare noun phrases which can be interpreted either as definite or indefinite depending on the discourse context (Küntay, 1997). Turkish also allows for nominal ellipsis and Turkish children could use zero pronouns when maintaining reference to characters.

The organization of the thesis is as follows: The literature review in Chapter 2 presents findings from research and an overview of the literature on the relationship between language, character reference in narrative discourse and ToM. In Chapter 3 the methodology is explained. Chapter 4 gives the analyses and results and Chapter 5, the discussion.

CHAPTER 2

LITERATURE REVIEW

Narrative Development

From the moment we come into the world, we begin to accumulate information about our environment, interact with other people, and finally develop some models about the world and people's intentions and actions in specific situations. Then, we start to share them by talking with other people. As we do so, we are constructing externalized scenarios or narratives about experience. Actually, as suggested by Nelson (1998) and Bruner (1986) narrative is a form of thinking; it emerges through our conversational exchanges with other people and mental representations of these exchanges in our minds. As children develop, with the help of these "mental event representations" (Nelson, 1998, p. 6), they learn the canonical, typical course of events and when these canonical events deviate from the norms, they become worth telling. Bruner (1986) mentions the "triggers" in telling narratives and describes the structure of narratives by referring to Kenneth Burke's argument; that is, in narratives, the organization of characters' actions, and goals, and the paths they follow for the realization of their goals are all very well coordinated and defined in a certain setting. When this coordination is, in a way, damaged; and the balance is impaired, the story is told to recreate the balance and to reach a resolution; a proper finalization in the end (Bruner, 1986; Nelson, 1998). In other words, narratives, which can be deemed as the output of knowledge about the world in the form of stories, can be defined as unfolding of events according to a temporal sequence through a particular perspective in a certain setting. Generally, narratives are

prompted by some unexpected event which disturbs the normal course of our daily lives and concentrate on how to resolve these ensuing problems (Nelson, 1998).

Narratives have both referential and evaluative functions (Labov&Waletzky, 1967 as cited in Aksu-Koç, 2005). When narrating a story, speakers present a sequence of temporally and causally related events; introduce and maintain characters that realize the actions in these events and also represent the intentional, motivational and emotional state of these characters by using the semantic, syntactic and morphological forms existing in the language.

In a well-formed narrative, representation of a well-rounded protagonist is very important because s/he is at the center of all events happening in the story and s/he is expected to return the deviated course of events into the proper track. Moreover, the protagonist is not just an actor; s/he has desires, beliefs, intentions and emotions. As children develop as narrators, their reference to a character who starts as a mere actor later gains these other features and moves from "landscape of action" to "landscape of consciousness" in Bruner's (1986, p. 14) terms. When they are in the landscape of consciousness, children begin to narrate not just the events but also add an evaluative aspect to these events, and characters become mental agents (Nicolopoulou & Richner, 2007).

Character Reference in Narratives

Children's narratives may be characterized in three forms: scripts, stories and personal narratives (Hudson & Shapiro, 1991). In all of these narrative forms, children make use of the mental event representations they formed through their experiences in the world, they take a certain perspective and, as narrative is an

interactional activity, they learn to consider the needs of the listener. As they develop their storytelling ability, children also begin to use the established conventions about character reference peculiar to the language they are acquiring. This ability to use the appropriate referential forms in the required contexts is important because, in doing so, young children not only convey their knowledge about a certain episode but also track the current knowledge and attention state of the listener and organize their narratives accordingly (Arnold, 2009; Wong & Johnston, 2004).

Every language has a system to mark the given (already known) and new (first mentioned) information in discourse, conversation or narrative. For instance, in English and many Indo-European languages the definite/indefinite article system is used to indicate the given versus new identity of the referred to entity. The definite article signifies shared knowledge about the intended referent, i.e. given information; the indefinite article signifies that there is no prior knowledge on the part of the listener and/ or the speaker, i.e. new information. Some languages such as Turkish, Hungarian or Mandarin Chinese, on the other hand, do not have such a formal article system. But still, they have other mechanisms which allow both the speaker and the listener to differentiate between the given and new character representations. Turkish, for instance, indicates the definite status of a noun through case inflections and the indefinite status by use of the numeral *bir* 'one', in addition to other mechanisms. Hickman, Hendriks, Roland and Liang (1996) make a distinction between the local and global markings of definiteness/ indefiniteness found in languages. While local markings refer to structures such as articles and other determiners that are used together with the noun phrase, global markings such as word order refer to more sentential level of definiteness. Some languages rely more

on local markings; whereas others rely more on global ones. These language-specific factors influence the way the speakers of that language organize their speech and convey the idea of givenness or novelty of the character mentioned to the listener. Hickman et al. (1996) compared narratives of children acquiring English, French and German, languages that have an obligatory article system, with Mandarin Chinese that relies on optional nominal determiners and global markings of definiteness/indefiniteness such as word order or clause structure. Their findings showed no significant effect of language when local new information markers are used for introducing new information, but as expected; there were age-related changes: 4-year-olds used pronouns and 6-year-olds used both pronouns and noun phrases. Full contrastive mastery of obligatory definite versus indefinite markers was observed after age seven. In Chinese, local markings, though not obligatory, were used more than global markings, and not less than in the other languages, but adult-like use (with word order shifts) was observed to be later than in English, French, German. These results show that although indicators of definiteness and indefiniteness to mark the given - new distinction are used early, their contrastive use signifying their function in narrative discourse is mastered late.

Findings from other typologically different languages that do not have an obligatory article system or that allow nominal ellipsis (use of zero pronouns, i.e. null forms) have revealed similar results while also showing language-specific differences. For example in Japanese , the particle *ga* which functions as the indefinite article emerges late (Nakamura, 1993) and nominal use as opposed to ellipsis increases from ages three-four to seven (Clancy, 1992). Both in Finnish (Dasinger, 1995), and in Turkish (Küntay, 2002; Küntay & Koçbaş, 2009), languages

that lack a grammaticalized article system but use case distinctions, word-order and optional lexical items for character introductions, definite forms are replaced with indefinite constructions with gradual development. In Küntay's (2002) study, for example, children did not use indefinite noun phrases properly till seven years of age. Only after this age did they start using indefinite noun phrases or bare nouns in introducing new characters into the discourse in an adult-like way, however, still using bare nouns, the definite/ indefinite interpretation of which depend on context, more often than adults.

In addition to character introductions, Hickman and Hendriks (1999) compared English, French, German and Mandarin Chinese for the strategies children use when maintaining reference to a character in narrative. They observed some universal patterns as well as some language-specific differences, such as a higher frequency of null elements in Chinese which allows zero pronouns compared to the other languages. What was common across languages was younger children's use of the thematic subject strategy (Karmiloff-Smith, 1981) whereby they organize the components of the narrative around the main character and refer to him/her pronominally even when they switch reference to him after having referred to another character, as if their audience was also aware of his/her role as the protagonist. They reserve the use of nominals for the secondary characters in the story. Younger children also use definite forms more frequently than older children ignoring whether their audience has shared knowledge or not, whereas older children use more indefinite forms to refer to new characters and are able to consider the lack of mutual knowledge on the part of the listener. Anaphoric strategy which involves the usage of pronominals in co-referential contexts and nominals for newly

introduced or reintroduced referent, on the other hand, is the adult strategy (Hickman & Hendriks, 1999; Hickman et al., 1996; Wigglesworth, 1990).

Another study that explored children's use of definite vs. indefinite forms for character maintenance and reintroductions in discourse is by Wong and Johnston (2004) who analyzed narratives of Cantonese speaking children. Their results show that four- and five-year-olds found character maintenance (across coreferential referents) easier than character reintroductions (in contexts of non-coreferentiality) and were 60% successful at contrastive use of definite vs. indefinite markers to realize these functions, suggesting that children begin to track the knowledge and attention state of the listener when narrating a story around that age. Wong and Johnston (2004) point out the importance of the narrator's presuppositions about the listener's current knowledge about the referent and his relative attention state toward it. Both the speaker and the listener maintain a mental model about the story that constantly evolves as the narration continues and speakers update their discourse according to the changes in the listener's knowledge and attention state. This means that when introducing and shifting between characters, the narrator has to organize his/her references according to the relation of the new information to the previous information s/he has given, and use appropriate referential expressions, indefinite forms for first introductions, pronominal or null forms for maintaining reference to that character and a more informative definite noun phrase or pronominal for reintroducing a previously referred a mutually known protagonist.

From another point of view, Arnold (2008, 2009) argues that reference production occurs not only as a result of addressee oriented processes but also as a result of production-internal processes. In general, it is accepted that speakers choose between explicit and attenuated lexical forms depending on the context and

considering the needs of the listener; that is, they use nouns or pronouns according to the circumstances to ensure the ease of communication on the part of the listener. In terms of addressee-oriented processes, Arnold (2008, 2009) suggests that when talking, speakers make global assumptions about a generic addressee basing their judgment on same community membership or shared culture. And they make local assumptions about a specific addressee based on their previous or current experiences with that person. Arnold (2008, 2009) draws attention to the fact that all these processes might not be essentially addressee-oriented but also speaker-oriented. This means that on-line production requires ongoing updating and integrating of new information in a constantly evolving environment. As a result, speakers would rather determine accessibility of a referent on the basis of their own mental model.

In their study with young adults investigating the roles of speaker and listener in effective use of referring expressions Arnold and Griffin (2007) found a novel effect: even when the reference is not likely to be ambiguous, speakers prefer using more explicit forms rather than pronouns when two characters are present in the narrative. This finding indicates that speaker's internal representation of the story, cognitive load of the task and accessibility of the character in the speaker's mind are as important as the informational needs of the listener. Although Arnold's studies have been conducted with young adults or school age children, they could have implications about the emergence and development of these skills in preschool children. It may be that when there is more than one protagonist in the narrative, they compete for attention and it becomes more difficult to hold all of them in the focus of attention. In general, it can be said that that forming narratives involves both speaker- and addressee-oriented processes. For the sake of communication, the speaker should choose referential forms that can be easily understood by the listener. But at the same

time, as the processes occur in the mind of the speaker, the processing and production capacity of the speaker affects the representation and expression of characters or other entities in the narrative.

The above review shows that that the proper use of markers of new information is relatively late across all languages. There is, however, controversy about the exact age at which children are able to use definite and indefinite referential expressions to mark the distinction between given and new information. While some studies claim that the contrastive usage of definite and indefinite forms is not fully acquired until seven years of age (Kail & Hickman, 1992; Hickman, Kail & Roland, 1995; Karmiloff-Smith, 1981; Warden, 1976; Wigglesworth, 1990), other studies claim that when children are four or five years old, they display this ability in their narratives (Bamberg, 1987; Brown, 1973, Maratsos, 1976). As noted above, Karmiloff-Smith (1981) observed that preschool children produce narratives that lack an overall organization and rely on discourse external strategies using deictic forms for reference, whereas 6-year-olds build up a recognizable organization for narrating events and use the thematic subject strategy, pronominalizing the protagonist who is reintroduced into the narrative even after another character has been brought into focus. Older children and adults, on the other hand, using discourse internal criteria, display the anaphoric strategy where the previously introduced character is pronominalized and, newly (re)introduced character is nominalized. Similar findings are reported by Wigglesworth (1997) who shows that four years old children are not fully capable of using the thematic subject strategy which develops only after six years of age, and is followed by the anaphoric strategy around eight years.

On the other hand, according to Bamberg (1987), the use of Karmiloff-Smith's thematic subject strategy is observed around 3½- 4 years. He claimed that

four year-old children are able to choose a character in the story as the thematic subject and refer to this character with pronominals in the subject-initial position. Other evidence for earlier achievement of appropriate use of definite and indefinite markers comes from experimental studies. For example, Maratsos (1976) reports that three-to four- year-olds are capable of understanding and the abstract semantic distinctions conveyed by articles. His results from comprehension and production experiments suggest that children associate definite articles with a specific member of a class that has properties distinguishing it from the other class members, and indefinite articles with reference to nonspecific members. Although children's comprehension accuracy was above chance for both referential expressions at both age levels, they used definite referential expressions more accurately than indefinites. Maratsos' (1976) interpretation is that 3-year-olds might be focusing on the "conspicuous" member of the class and therefore produce more accurate definite forms compared to indefinite ones. Finally, there is evidence indicating early awareness of the distinction between new vs. old information, even if it does not show directly the context appropriate use of definite vs. indefinite forms. O'Neill (2005) reports from her study with very young children (O'Neill, 1996) that even two-year-olds are aware of the knowledge state of their parents when communicating with them. When parents had not witnessed the identity and location of a new toy, children gave significantly more details by naming the toy, referring to its location and making gestures towards it in order to get it back. O'Neill (2005) argues that new information -obtained when the listener is physically absent- reveals the unshared and relevant perspective about an event and the speaker takes on the role of updating the knowledge state of the listener about it. O'Neill (2005) points to the significance of pragmatic skills acquired in conversation for young children's ability

to appropriately convey new and given information in narrative. Recent research by Matthews, Lieven, Theakson and Tomasello (2006) similarly shows that three- and four-year-olds (but not two year-olds) choose different referring expressions by considering the knowledge state of the addressee determined either by prior perceptual availability and/or being mentioned in previous discourse, the two influential factors that determine their referring expressions. These findings suggest that children's ability to consider the perspective of the listener and to choose the appropriate referential expressions accordingly is still somewhat fragile and open to error before age four even in non-narrative discourse.

The age controversy in these findings appears to be due to the different methodologies used in different studies. Narrative elicitation method, availability of mutual knowledge, early familiarity with the story line and presence of more than one main protagonist in the story are just some of the factors that could affect children's performance in these studies. If we want the child to narrate the story by paying attention to the given vs. new status of information and use contrastive referential expressions such as definite vs. indefinite noun phrases, we have to make sure that the child thinks that the listener does not have any knowledge about the story and the characters mentioned there. If both the child and the listener have access to the pictures about which the story is told, children use more definite forms, assuming that the listener also recognizes the character (Kail and Hickman, 1992). So controlling for perceptual access is very important for later evaluation of these productions; only then can we judge whether the child's use of referential expressions is appropriate or not (Hickman et al., 1996). The responsibility that falls on the speaker to take into account the knowledge state of the listener calls for a

consideration of children's ability to understand the mental state of others, that is, theory of mind.

Conceptual Underpinnings of Referential Abilities

Young children are often characterized as "egocentric", lacking the ability to take the perspective of the other. However, from early infancy to adulthood, understanding the beliefs, desires, needs, and opinions of other people is very important for human beings. As Doherty (2009) claims, people are all like naïve psychologists and their life and interactions with the world depends on their understanding first of their own and then of other people's mental states. In fact, it is now believed that the emergence of such understanding, which is called "theory of mind", dates back to very early years of childhood (e.g. Gopnik & Wellman, 1992; Leslie, 1987; Miller, 2006; Perner, 1991; Tomasello, Kruger & Ratner, 1993) although previously Piaget claimed that young children are egocentric until about seven years of age. Research done so far reveals that starting around two years children display this capacity by understanding the desires and emotions of others, and then around age four by understanding the beliefs which may be different from their own and from the state of reality. They can thus predict the behavior of others and even attempt to control situations based on these predictions (Doherty, 2009; Wellman, 2002). The capacity to read other minds is attributed to children when they can solve false belief tasks. The standard false belief task was first used by Wimmer & Perner (1983).The general idea behind the task is that the child is either told about or shown a situation in which a protagonist sees an object and then in his absence the location of the object is changed, and then the child is asked about the protagonist's belief or behavior about the location of the object. Most theory of mind studies suggest that

although some precursors exist, well-formed theory of mind skills are not evidenced before four years of age. Until then, children have difficulty in taking perspectives and representing reality from someone else's point of view. But from four years on, they perform like adults in ToM tasks (Wellman, 2002; Miller, 2006; Doherty, 2009; Gopnik & Wellman, 1993).

Relationship between Language and ToM

Doherty (2009) claims that theory of mind and language are two important skills which distinguish human beings from other species. Nelson (2005) similarly argues that aside from joint attention, imitation and other general cognitive abilities that have consequences for later ToM development, language is the most important general function acquired during preschool years that paves the way for higher-order cognitive processes including ToM. The relation between language as a powerful representational system and theory of mind has been emphasized from various aspects but the most significant evidence comes from children with delayed or deficient language abilities such as deaf and autistic children who have difficulty in achieving ToM tasks. Studies comparing ToM performance of normally hearing and native signing children of deaf parents with that of language-delayed deaf children of hearing parents and orally deaf children show that the latter group's achievement on ToM tasks is later and lower than that of the former group (de Villiers, 2005; de Villiers &Pyers, 2002; de Villiers & de Villiers, 2000). Similarly, autistic children perform poorly compared to typically developing children, even when their verbal mental age is high (Happe, 1995; Tager-Flusberg, 2000).These results demonstrate the importance of language for the development of ToM skills and suggest that

language development, and particularly, the acquisition of its complex structure greatly contribute to social and cognitive development of children.

Nelson (1998; 2005) calls the social and communicative structure which is created among people through language as "community of minds". As they acquire language, children begin to talk about what is on their own minds, listen to others to learn about their minds and thus step into the community of minds. Thanks to language, they are exposed to what others think in contrast to what they think; and thus, understand that people can have thoughts, beliefs, desires and motivations which are distinct from their own. This understanding also entails the understanding of people's "backgrounds, personalities, relationships and histories" (Nelson, 2005: p. 29).

One line of research in this area concentrates on parent-child and child-sibling relationships and underlines the importance of conversation in children's understanding of others' mental states. Face-to-face conversation with family members provides the context in which children can differentiate their own knowledge, belief or desire states from those others (Nelson, 2005). Dunn and Brophy (2005) similarly emphasize the function of entering conversations with or listening to narratives of close relations for the development of understanding of mind. Such interactions give a head start to the child in terms of language development and narrativity, and may create a difference in ToM skills later on.

Referring to both observational and training studies about the role of conversation in the development of ToM, Harris (2005) points out that during conversation children are invited to engage in different viewpoints, and their ability to do so determines their competence in discourse. Maternal insight and sensitivity as well as the conversational input the child receives are very important; because, in this

way, the child gets more experienced with people's beliefs, desires, feelings, intentions and subsequent behavior, learns to interpret relationships between people and objects in different situations and to understand the causal relations between them. Harris also argues that the conversations children enter in role-play in pretense activities enables them to adopt different perspectives, attribute different characteristics and mental states to other people, take on a new role by suspending their own role for the time being and use language accordingly.

Another line of research focuses on the nature of language itself. Jacques and Zelazo (2005; Zelazo, 1999) discuss the flexibility language brings to thought both through its labeling function and its general representational function. Language enables children to label situations, people and objects and thus, gain self-reflection and flexibility in thought and action. They can manipulate events in their minds, label different perspectives on an event and switch from one to the other when needed. Such cognitive flexibility is said to support successful performance in ToM tasks consisting of representational change, false belief and appearance-reality problems.

Specific semantic and syntactic components of language have also been proposed to play an important role in the relationship between language and ToM development. It has been argued that preschool children become successful in false belief tasks after they acquire mental state verbs (such as *think, believe, remember*) and complement structures with communication verbs (e.g. *say, tell*) and mental verbs (e.g. *think, believe*) which enable the representation of false beliefs Shatz, Wellman & Silber, 1983; de Villiers &Pyers, 2002; de Villiers, 2005). Children who understand complement constructions need to process the sentence as a whole and be

aware of the fact that while the main clause is true the complement clause may be false, as illustrated in (1).

(1): Mom says *you like the movie*.

But you do not.

So Mom falsely thinks that *you like the movie*.

Children, who have not yet mastered complement constructions, appear to fail in ToM tasks. In a training study, Tomasello and Lohman (2003) showed that children benefited most when they received practice in both perspective-shifting discourse and sentential complement syntax, suggesting that each of these types of linguistic experience plays an independent role in the emergence of false belief understanding. Other linguistic structures that have been found to be related to ToM are specific false belief verbs (such as *san*-'falsely believe, in past tense in Turkish; and, *yiwei* (neutral in some instances but also implies false belief) and *dang* (strongly implies false belief) in Chinese), modal inflections or particles with evidential meaning, all of which have facilitating effects on ToM performance (Aksu-Koç & Alıcı, 2000; Lee, Olson & Torrance, 1999; Shatz, Diesendruck, Martinez-Beck, &Akar, 2003; Vinden, 1996).

Studies generally indicate that language predicts ToM; but not vice versa. For instance, in a longitudinal study with three-year-olds, Astington and Jenkins (1999) investigate the relationship between language and ToM, focusing on three alternative hypotheses. First is that ToM depends on language, second purports that language depends on ToM, and third, both language and ToM depend on some other underlying factor such as working memory or executive functions, or social and commnicative skills that increase with age and experience. The results of the study

demonstrated that language skills predict later ToM performance whereas ToM performance does not predict later language development. Although this finding illuminates the direction of relationship between language and ToM, it nevertheless does not cancel out the possibility that some third factor; internal such as WM and executive function or external, such as social development could affect both language and ToM. Furthermore, ToM could influence developments in language at a later point in development. For instance, as suggested by Aksu-Koç & Alıcı, 2000, although children's use of noncertainty markers in language appears to be closely related to ToM development, it is not possible to see affects of this relationship immediately in language tasks. However, early use of evidentials facilitate ToM development and ToM facilites the use of these markers in discourse implying a bidirectional relationship.

The above review of studies on the relationship between ToM and language presents the grounds for expecting children's ToM capacities to be related to their ability to use referential expressions in narrative. Narrative is a discourse genre which integrates multidimensional components and has implications for social interaction. Narrative, both as an "intra-individual" and "inter-individual" medium of verbal thought and communication requires the use of various social, linguistic and pragmatic abilities; and this very nature of narrative discloses its connection to ToM (Astington& Baird, 2005; Gujardo& Watson, 2002; Nelson, 1998; Nicolopoulou & Richner, 2007). This is the relation that will be investigated in the present study.

Referring Expressions in Turkish

Since the present study aims to investigate the relationship between the use of referential expressions and ToM development in Turkish-speaking preschoolers, a brief summary of the mechanisms for making and tracking reference in Turkish is presented here. Turkish is an agglutinating language with standard Subject-Object-Verb order which is free to vary for pragmatic purposes of focusing and backgrounding together with variations in intonation (Dede, 1986; Erguvanlı, 1984 as cited in Küntay, 1997). Nouns in Turkish are marked for number, possession and case which are the nominative (zero-marked), accusative, dative, locative, ablative, instrumental and genitive. Case markers always indicate definite referents. Apart from these local markers of definiteness, global markers of discourse status are also used: the preverbal position is for new information whereas the postverbal position is used for given information. Turkish does not have a formal article system to differentiate between definite and indefinite forms. Therefore, noun phrases may have nondefinite status in Turkish. Nondefinite noun phrases are bare nouns which can be interpreted either as definite or indefinite depending on context (Küntay, 1997).

The indefiniteness of the referent is expressed with the numeral one, *bir* (corresponding to "a/an" in English) (Dede, 1986 as cited in Küntay, 1997). It is generally used in presentational or existential clauses when *introducing* a new entity into discourse, as in (2).

(2) Bir çocuk var.
one boy exist
'There is a boy'

Use of pronouns or use zero pronouns is the typical means to *maintain* reference to the same referent as in (3) where the boy is not mentioned.

(3) *balon alıyor*

balloon buy-PROG

‘(He) is buying (a) balloon’

In Turkish, the pronoun used for the subject can be omitted from the clause since the verb takes person markers. If we categorize the grammatical roles and definiteness status of nominals in Turkish, we can say that in the subject role, while a bare noun can be used as a nondefinite form (as in 4), a noun with the numeral *bir* is used as the indefinite form as in (2) above.

(4) *Çocuk balon alıyor*

boy balloon buy-PROG

‘(the) boy is buying (a) balloon’

On the other hand, in the direct object role, if the speaker wants to specify the noun as definite, then s/he should use a noun marked with the accusative case.

(5) *Çocuk balon-u alıyor.*

boy balloon-ACC buy-PROG

‘(the) boy is buying the balloon’

However, if the noun is indefinite, a bare form as in (4) or again an accusative marked form but this time preceded by the indefinite numeral *bir* can be used

(6) *Çocuk bir balon-u alıyor.*

boy (a) balloon-ACC buy-PROG

‘(the) boy is buying a balloon’

Also, other definite nouns which are characterized as oblique objects take case markings; but these noun phrases are interpreted as indefinite only when they are preceded by the numeral *bir*. All in all, the forms that can be used to refer to characters in the subject or object role in Turkish can be ordered in terms of a given-new information continuum and in terms of degree of definiteness expressed as follows: Indefinite noun phrase with *bir* (*bir çocuk 'a child')* and existential expression as *bir (bir çocuk var 'there is a child')*, a bare noun (çocuk 'child'), an adjective + noun (*sarı saçlı kız 'blond girl'*), a demonstrative noun phrase (*bu çocuk 'this child'*), a possessive noun phrase (*çocuğun babası 'child's father'*), a relative noun phrase (*uçanbalon 'balloon that flies'*), definite noun (çocuğa 'to the child'), a proper noun (Ali), a pronoun (o 'he or she'), demonstrative pronoun (*bu* 'this') and a zero pronoun (0).

For character introductions, indefinite noun phrases are preferred in order the mark the new information to the listener (*Bir çocuk balon tutuyor* 'A child holds a balloon').When the information is introduced, it becomes accessible for both the speaker and listener and usually less explicit forms such as pronouns *(O balonla oynuyor 'He plays with the balloon')* and zero pronouns *(Balonla oynuyor* '… plays with the balloon'*)* are used for maintaining reference to the same character assuming that s/he is already known within the context of the discourse. When a character is no longer in focus, the speaker usually prefers using definite noun phrases to remind listener of that character *(Çocuk eve gitti* 'The boy went home').

Statement of the Problem

Considering the fact that taking the perspective of the other is important in effective narrative performance and, in particular, in using referential expressions adequately for the benefit of the listener, the aim of the present study is to explore the developmental relationship between young children's "mind reading" abilities and their abilities to organize their narratives through character reference, to see how the former contributes to the emergence of the latter. For this purpose children were presented with a number of ToM problems and several narrative construction tasks elicited with pictures in conditions where mutual knowledge was blocked. Since it was observed that the complexity of the events to be recounted makes a difference for choice of reference tracking forms even for adults, children were presented stories with one vs. two main characters and the referential adequacy of the linguistic forms used for introducing, maintaining and reintroducing characters into discourse were evaluated. As discussed above, the fact that children have difficulties in effectively using the specific markers of given vs. new information in their narratives suggests that organizing narrative discourse is cognitively more demanding than everyday conversations where they display the knowledge of these forms. To explore this possibility children were asked to retell a story that was read to them, that is, a story where both the plot organization and the linguistic forms were already structured and given, reducing the cognitive load to that on working memory. To see whether children's level of performance on this task differed with their working memory capacity, children's memory span was also assessed. Finally, in order to ensure that the context of storytelling is one which increases the awareness of the child that s/he should take into account the informational needs and attention focus of the listener, an experimenter with a set of toys was seated across

from the child and the child was asked to tell the story represented in pictures depicting those toys so as to make the experimenter - who could not see the pictures - act out the story. Doing such a study in Turkish where marking of the referents as indefinite is more context dependent than obligatory because it does not have a formal article system and where nominal ellipsis is allowed may provide further information about the age at which these abilities emerge. The hypotheses of the study conceived within this framework are as follows:

Hypotheses

1) Children's adequate use of referential expressions in all types of discourse (retelling, picture elicited storytelling, storytelling with toys) will increase with age.
2) Narrative retelling will reveal the best performance with respect to appropriate forms as it involves reproducing an already structured and verbalized story.
3) Children will refer to characters in two main character (2MC) stories less adequately than characters in one main character (1MC) stories as it can be difficult to organize 2MC stories in which event structure and relationship between characters might be more complex than one main character stories.
4) Children's ToM competence will increase with age.
5) Children's WM competence will increase with age.
6) Children's use of referential expressions with contextual adequacy will be positively related to both their ToM and WM competence.
7) Children's adequate use of linguistic forms in character introductions, maintenances and reintroductions will increase with age

- For character introductions, younger children will prefer definite forms; the use of indefinite forms will increase with age.
- For character maintenance, children will prefer zero forms; the use of pronominal or nominal forms will be scarce and discourse motivated.
- For reintroductions, younger children will prefer zero or pronominal forms; use of nominal forms will increase with age.

CHAPTER 3

METHOD

Participants

A total of 75 preschool children (40 males, 35 females) of middle-class family background participated in the study. All children were monolingual Turkish native speakers. For developmental comparisons, the participants were divided into three age groups ranging from 3;0 to 6;0. The distribution of the participants by age group and gender is presented in Table 1.

Table 1. Distribution of Participants by Age and Gender

Age Range	Female	Male	Total
3;1-3;11 (mean 3;5)	11	12	23
4;1-4;11 (mean 4;6)	11	17	28
5;1-5;11 (mean 5;5)	13	11	24
Total	35	40	75

Materials

Narrative Tasks

Story-retelling: A short story about a birthday child, composed of eighteen clauses was read to the children by the experimenter. The story consisted of a main and a secondary human character. At the end of the story, there were some comprehension questions about the story.

Picture-elicited stories: Four wordless picture stories, the Beach Story, the Stream Story, the Nightmare Story and the Balloon Story (Nicolopoulou, 2010) were used to elicit narratives from the children. All stories consist of four pictures in sequence. In Balloon and Nightmare Stories, the first character appears in the first two pictures and a second character is introduced in the third picture. In Stream and Beach Stories, the first and the second characters appear together in the first picture and continue to do so in all pictures. Although sometimes one character is at the foreground compared to the other character, no main character is specified. Visual access of the listener to the pictures was obstructed by a screen held in front of the pictures while the child was telling the story.

Toy story: This story was designed to integrate aspects of narration with communication. Four sequential photographs depicting a story designed with toys was again displayed on a cardboard, with a screen obstructing the visual access of the listener, but this time the actual counterparts of the toys were present on the table in front of the confederate. In this story two human characters are present throughout the pictures. In addition, the story includes a horse and a dog. No main character is specified. (For stories see Appendix A)

Working Memory Tasks

This task has two different sections: forward wordspan and backward wordspan. The task was modelled after the digit-span task of WISC-R but numbers were replaced with one or two syllable animal names because very young children tend to repeat the counting sequences they know instead of the digits presented (Yılmaz, Aktürk, Aksu-Koç, 2012) (see Appendix B).

Theory of Mind Tasks

Finally, to measure the ToM skills of children, seven ToM tasks comprising Wellman and Liu's (2004) ToM scale that taps different aspects of children's understanding of the mental states of others were used.From easiest to the most difficult according to scale,the ToM tasks are as follows: Diverse Desires, Diverse Beliefs, Knowledge Access, Unexpected Contents, Explicit False Belief, Belief-Emotion, Real-Apparent Emotion. Brief descriptions of the ToM tasks are presented in Table 2. (For a full description of the tasks see Appendix C)

Table 2. Descriptions of ToM Tasks

Task	Description
Diverse Desires	The child is asked about his own desire and given information about someone else's desire and then required to decide who desires what.
Diverse Beliefs	The location of something is asked to the child; someone else's opinion about the location is also given and the child is asked to predict the behavior of other person.
Knowledge Access	The child is shown a box and asked if he knew what was inside or not. Then the same question is asked from the viewpoint of someone else who hasn't seen the contents of the box.
Explicit False Belief	The location of an object and someone else's false opinion about its location is told to the child and he is asked to predict the behavior of the person who has false belief about the location.
Unexpected contents	A candy box is shown to the child and asked about its content. After the real contents (pencils) are shown, he is asked someone else's belief about the contents of the box.
Belief-Emotion	A cornflakes box filled with paper is shown to the child and he is told that it is the favorite food of the confederate. The child is asked about the belief and emotion state of the confederate when s/he sees the box and then learns the actual contents of the box.
Real-apparent Emotion	A story about a girl who hides her feelings is told to the child and he is asked to indicate the real and apparent emotion state of the girl.

Procedure

Administration of the Tasks

The children were tested individually in a room in their respective kindergartens. The order in which the tasks were administered was as follows: narrative retelling, picture elicited stories (four different stories were shuffled controlling for the order of appearance of single character and two character storiesfor each child as 1MC-2MC-1MC-2MC or 2MC-1MC-2MC-1MC), story with toys, WM tasks (forward wordspan and backward wordspan), and the seven scaled ToM tasks.

Instructions for Narrative Tasks

In the beginning of the narrative tasks, children were told that they were participating in a "story-telling game" and the stories collected during the game would be presented in a story book for children. They were asked, therefore, to be as accurate and clear as possible when narrating the stories.The children were also told that they were not supposed to show the pictures to the confederate. All stories told by the children were audio-recorded.

In the story-retelling task, the children were read the story, and later we asked comprehension questions about the story to make children listen carefully. Then a confederate entered the room and showed curiosity about what she missed before she came. Then the child was requested to narrate the same story to the confederate who feigned to have no previous knowledge about it.

For picture-elicited stories, the pictures were pasted on a cardboard in sequence and put in front of the child with another piece of cardboard held upright as a screen to block shared visual information between the child and the confederate who sat opposite, while the experimenter kept a certain distance to both. Children

were first asked to look at the pictures in order to understand the story line and then to narrate the story to the confederate.

When narrating the toy story, children were told that a movie would be made with these toys according to the story depicted in the pictures which they were going to tell. Children were asked to narrate the story in the pictures with as much detail as possible because while they were narrating, the confederate would act out the story with toys accordingly. We feigned to record the actions of the confederate with a small camera. Although the narrator could see the actions of the confederate, the confederate could not see the pictures.

Administration of Working Memory Tasks

After three warm up trials children were asked to repeat the animal names told by the experimenter in the same order in the forward span and in the reverse order in the backward span tasks. Both tasks have seven levels, each with two strings of animal names, and the number of animal names increase from two at the first level to eight on the final level. Children first completed the forward wordspan task; even if they got no point in this task, they were administered the backward wordspan task as well. Children got one point if they were able to repeat the first string, and two points if they were able to repeat both strings for each level. If they failed to repeat both strings at any level, the task was terminated.

(For the full description of theprocedure and items of the WM task tasks see Appendix B)

Data Preparation

All narratives were transcribed and coded. The unit of analysis was determined as the clause. Each clause was coded for the discourse function realized and the linguistic form used in referring to the animate characters who were protagonists in the story. The discourse functions were Introduction, Maintenance and Reintroductiond, defined as follows:

Introduction: Reference to the character for the first time.

Maintenance: Continued reference to the same character in consecutive utterances.

Reintroduction: Switching reference back to a character after another character has been introduced and/or maintained.

Each referential function was coded for the following *types* of referential *forms* used:

Absence (no mention of character)

Indefinite NP (*bir çocuk* 'a boy')

Bare NP (*çocuk* 'boy')

Definite NP (case marked NP , Demonstrative NP, Possessive NP, adjectival phrase, relative NP; *çocuğa* 'to the boy', *bu çocuk* 'this boy', *çocuğun balonu* 'boy's balloon', *yaramaz çocuk* 'naughty boy', *koşan çocuk* 'running boy', respectively)

Pronoun (personal pronoun, demonstrative pronoun; o 's/he,it', bu/şu/o 'this/ that', respectively)

Zero (null) Pronoun (omitted)

References to the characters were coded regardless of whether they were in the subject or object position (direct or indirect). References to inanimate objects were coded only if they established a connection to one of the animate characters by possessive marking. The details of this coding will be presented in a subsequent section on the evaluation of linguistic forms.

Each story was coded for the linguistic forms used for each discourse function. Then for each analysis, the relevant calculations were averaged over the two 1MC stories and the two 2 MC stories.

Evaluation for Referential Adequacy

In this study, referential adequacy means the identifiability of the referent by the listener on the basis of linguistic forms used and/or contextual cues signalling the referent. If the information given by the speaker suffices to reveal the intended referent to the listener, the clause was coded as referentially adequate. However, if the intended referent was ambiguious and the listener could not understand which character the speaker is talking about, it was coded as inadequate.

For each narrative, the linguistic forms used by children for character introduction, maintenance and reintroduction were evaluated for referential adequacy by two judges who were asked first to read the whole story and then to evaluate the referential act expressed in each clause for identifiability of the referent through linguistic cues and/or shared world knowledge.

First, the researcher rated each referential act in each story as adequate or inadequate for first and for second character. Each adequate reference was given 1 point and inadequate reference was given 0 point. Then 20 % of the narratives were randomly selected and given to an independent rater who had not seen the pictures and thus did not have any knowledge about the content of the stories or the age of the narrator; the second rater evaluated the adequacy of each referential act for the identifiability of the referent on the basis of linguistic cues and/or world knowledge. A comparison of the ratings of the two judges yielded 87.4 % agreement; Cohen's

kappa = .523. The adequacy scores for each child's each narrative were calculated by dividing the number of adequate referential acts to total number of referential acts. Example (7) below illustrates a narrative with high referential adequacy and example (8), a narrative with low referential adequacy. In the examples, the information in the brackets shows the initials and age of the child, and the abbreviations are as follows: CH= character, Intro= introduction, Maint= maintenance, Reint= reintroduction, (A+) = "adequate", and (A-) = "inadequate".

Examples:

(7) (ET 4;7)

Kızla erkek top oynuyor.

'Boy and girl are playing ball' (First and Second CH, Intro, A+).

Sonra kız taa nehire atıyor topu

'Then (the) girl throws the ball all the way to the stream' (First CH, Maint, A+).

Sonra da tutamadığı için erkek suya düşüyor

'Then, because (he) could not catch the ball, (the) boy falls into the stream' (Second CH, Reint,A+).

Kız da onu sudan alıyor

'And (the) girl takes him from the stream' (First CH, Reint, A+, Second CH,Reint, A+).

Sonra da top oynuyorlar

'And then they play ball,' (First and Second CHMaint, A+).

(8) (KG 3;7)

Kumu dolduruyor kamyona

(He) is putting the sand into the van (First CH Intro, A-).

Bu da koşuyor

And this is running (First or Second CH, A-).

Bu da kumdan kale yapıyor

And this is making a sand castle (First or Second CH A-).

Bu da kamyonla oynuyor

And this is playing with the van (First or Second CH A-).

Coding of Linguistic Forms

The linguistic forms children used to refer to the story characters were coded for six different referential functions. In 1MC-stories the functions coded for were:

Introduction of Main Character	Introduction of Secondary Character
Maintenance of Main Character	Maintenance of Secondary Character
Reintroduction of Main Character	Reintroduction of Secondary Character

In 2MC-stories the functions coded for were:

Introduction of First Character	Introduction Second Character
Maintenance First Character	Maintenance of Second Character
Reintroduction First Character	Reintroduction Second Character

In the Balloon Story and Nightmare Story, the main character is typically the boy or the girl. But, though unlikely, if the child mainly talks about the secondary character and mentions the boy or the girl only once or none at all, then the main character is the secondary character. In the Stream Story and Beach Story, the first character is the one that the child has introduced first and the second character is the one the child introduced second.

For each narrative, each clause was coded for discourse function and linguistic form, as illustrated in the examples below.

(9) (AÖY 3;9) Nightmare Story

Çocuk uyuyormuş

Child was sleeping (Main CH Intro, bare noun).

Burada canavarlar görmüş.

(He) saw monsters here (Main CH Maint, zero pronoun)

Çok korkmuş

(He was) very scared (Main CH Maint, zero pronoun)

Annesi ona ayı vermiş

His mother gave him teddy bear (Secondary CH Intro, possessive noun)

Çocuk tekrar uyumuş

Child slept again (Main CH Reintro, bare noun phrase)

(10) (BT 4;4) Stream Story

Bir tane erkek çocuk var

There is a boy (First CH Intro, indefinite noun).

Bir tane kız çocuk var

There is a girl (SecondCH Intro, indefinite noun).

Top oynuyorlarmış

They were playing ball (First and SecondCH Maint, zero pronoun).

Erkek çocuk suya düşmüş

The boy fell to the water (First CH Reintro, definite noun pharese).

Pantolonu ıslanmış

His pants got wet (First CH Maint, zero pronoun).

We calculated the percentages for each function as follows:

For introduction, since a character could be introduced into the discourse only once, the number of introductory referential acts and the number of children were equal. The percentages were calculated by dividing the number of referential acts using a given form by the total number of introductory referential acts for that character in that age group (which is also the number of children at that age level).

However, for reintroduction and maintanence, each child could refer to the same character several times and could use different linguistic forms at every instance. Consequently, the percentages of different linguistic forms for maintenance and reintroduction functions were calculated first per child by dividing the number of referential acts using a given form by the total number of referential acts for that function. For instance, if a child maintains a character for five times in total, using zero pronouns three times and bare noun phrases two times, this means that 60% of his maintenances or reintroduction is realized by use of zero pronoun and 40% by use of a bare noun phrase, thus summing up to 100% for that child for that function. Then the percentages of earch form for each function were averaged over the number of children in each age group.

CHAPTER 4

RESULTS

The results are presented in three main sections. In the first section, MANOVA and ANOVA results are included to demonstrate the effect of age, gender and story type on referential adequacy; effect of age and gender on ToM skills and WM development. In the second section, bivariate correlation analyses were conducted to see the associations among variables. Then regression analyses were conducted for the variables which are significantly correlated when the effect of age was controlled. Finally, in the last section, descriptive tables presenting the percentages of the use of various linguistic forms for character introduction, maintenance and reintroduction functions in the narrative were included.

Adequacy of Referential Acts in Different Story Types

The distribution of mean referential adequacy scores and standard deviations by age, gender and story type are presented in Table 3.

Table 3.Distribution of Mean Referential Adequacy Scores (and Standard Deviations) by Age, Gender and Story type

Story type	Retelling		1MC Story		2MC Story		Story with toys	
Gender	male	female	male	female	male	female	male	female
Age 3 (N=23; 11 F, 12 M)	.71(.44)	.77(.40)	.70(.32)	.78 (.18)	.57(.19)	.60(.20)	.46(.39)	.68(.31)
Age 4 (N=28; 11 F, 17 M)	.92 (.24)	.89 (.30)	.85 (.22)	.97 (.06)	.87(.13)	.88(.18)	.95(.09)	.86(.20)
Age 5 (N=24; 13 F, 11 M)	.97(.06)	.82(.37)	.91(.09)	.88(.20)	.81(.21)	.90(.19)	.92(.16)	.99(.04)
N= 75; 35 F, 40 M)	.85 (.32)		.85 (.21)		.78 (.22)		.96 (.12)	

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of age (3) x gender (2) on four dependent variables which were the adequacy scores obtained for the four different story types (story retelling, picture-elicited one character stories, picture-elicited two character stories, story with toys).

Box's M test indicated that our *F* values violate of the assumption of homogeneity of variance–covariance matrices, $p < .001$. However, as the sample sizes are almost equal and there is a reasonable number of participants in each group, our MANOVA is still valid. The analysis revealed a significant effect of age, *Wilks'*

*Lambda (*λ) = .503, *F*= 6.762, *p*< .001. However, there was no gender effect, *Wilks' Lambda (*λ) = .936, *F*= 1.133, *p*=.349. The interaction between age and gender was not significant either, *Wilks' Lambda (*λ) = .845, *F*= 1.446, *p*=.183.

According to the test of between-subjects effects, the effect of age on adequacy performance was not significant only in the story retelling condition, *F* (2, 69) =1.951, *p*= .150, *partial* $\eta^{2\,=}$ .054, whereas there was a significant effect of age on adequacy scores obtained for the other stories. Children in the older age groups produced more adequate referential acts than children in the younger age groups in the 1MC story *F* (2, 69) =5.133, *p*= .008, *partial* $\eta 2^{=}$ .130; two character story *F* (2, 69) =19.370, *p*< .000, *partial* $\eta^{2\,=}$ .360; and toy story *F* (2, 69) =20.997, *p*< .000, *partial* $\eta^{2\,=}$ .378. The effect of gender was not significant in any of the story types. The interaction between age and gender was not significant except in the toy story condition: story retelling *F* (2, 69) =.576, *p*= .565, *partial* $\eta^{2\,=}$.016; 1MC story *F* (2, 69) =.830, *p*= .440, *partial* $\eta^{2\,=}$.023; 2MC story *F* (2, 69) =.312, *p*= .733, *partial* $\eta^{2\,=}$.009; toy story *F* (2, 69) =3.059, *p*= .053, *partial* $\eta^{2\,=}$.081. Older girls seem to perform better than the other age-gender groups in story with toys.

Multiple comparisons among the three age groups demonstrate that when narrating stories with one main character (1MC) four- and five-year-old children perform better than three-year-olds , *p*=.019 and *p*= .026, respectively; no difference was observed between four- and five-year-old children, *p*= 1.000. When narrating stories with two main characters (2MC), again four- and five-year-old children perform better than three-year-olds, *p*<.001 for both; no difference was observed between four- and five-year-olds, *p*= .958. The pattern was similar for the story with toys as well, four- and five-year-old children perform better than three

year old children, $p<.000$, while no difference was observed between four- and five-year-old children, p= .789.

Post Hoc Analyses of Individual DVs: Repeated Measures ANOVA for Adequacy Scores in Different Story Types

In order to see whether children displayed different levels of referential adequacy on different story types, *a* repeated-measures ANOVA was carried out on the adequacy scores in different story types. Mauchly's test was significant; as a result, we were not to assume that the condition of sphericity had been met. Therefore, Greenhouse-Geisser corrected degrees of freedom to assess the significance corresponding to *F* are used. *R*esults revealed that there was a marginally significant overall difference among story types, F (1, 69) = 2.671, p= .060, $\eta^{2=}$.037. The interaction between story type and age was also marginally significant, F (2, 69) = 2.134, p= .065, $\eta^{2=}$.058; that is, 5.8% of variation in error scores was accounted for by the interaction between age groups and story type. No interaction was found between story type and gender.

Pairwise comparisons revealed a significant difference in referential adequacy scores between 1MC and 2MC stories, (mean difference is .079, p = .003). Children referred more adequately to characters in 1MC stories than in 2MC stories. None of the other comparisons were significant (mean difference between retelling and 1MC story = -.004, p = 1; mean difference between retelling and two character story =.076, p = .230; mean difference between retelling and the story with toys = .035, p = 1 mean difference between 1MC story and story with toys = .038, p = 1 and mean difference between 2MC story and story with toys = -.041, p = .957).

Theory of Mind Performance

ToM performance was analyzed using a factorial analysis of variance with two between subject factors of age (3) x gender (2). This analysis revealed that there was a main effect of age on ToM performance, F (2, 67) = 22.566, p = .000, η^2 = .402. However, there was no main effect of gender, F (1, 67) = .006, p = .940, η^2 =.000 and no interaction between age and gender, F (2, 67) = .189, p = .828, η^2 = .006. Post Hoc analyses indicated that there is a significant difference between 3-year-old and 4-year-old children and 3-year-old and 5-year-old children, p = .000; but not between 4 year-old and 5 year-old children, p = .305. The means are presented in Table 4.

Table 4. Distribution of Mean ToM Scores (and Standard Deviations) by Age, Gender and Type of ToM task

(Maximum Scores for Each Task Included in the Parentheses)

ToM	Diverse Desires (1)		Diverse Beliefs (1)		Knowledge Access (2)		Unexpected Contents (3)		Explicit False Belief (2)		Belief-Emotion (2)		Real-Apparent Emotion (2)	
	M*	F**	M	F	M	F	M	F	M	F	M	F	M	F
Age 3 N=23	.83 (.39)	.91 (.30)	.42 (.52)	.09 (.30)	1.67 (.65)	1.45 (.93)	1.75 (1.2)	1.91 (1.4)	1.08 (.52)	1.00 (.63)	1.08 (.90)	1.40 (.84)	.58 (.79)	1.00 (.82)
Age 4 N=28	.81 (.40)	1.00 (.00)	.50 (.52)	.36 (.51)	2.00 (.00)	2.00 (.00)	2.56 (.89)	3.00 (.00)	1.13 (.72)	.82 (.41)	1.94 (.25)	1.82 (.41)	1.25 (.86)	1.45 (.52)
Age 5 N=24	1.00 (.00)	1.00 (.00)	.45 (.52)	.38 (.51)	2.00 (.00)	1.85 (.56)	3.00 (.00)	2.69 (.75)	1.09 (.70)	1.08 (.86)	1.91 (.30)	2.00 (.00)	1.82 (.41)	1.77 (.59)

*Male: M; **Female: F

The Order of Difficulty of ToM Tasks: Seven Item Rasch Model for ToM Tasks

In order to scale the tasks from the easiest to most difficult, another scoring scheme was used. The children were considered to have passed the task if they answered the target questions correctly and were given one point. They were considered to have failed the task if they answered the target questions wrong and were given zero point. The correct answers to control questions were disregarded. Such dichotomous scoring of the tasks allows us to find the patterns in children's answers and order the tasks in increasing difficulty. The percentages of children who passed each ToM task were calculated and the tasks were ordered in terms of their difficulty based upon this raw data (See Table 5). While almost all of the children were successful in Diverse Desires task, most of the children failed in Explicit False Belief task in all age groups. In these tasks, older children did not perform better than younger ones. For later correlational analyses, we excluded the easiest and the most difficult tasks (Diverse Desires and Explicit False Belief) as they indicate ceiling and floor effect respectively and we calculated the overall ToM score of each children based on the five ToM tasks in between these tasks.

Table 5. ToM Tasks Ordered in terms of Decreasing Difficulty (Frequencies and Percentages of Children who Passed Each Task in Parentheses)

ToM Tasks	Age 3(N= 23)	Age 4 (N= 27)	Age 5 (N= 24)	Total (N= 74)
Explicit False Belief	7 (30%)	5 (19%)	8 (33 %)	20(26%)
Diverse Beliefs	6 (26%)	12 (44%)	10 (42%)	28(38%)
Real-apparent Emotion	5 (23%)	13 (48%)	20 (83%)	38(52%)
Unexpected contents	12 (52%)	24 (89%)	22 (92%)	58(78%)
Belief-Emotion	13 (60%)	25 (93%)	23 (96%)	61(84%)
Knowledge Access	17 (74%)	27 (100%)	23 (96%)	67(90%)
Diverse Desires	20(87%)	24 (89%)	24 (100%)	68(92%)

Data for seven ToM tasks were analyzed with a Rasch test command using STATA statistics program. According to the Rasch model, a person's ability to respond to items correctly increases as the items' difficulty level decreases. Item difficulty measures give information about the items' likelihood of being answered positively. People respond to less difficult items more positively and more difficult items less positively. Standardized infit and outfit values for individual items have an expected value of 0. Positive values greater than 2.0 suggest unpredictable variation and misfit to the model (Linacre &Wright, 1994; Wright & Masters, 1982 as cited in Wellman and Liu, 2004).

Table 6 presents the item measure summary and fit statistics for the model. It is observed that all items fit the model. None of the standardized infit or outfit values are greater than 2.0. The items are ordered in terms of their difficulty, from the most

difficult to the easiest one. According to these results, explicit false belief and diverse beliefs tasks are the most difficult, whereas Knowledge Access and Belief-Emotion tasks are the easiest for Turkish children.

Table 6. Rasch Model for ToM Tasks Showing Item Measure Summary and Fit Statistics for Seven-Item Rasch Model

	Measure	Error	Standardized infit	Standardized outfit
Item difficulty and fit statistics				
Explicit False Belief	1.29	0.39	0.26	0.36
Diverse Beliefs	0.62	0.36	0.21	-0.02
Real-Apparent Emotion*	0.00	-	-0.16	-0.53
Unexpected Contents	-1.42	0.41	-0.75	-0.80
Belief-Emotion	-1.86	0.44	0.42	-0.28
Knowledge Access	-2.61	0.53	-0.73	-1.33
Diverse Desires	-2.82	0.56	0.53	-0.27

*: The difficulty parameter of this item had been fixed to 0.
Note: Expected values for standardized infit and outfit is a mean of 0 and standard deviation of 1.0; fit statistics > 2.0 indicate misfit.

According to these results, especially Diverse False Beliefs, Explicit False Belief and to some extent Real-Apparent emotion, seem to be more difficult than the other tasks for all age groups. Knowledge Access, Unexpected Contents and Belief and Emotion, on the other hand, are difficult for three-year-olds but not so much for the older children.

Working Memory Scores

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of age (3) and gender (2) on forward and backward word span scores. The analysis revealed significant differences among the age groups, *Wilks'*

Lambda (λ) = .776, *F*= 4.602, *p*= .002. However, no significant difference was found between females and males, *Wilks' Lambda* (λ) = .978, *F*= 2.000, *p*=.472. The interaction between age and gender was not significant either, *Wilks' Lambda* (λ) = .957, *F*= 4.000, *p*=.558.

Test of between subjects effects revealed a main effect of age for forward word span, *F* (2, 69) =6.028, *p*= .004, $\eta^{2 =}$ .149 and for backward word span, *F* (2, 69) =7.515, *p*= .001, $\eta^{2 =}$ .179. No significant effect of gender was found for forward word span, *F* (1, 69) =.012, *p*= .914, $\eta^{2 =}$ .000, or for backward word span, *F* (1, 69) =1.418, *p*= .238, $\eta^{2 =}$.020. The interaction between age and gender was not significant either (forward word span, *F* (2, 69) =.082, *p*= .922, $\eta^{2 =}$ .002; backward word span, *F* (2, 69) =1.048, *p*= .356, $\eta^{2 =}$ .029).

Multiple comparisons showed that in forward span performance, while there was no significant difference between three- and four-year-olds, *p* = .247 and four- and five- year-olds, *p* = .123, there was a significant difference between three and five-year-olds, *p* = .003. In the backward word span task, the difference between four- and five-year-olds was not significant, *p* = .193; whereas the difference between three and four year old children's performances was marginally significant, *p* = .064, and that between three- and five-year-olds was significant, *p* = .001 (see Table 7).

Table 7. Forward Word Span and Backward Word Span Means (Standard Deviations) by Age and Gender

WM Scores	Forward Word Span		Backward Word Span	
Gender	male	female	male	female
Age 3 (N=23; 11 F, 12 M)	4,83 (1,80)	4,82 (1,40)	1,17 (1,47)	,55 (,93)
Age 4 (N=28; 11 F, 17 M)	5,35 (1,17)	5,45 (,69)	2,06 (1,56)	1,27 (1,35)
Age 5 (N=24; 13 F, 11 M)	6,18 (,87)	6,00 (1,23)	2,27 (1,50)	2,54 (1,20)
Total (N= 75; 35 F, 40 M)	5,44 (1,31)		1,69 (1,50)	

In summary, there is significant increase in WM performance in both tasks with age. Although no significant difference was found between three and four year olds; and four and five year olds, the significant difference found between three and five year olds shows that there is an incremental development.

The relationship between Referential Adequacy, WM and ToM

Table 8 presents the relationship of predictor variables (Age, ToM and WM) and children's referential adequacy scores on different story types as dependent variables.

Table 8. Bivariate Correlations between Age, ToM and Working Memory and Referential Adequacy Scores for the Four Story Types

	Retelling	1MC	2MC	Toy story	ToM	Forward ws	Backward ws	Age
Retelling		.505**	.399**	.357**	.220	. 285**	.147	.290*
1MC			.590**	.401**	.439**	.286*	.177	.378**
2MC				.529**	.443**	.251*	.375**	.551**
Toy story					.354**	.216	.244*	.547**
ToM						.479**	.532**	.556**
Forward ws							.452**	.349**
Backward ws								.461**
Age								

p<.05;p<.01*

Table 9. Bivariate Correlations between ToM and Working Memory and Referential Adequacy Scores for the Four Story Types Controlling for the Effect of Age

	Retelling	1MC	2MC	Toy story	ToM	Forward ws	Backward ws
Retelling		.446**	.300**	.248*	.073	.204†	.016
1MC			.494**	.251*	.297**	178	.003
2MC				.326**	.198†	.075	.164
Toy story					.073	.032	-.011
ToM						.366**	.374**
Forward ws							.350**
Backward ws							

**p<.05; **p<.01;* †*p<* .10

When the effect of age was controlled, adequacy performances in different story types were still strongly correlated. However, some of the correlations between ToM, WM and referential adequacy were reduced. There was still a strong association between ToM and adequacy in 1MC stories and although the relationship between ToM and adequacy in 2MC stories did not reach statistical significance, p= .09, there

is a trend in the expected direction. The correlation between forward word span and adequacy in story-retelling is reduced from .285 to .204 when the effect of age was partialled out and was then marginally significant, p= .08. On the other hand, the positive relationship among forward word span, backward word span and ToM was not affected by age and the correlations were still significant.

In the next section, regression analyses were conducted to further investigate the relationship among correlated variables. First, a hierarchical regression analysis was conducted for adequacy in story-retelling as dependent variable by entering the following explanatory variables 1) Age in months, 2) Forward word span.

Second, a hierarchical regression analysis was conducted for 1MC and 2MC stories as dependent variables by entering 1) Age in months, 2) ToM as explanatory variables.

Finally, a hierarchical regression analysis was conducted for ToM as dependent variable by entering 1) Age in months, 2) Forward word span, and 3) Backward word span.

Collinearity statistics provided by regression analyses showed that there was not a danger of multicollinearity as the tolerance index for none of the predictors were below 0.1.

Regression Analysis: Story-retelling Referential Adequacy as Dependent Variable

In the first step of the regression, age was found to be a significantly and positively associated with story-retelling adequacy. The amount of variability in the dependent variable that was explained by age is 8.4 %, *F-change* (1, 73) = 6.710, p = .012. Older children performed better than younger children, β = .290, t (73) =2.590, p = .012. In the second step of the regression, forward word span together with age

accounts for 12.2% of story-retelling adequacy; forward word span accounts for an extra 3.8% of the variance in story-retelling adequacy, β = .209, $t(72)$ =1.772, p = .081, *F-change* (1,70) =3.140, p = .081 (see Table 10).

Table 10. Hierarchical Regression Analysis for Story-retelling Referential Adequacy as Dependent Variable

Step		ΔR^2	DF	*F-Change*	*B*	SE	β	
1		.084	1,73	6.710				
	Age in months				.009	.004	.290	*
2		.038	1,72	3.140				
	Age in months				.007	.004	.217	p=.069
	Forward Word Span				.052	.029	.209	p=.081

Note:*p<.05

Regression Analysis: 1MC Story Referential Adequacy as Dependent Variable.

In the first step of the regression, age was significant in explaining 14% of the variance related to performance in 1MC stories, p = .001. When ToM was entered into the model, 7.6 % increase was observed in the variance explained. β = .331, $t(72)$ =2.641, p = .01 (see Table 11).

Table 11. Hierarchical Regression Analysis for 1MC Story Referential Adequacy as Dependent Variable.

Step		ΔR^2	DF	*F-Change*	*B*	SE	β	
1		.143	1, 73	12.154				
	Age in months				.008	.002	.378	**
2		.076	1,72	6.974				
	Age in months				.004	.003	.194	*P*=.126
	ToM				.029	.011	.331	*p*=.01

**p< .01

Regression Analysis: Referential Adequacy in 2MC Stories as Dependent Variable

Age was a significant predictor in explaining 30.4% of the variance in referential adequacy of 2MC stories, *F-change* (1, 73) = 31.836, p = .000, β = .551, $t(72)$ = 5.390, p <.001, When ToM was entered in the second step, the effect of age was still significant, p<.001, and with ToM, the variance explained increased by 2.7 %, which is not significant but approaching significance in the expected direction, p = .091. (See Table 12)

Table 12.Hierarchical Regression Analysis for 2MC Story Referential Adequacy as Dependent Variable

Step		ΔR^2	DF	*F-Change*	*B*	SE	B	
1		.304	1,73	31.836				
	Age in months				.012	.002	.551	***
2		.027	1,72	2.931				
	Age in months				.010	.003	.441	***
	ToM				.018	.010	.199	p=.091

*p<.05; **p<.01; ***p<.001

Hierarchical Regression Analysis for ToM as Dependent Variable

An analysis was conducted to see if WM performance in forward and backward word span tasks would be significantly associated with ToM performance. In the first step of the regression, age was found to be positively and significantly associated with ToM performance, explaining 30.9 % of variance. As age increased, ToM scores increased as well, *F-change* (1,73) = 32.628, $p < .000$, $\beta = .556$, $t(72) = 5.642$, $p < .000$. When forward word span is entered in the second step, the variance explained increased by 9.3 %, *F-change* (1, 72) = 11.158, $p = .001$, $\beta = .325$, $t(72) = 3.340$, $p = .001$. In the third step of regression, backward word span explain 4.7 additional variance, $\beta = .262$, $t(72) = 2.472$, $p = .016$. (See Table 13)

Table 13.Hierarchical Regression Analysis for ToM as Dependent Variable

Step		ΔR^2	DF	*F-Change*	*B*	SE	B	
1		.309	1, 73	32.628				
	Age in months				.137	.024	.556	***
2		.093	1,72	11.158				
	Age in months				.109	.024	.442	***
	Forward Word Span				.609	.182	.325	***
3		.047	1,71	6.110				
	Age in months				.087	.025	.352	***
	Forward Word Span				.446	.188	.238	*
	Backward Word Span				.431	.174	.262	*

*p< .05, ***p< .001

In summary, age explained most of the variance in the adequacy of children's character references in different story types. Older children performed better than younger ones. Apart from age, our analyses suggested that children performing better

in forward word span task were referentially more adequate when retelling a story. Moreover, ToM was found to be strongly and positively associated with referential adequacy in 1MC stories and the significance of age was reduced when ToM entered into the analysis. That is, children in all age groups who were successful in ToM tasks, referred to characters in the 1MC stories more adequately. ToM was positively associated with referential adequacy in 2MC stories as well, though the results were marginally significant. However, age was strongly and positively associated with referential adequacy in 2MC stories and the effect of age remained significant even after ToM was entered to the analyses. Finally, it has been found that both forward word span and backward word span performances were strongly and positively associated with ToM. In other words, as children's performance in WM tasks increased, their performance in ToM tasks increased as well.

Linguistic Forms

After evaluating the adequacy of children's character references with respect to their understandability by the listener; the specific linguistic forms Turkish children are using in their narratives for introduction, maintenance and reintroduction functions were examined. In character introductions, the use of indefinite or bare noun phrases to signify new information are expected; definite noun phrases, pronouns and zero pronouns are not appropriate forms for new information. For character maintenance, that is, for consecutive reference to an already introduced character which is now 'shared information' zero pronouns and pronouns are the expected forms of expression. Finally, for character reintroductions; namely, for switching reference to

a character hat has been mentioned previously, the use of a bare noun phrase or a definite form is expected.

First Character Introduction

The patterns for using appropriate forms differ between story-retelling and story construction with the help of pictures. In story-retelling, for the first character introduction, children in all age groups preferred to use the proper name of the character since this information was already given in the presentation of the story. They either used only the proper name (majority of the 3- and in particular the 4-year olds) or they used the proper name in a construction with an indefinite noun phrase (13% of the 3- and 38% of the 5-year olds; e.g. *Zeynep diye bir kız var* 'There is a girl called Zeynep').

In the other story types, at age three, the most preferred forms for first character introduction were either the zero-pronoun (for 1MC-stories 37%, 2MC-stories 57% and toy story 22%) or bare NPs (for 1MC stories 33%, 2MC stories 24% and toy story 30%). The percentage of the required indefinite forms used by 3-year olds was extremely low (see Table 14). At age four and five, children's usage of indefinite forms for character introductions increased noticeably. At age four, the percentage of children who preferred indefinite noun phrases were 20 % for 1MC stories, 16 % for 2MC stories and 39 % for Toy Story. At age five, for 1MC stories 19 %, for two character stories 32 % and for story with toys 50% of children used indefinite forms. The more popular form at both ages, however, is the bare noun phrase; at age four, for 1MC stories 50 %, for two character stories 55 % and for story with toys 46% of children, and at age five, for 1MC stories 52 %, for two character stories 34 % and for story with toys 34% of the children used bare nouns.

,Across the age groups from three to five, the use of zero pronouns for character introductions decreased (See Table 14).

Second Character Introduction

Second character introductions were typically realized by possessive noun phrases (i.e. *Babası*'his father', *Annesi* 'his mother') in story-retelling, increasing from 48% at age three, to 83% at age five. A similar pattern was observed in 1MC stories: 52 % of the 3-year olds, 55% of the 4-year olds and 63% of the 5-year olds used a possessive construction. This finding is not surprising since story-retelling presents the second character as "her mother" and in the 1MC stories, the second character is an adult while the first one is a child. The percentage of indefinite forms was zero at all ages for retelling and around 20% for 4- and 5-year olds for 1MC stories.

In 2MC stories on the other hand, for second character introductions, 41% of the 3-year old children preferred zero pronouns whereas 30% were split between bare noun phrases and possessive noun phrases. Four-year olds preferred bare NPs (36%) and indefinite NPs (23%) and 5-year olds showed a similar pattern with 29% using bare NPs and 23% indefinite NPs. Across age groups, the usage of zero pronouns in this story type decreased to 16-17%.

The toy story elicited a variety forms from the 3-year olds such as pronouns (22%) bare noun phrases, demonstrative noun phrases, and possessive noun phrases (13-17% each) and only 9% indefinite noun phrases. However, at age four 32% of the children used indefinite noun phrases, 18% bare noun phrases and 18% demonstrative noun phrases. At age five, 38% of the children used indefinite noun phrases, 25% used demonstrative NPs and 17% bare noun phrases for the introduction of the second character.

Table 14.Percentage of Specific Linguistic Forms Used by Children for First and Second Character Introduction by Age

Age Group in years												
Form	3				4				5			
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
First Char. Introduction	%				%				%			
Indefinite NP	13	2	2	4	4	20	16	39	38	19	32	50
Proper NP	48		2	4	82				46	4	4	4
Demonstrative NP			2	17		2	4	4		2		4
Definite NP						3	2	7			2	
Possessive NP		9									2	
Bare NP	4	33	24	30	4	50	55	46		52	34	34
Pronoun		13	11	13		2	2			8	2	4
Zero Pronoun	13	37	57	22	4	23	19	4	12	14	25	4
Absent	22	7	2	9	6		2		4	2		
Second Char. Introduction												
Indefinite NP		2		9		18	23	32		21	23	38
Proper NP			2								4	
Demonstrative NP				13		2	2	18			6	25
Definite NP		4	4	9				14		2	6	
Possessive NP	48	52	9	13	79	55	9	7	83	63	8	4
Bare NP	4	7	13	17		4	36	18		4	29	17
Pronoun		2	17	22		4	7	4			2	
Zero Pronoun	4	9	41	4	4	5	16	4	8	2	17	8
Absent	22	7	2	9	7		2		4	4		
No introduction	22	17	9	4	11	13	2	4	4	4	4	4

In summary, age and the story type shaped the patterns for using different linguistic forms. Ideally, we expect children to use indefinite noun phrases for character introductions. However, the percentages suggest that when children are three years old, they are not yet capable of using the indefinite forms; instead they mostly use zero pronouns and in some occasions bare noun phrases. The use of bare noun phrases increase with age and almost 50% of children used bare noun phrases for the first character introductions in all story types except story retelling in which the proper name is used as it is given in the introduction of the story. The use of indefinite noun phrases begin to appear at ages four and five and particularly in the toy story, 39% of four-year-olds and 50% of five-year-olds used indefinite noun phrases. In the second character introductions as well, the use of indefinite noun phrases increases from 9% at age three to 32 % at age four and 38 % at age five. The percentages of indefinite forms for 1MC and 2MC stories are around 20% at age four and five while almost none of the three-year-olds use indefinite noun phrases. Another number which draws our attention the Table 14 is that in almost all age levels children use more zero pronouns when introducing secondary characters in 2MC stories which is 41% at age three and decreasing to 16-17% at age four and five.

First Character Maintenance

As expected, the dominant linguistic forms used for character maintenance across clauses are pronouns and zero pronouns. The number of zero pronouns is very high for all story types and at each age level. In story-retelling, 57% of three-year-olds, 73% of four-year-olds and 65% five-year-olds made use of zero pronouns when maintaining characters. The percentages were similar for 1MC stories as well: 56%

of three-year-olds, 61% of four-year-olds, 67% of five-year-olds preferred zero pronouns. For 2MC stories, the percentages were 71% at age three, 63% at age four and 68% at age five. In toy story, the percentages were slightly lower but the pattern was similar: 56 % of three-year-olds, 43 % of four-year-olds, 52 % of five-year-olds used zero pronouns *(*See Table 15*).*

Second Character Maintenance

As can be seen from Table 15, the percentages of second character maintenances were relatively low across the story types and age groups. This is particularly so in case of retelling and 1MC stories. But when children maintain the second character they again prefer zero pronouns; in story-retelling 22% of three-year-olds, 23% four-year-olds and 25% five-year-olds preferred zero pronouns. In 1MC stories, the percentages were more or less similar, when children were three years old, 21% of them used zero pronouns, and this number increased to 30% at age four and five. The preference for zero pronouns was higher in 2MC stories, 54% of three-year-olds, 51% of four-year-olds and 48% of five-year-olds used zero pronouns. When narrating the toy story, at age three only 30% children used zero pronouns but the percentage increased to 52-53% at age four and five. The next preferred form for maintenance is the pronoun which is most frequently used in 2MC stories (24% at age four, 14% at age five) and story with toys (14% at age five) (see Table 15).

Table 15.Percentage of Specific Linguistic Forms Used by Children for the First and Second Character Maintenance by Age

Age Group in years												
Form	3				4				5			
	Retelling	1 MC	2 MC	Toy	Retelling	1 MC	2 MC	Toy	Retelling	1 MC	2 MC	Toy
First Char. Maintenance	%				%				%			
Indefinite NP				5							5	1
Proper NP	5			2	8		2		13	1		
Demonstrative NP		3				2	3	6				4
Definite NP			1	1		1		4	1		1	6
Possessive NP	3	8	2	1	3	16	2	0	8	9	1	1
Bare NP	1	6	5	6		5	14	9	9	4	5	8
Pronoun	13	12	10	6	8	5	11	29		10	8	15
Zero Pronoun	57	56	71	56	73	61	63	43	65	67	68	52
Absent	22	7	4	4	7		2		4	2		
No maintanence		11	7	17		9	5	7		6	13	13
Second Char. Maintenance												
Indefinite NP				9			1				1	6
Proper NP			1								2	
Demonstrative NP								1			1	3
Definite NP			1					2			2	
Possessive NP		3			11	3	3		13	7	2	5
Bare NP			1	2	1	1	5	4		2	11	9
Pronoun		2	13	7	1	1	6	24	4	2	14	14
Zero Pronoun	22	21	54	30	23	30	51	53	25	37	48	52
Absent	22	6	4	4	7		2		4	2		
No maintanence	57	67	26	48	57	64	34	14	54	50	17	13

For character maintenances, we expected frequent use of zero forms at all age levels and in all story types. In this sense, the findings meet our expectations as children in all age groups preferred using zero pronouns. From time to time, children choose using pronouns instead of zero pronouns, especially in 2MC stories and toy story which might be attributed to the internal characteristics of these stories as they have two main characters to be maintained.

First Character Reintroduction

Most of the three-year-old children did not reintroduce the first character, particularly in story retelling (61%) and in two character stories (57%). These percentages were lower for 1MC stories (35%) and the story with toys (30 %). With age, the instances of reintroductions increased and it is observed that zero pronouns are the dominant forms at all age levels: in story-retelling 17% of three-year-olds, 25% of four-year-olds and 29% of five-year-olds preferred using zero pronouns. In 1MC stories as well, the percentages of zero pronouns were similar at all age levels: 35% of three-year-olds, 36% of four-year-olds and 38% of five-year- olds used zero pronouns. In 2MC stories, percentages for using zero pronouns were similar at age three and four (23%, 25% respectively) and an increase was observed at age five (41%). In toy story, again a similar pattern was seen; 26 % of three-year-olds, 36 % of four-year-olds and 33 % of five-year-olds used zero pronouns. The other linguistic forms which are encountered occasionally for first character reintroductions are proper names for story retelling at ages four and five and pronouns or bare noun phrases for other story types at age five (See Table 16).

Second Character Reintroduction

The proportion of reintroductions of the second character are very low for all story types at all ages, as can be observed in Table 16. If children reintroduce the second character, they mostly prefer pronouns and zero pronouns. In story-retelling, approximately 8% of children preferred using zero pronouns in all age groups. When narrating 1MC stories, again the percentages of children who used zero pronouns were quite low. However, the percentages for using zero pronouns for reintroducing second character in 2MC stories are higher than story-retelling and 1MC stories; 16% of three-year-olds, 28% of four-year-olds and 22% of five-year-olds used zero pronouns. In toy story as well, except age four, percentages of using zero pronouns are relatively higher than story-retelling and 1MC stories; that is, 13% of three- and five-year-olds used zero pronouns. The possessive noun phrase is another form that is used, the percentages are ranging between 4-9% at age three, 0-11% at age four and 0-33% at age five (see Table 16).

Table 16. Percentage of Specific Linguistic Forms Used by Children for First and Second Character Reintroduction by Age

Age Group in years												
Form	3				4				5			
	Retelling	1 MC	2 MC	Toy	Retelling	1 MC	2 MC	Toy	Retelling	1 MC	2 MC	Toy
First Char. Reintroduction	%				%				%			
Indefinite NP		2									2	5
Proper NP			2		16				31		4	3
Demonstrative NP						3	4			3	5	6
Definite NP				9		1	4	9		3	4	6
Possessive NP		3			5	3	5		4	3	2	
Bare NP		9	10	10	2	9	7	5		10	16	15
Pronoun		9	7	16	5	15	11	26	10	7	6	10
Zero Pronoun	17	35	23	26	25	36	25	36	29	38	41	33
Absent	22	7	2	9	7		2		4	4		
No reintroduction	61	35	57	30	39	32	43	25	21	35	21	21
Second Char. Reintroduction												
Indefinite NP				7		1	5				3	4
Proper NP			2								1	
Demonstrative NP			1			1		4			2	6
Definite NP				4				18			4	4
Possessive NP	13	9	9	4	11	11	5		33	6		10
Bare NP	4	2	4	15	4	4	14	9		2	15	6
Pronoun			17	13			7	18			5	6
Zero Pronoun	9	7	16	13	7	7	28	2	8	2	22	13
Absent	22	7	2	13	7		2		4	2		
No reintroduction	52	76	48	30	71	77	39	50	54	88	46	50

For character reintroductions, we expect children to use definite noun phrases to remind the listener of the previous mention of the character; however, children mainly used zero pronouns and age-related increase in the use of definite forms was not observed in any of the story types. One possible interpretation of this pattern might be the difficulty of reintroducing characters in narrative discourse for preschool children.

Inadequate Referential Acts

In order to see which linguistic forms are evaluated as inadequate for a specific function (i.e. introduction, maintenance and reintroduction), the percentages of inadequate referential acts for a given form-function combination were calculated. The results are presented in Table 17. It is observed that references that have been judged as inadequate are those where pronouns or zero pronouns have been used for first and second character introductions, for reintroductions and on some occasions for maintenances. These errors are most prominent in case of the introduction function. Highest percentages of inadequate references occur at age three for first character introduction: 13% in story-retelling, 37% in 1MC stories, 57% in 2MC stories, and 17% in toy story. Inadequacy decreases with age: at age four, in story-retelling 4%, in 1MC stories 21%, in 2MC stories 20 % and in toy story 4% of children and at age five, in story-retelling 12%, in 1MC stories 15%, in 2MC stories 21 % and in toy story 4% were rated as inadequate when using appropriate referential expressions. Highest percentages of errors are observed in 2MC stories and lowest in the toy story although this story also includes two human characters as well as additional animal characters.

For second character introductions, the inadequate instances of zero pronouns by 3-year olds is 4% for story-retelling, 7% for 1MC stories, 41% for 2MC stories, and 4% for toy story. With age, the percentages of zero pronoun errors decrease (See Table 17). These percentages are much lower compared to those for First character introductions because children tend not to introduce the second character. These percentages imply that as the complexity of the story increases, inadequate introductions with zero pronouns also increase.

For character maintenance, children were anticipated to use zero pronouns; however, sometimes they used these forms in contexts where the reference was ambiguous, however these instances are not very frequent, (See Table 18).

Finally, although zero pronouns which are not expected forms for character reintroductions are used frequently by children (see Table 16 above), they are not judged as inadequate in our story contexts. The figures in Table 19 show that both for first character and second character reintroductions, the instances of zero form use that have been judged to be inadequate are scarce at all ages. It is again the more complex stories (two character and toy stories) where the errors occur.

Table 17. The Percentage of Inadequately Used Specific Linguistic Forms for First and Second Character Introduction by Age and Story Type

First Character	Age 3				Age 4				Age 5			
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
Introduction												
Indefinite NP												
Proper NP												
Demonstrative NP				4.35								
Definite NP												
Possessive NP												
Bare NP												
Pronoun		13.1	6.5	17.4		1.8	1.8			6.25	2.1	4.2
Zero Pronoun	13.04	36.9	56.5	17.4	3.6	21.4	19.6	3.6	12.5	14.6	20.8	4.2
Second Character	Age 3				Age 4				Age 5			
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
Introduction												
Indefinite NP												
Proper NP												
Demonstrative NP				4.35								
Definite NP												
Possessive NP												
Bare NP												
Pronoun			6.5	8.7			12.5	3.6				
Zero Pronoun	4.35	6.5	41.3	4.35		3.6	8.9	3.6	4.2	4.2	10.4	8.3

Table 18. The Percentage of Inadequately Used Specific Linguistic Forms for First and Second Character Maintenance by Age and Story Type

First Character	Age 3				Age 4				Age 5			
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
Maintenance												
Indefinite NP												
Proper NP												
Demonstrative NP												
Definite NP												
Possessive NP		0.7				0.6				0.3		
Bare NP												
Pronoun		0.3	5.45	3.6		0.9	0.7	0.7		0.3	2.5	
Zero Pronoun	2	2.8	13.1	6.5	0.7	2.7	7.6	4.3	0.8	2	8.4	
Second Character												
Maintenance												
Indefinite NP												
Proper NP												
Demonstrative NP												
Definite NP												
Possessive NP								0.5				
Bare NP												
Pronoun			10	7.2			1.5	1.8			1.9	
Zero Pronoun		2.2	10.6	1.4		1.8	0.6	1.8			3.5	

Table 19. The Percentage of Inadequately Used Specific Linguistic Forms for First and Second Character Reintroduction by Age and Story Type

First Character	Age 3				Age 4				Age 5			
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
Reintroduction												
Indefinite NP												
Proper NP												
Demonstrative NP						0.9						
Definite NP											2.1	
Possessive NP												
Bare NP								1.2			2.1	
Pronoun			5.4	4.3			0.9	1.2			0.9	2.1
Zero Pronoun		4.3	11.6	8.7		6.25	1,8	10.7		6.25	10.95	
Second Character												
	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy	Retell	1 MC	2 MC	Toy
Reintroduction												
Indefinite NP												
Proper NP												
Demonstrative NP			1.1			0.9						
Definite NP												
Possessive NP												
Bare NP								3.6				
Pronoun			7.25	3.8			4.45					
Zero Pronoun			7.6	6.5	1.8	4.45	1.8	1.8	4.2		2.1	

To summarize the above findings and show the overall picture, Table 20 presents the percentages of adequate and inadequate referential acts by age, discourse function and story type. The data show that as age increases, children's referential adequacy increases as well. Children introduce first characters most adequately in story retelling and also in story with toys; they show 90% success at age five. Their performance in 2MC stories is lower than other stories at age three, but at age four and five their performances becomes equivalent to that in other story types. At least 70% of children's character references from all age levels are found to be adequate in first character maintenance and adequacy increases after age three for second character maintenance. In first character reintroduction, children do best in retelling and story with toys, reaching up to 75% and - 77% adequacy at age five (See Table 20).

Table 20. Percentage of Adequate and Inadequate Referential Acts by Age, Discourse Function and Story Type

Introduction First Character												
Age group	3 yrs				4 yrs				5 yrs			
Story type	Retell	1MC	2MC	Toy	Retell	1MC	2MC	Toy	Retell	1MC	2MC	Toy
Adequate	65	41	34	52	90	77	76	96	83	77	77	92
Inadequate	13	52	64	39	4	23	22	4	13	21	23	8
Absent	22	7	2	9	6		2		4	2		
No introduction												
Introduction Second Character												
Adequate	52	69	41	70	82	80	75	89	88	88	84	88
Inadequate	4	7	48	17		7	21	7	4	4	12	8
Absent	22	7	2	9	7		2		4	4		
No introduction	22	17	9	4	11	13	2	4	4	4	4	4
Maintenance First Character												
Adequate	76	78	70	69	92	87	84	92	95	89	76	87
Inadequate	2	4	19	10	1	4	9	1	1	3	11	
Absent	22	7	4	4	7		2		4	2		
No Maintenance		11	7	17		9	5	7		6	13	13
Maintenance Second Character												
Adequate	21	25	49	39	36	34	62	82	42	48	78	87
Inadequate		2	21	9		2	2	4			5	
Absent	22	6	4	4	7		2		4	2		
No Maintenance	57	67	26	48	57	64	34	14	54	50	17	13
Reintroduction First Character												
Adequate	17	54	24	48	54	61	52	62	75	55	63	77
Inadequate		4	17	13		7	3	13		6	16	2
Absent	22	7	2	9	7		2		4	4		
No Reintroduction	61	35	57	30	39	32	43	25	21	35	21	21
Reintroduction Second Character												
Adequate	26	17	34	47	20	18	53	45	38	10	52	50
Inadequate			16	10	2	5	6	5	4		2	
Absent	22	7	2	13	7		2		4	2		
No Reintroduction	52	76	48	30	71	77	39	50	54	88	46	50

CHAPTER 5

DISCUSSION

Adequacy

The present study aimed to investigate the development of Turkish preschool children's competence in using linguistic forms in a functionally appropriate way when referring to characters in narrative discourse and whether this is related to developments in their ToM. For this purpose stories of different levels of complexity and different elicitation methods were used. Complexity was defined in terms of the number of characters in the stories. The elicitation methods used were story-retelling, storytelling from a picture sequence and storytelling in a communicative context (toy story). The linguistic forms used for character introduction, maintenance and reintroduction were documented and the adequacy of the referential acts were evaluated from the viewpoint of a listener. Children's working memory and ToM skills were also assessed and the interrelation between these variables and referential abilities and their relation to age were explored.

It was hypothesized that children's adequate use of referential expressions in all story types would increase with age and would be positively related to both their ToM and WM development. The results partially support this hypothesis and show that the adequacy of linguistic forms used by children for character references in 1MC stories, 2MC stories and the toy story, all told from pictures, increases across age groups. At age four, almost 85-95% and at age five around 90% of the children refer to story characters in a way that is understandable by a listener who has no previous knowledge of the stories whereas for the 3-year-old group these figures range between 46%-78%. Age did not affect referential adequacy in story-retelling

performance of any age group. This finding indicates that from age three onwards, children are linguistically capable of using appropriate forms when reproducing a ready-made story and supports our second hypothesis that narrative retelling would reveal the best performance with respect to use of appropriate forms as it involves reproducing an already structured and verbalized story in contrast to the picture elicited stories where the child is required to engage his narrative organizational and linguistic skills. Scheneider and Dube (1997) similarly report that young children's uses of referential forms are not as adequate as older children's when introducing and maintaining references to characters and objects in stories elicited with pictorial stimuli. The reason for this finding could be attributed to several factors. First, young children may have difficulty in coordinating the tasks of narrative organization and choosing the referentially adequate linguistic forms for the benefit of the listener. Second, they may have difficulty in relating successive pictures to one another for creating a storyline because they are functioning at the level of perception and engage in picture description (Aksu-Koç & von Stutterheim, 1994). Third, no matter how successful the manipulation to create the effect of a naïve listener is, children may nevertheless have assumed that the pictures were somehow shared with the listener.

In brief, the use of appropriate linguistic forms which renders character references adequate and understandable in narratives demonstrates age-related development and four- and five-year-old children narrate more adequate stories compared to the three-year-olds. This finding is compatible with the previous findings in the literature (Berman & Slobin, 1994; Karmiloff-Smith, 1981; Wong & Johnston, 2004, Hickman & Hendriks, 1999; Orsolini, Rossi and Pontecorvo, 1996).

In hypothesis three, we predicted that children would refer to characters in 2MC stories less adequately than characters in 1MC stories since both the event structure and the relationship between characters are more complex in 2MC stories than 1MC stories. This hypothesis was supported since, overall, children's referential adequacy performance on 1MC stories was higher than their performance on 2MC stories. This effect was particularly significant for only three-year-old children who referred more adequately to characters in 1MC stories than in 2MC stories. The performances of four- and five-year olds in all story types, on the other hand, appeared to be equalized. The difference between 1MC and 2MC stories in the present study is that the plotline can progress if the secondary character in the 1MC stories is mentioned only once since his/her role is limited to the resolution component whereas in the 2MC stories the two characters have to be kept in mind simultaneously and actions for the second character have to be coordinated with those of the first for the progress of the story. Furthermore, in 1MC stories the secondary character is usually given in relation to the main character (as a father or mother) and children's use of the possessive construction in referring to them at all ages suggests that such a relation eases the integration of the character into the storyline.

Theory of Mind

The present findings demonstrated age-related increases in ToM abilities supporting hypothesis four. The performance of four- and five-year-old children was higher than that of three-year-old children.

For the assessment of ToM capacities the seven tasks used by Wellman and Liu (2004) were used. The analysis for ordering the tasks in terms of increasing

difficulty revealed the following order for Turkish: Diverse Desires, Knowledge Access, Belief-Emotion, Unexpected Contents, Real-Apparent Emotion, Diverse Beliefs and Explicit False Belief. This order differs from that for American children: Diverse Desires, Diverse Beliefs, Knowledge Access, Explicit False Belief, Unexpected Contents, Belief-Emotion, and Real-Apparent Emotion. For Turkish children Knowledge Access and Belief -Emotion tasks were easier than for American Children whereas Diverse Beliefs and Explicit False Belief tasks were more difficult. Another study conducted to scale the same ToM tasks with Chinese children showed that Chinese children are also more successful on the Knowledge Access task compared to English-speaking children (Wellman, Fang, Liu, Zhu, & Liu, 2006). Wellman, Fang, Liu, Zhu & Liu (2006) explain the difference between Chinese and American children by resorting to sociocultural differences. They propose that Chinese children may acquire understanding of knowledge earlier than understanding of belief because Chinese culture puts more emphasis on knowledge as opposed to belief and thought, which are, on the other hand, particularly important in the Western culture. Consequently, knowledge state of others appears to be more remarkable for Chinese children whereas predicting the belief state of others is easier for American children. An interesting point that might be related to the emphasis on knowledge is that Chinese has particles that indicates the source of the information one is communicating, similar to the evidential inflections in Turkish (Tardif & Wellman, 2000; Tardif, Wellman & Cheung, 2004). Children in both languages start using the evidential forms context appropriately from two years onwards (Aksu-Koç, Ögel & Alp, 2009; Aksu-Koç & Alıcı, 2000). It can, therefore, be assumed that they are sensitized to the different knowledge states that people may have early on. In addition, both Turkish (*san* 'believe falsely') and Chinese (*dang* 'believe falsely')

have verbs that indicate false belief in addition to the mental verb *think* in English, which they start using from three years onwards (Aksu Koç, Aydın, Avcı, Sefer & Yaşa, 2005; Granti, 2004; Lee, Olson and Torrance, 1999; Shatz, Diesendruck, Martinez-Beck, & Akar, 2003). Such linguistic differences might also contribute to the differences in scaling of the ToM tasks in different cultures.

Another possible reason for the difference in scale positions of the tasks is methodological. The two relatively easy tasks for Turkish children, Knowledge Access and Belief-Emotion, had a surprise element and were acted out with a confederate which created a more life-like situation, motivating the children to think about the problem, whereas in the Diverse Beliefs and Explicit False Belief tasks a story was presented verbally and with pictures, making the tasks more demanding.

Working Memory

As was predicted in hypothesis five, there was an increase in working memory capacity as measured by forward and backward word span tasks, a major shift was observed between the ages of three and four. Not surprisingly, children of the present age range had difficulty in backward word span task. While they could hold six items in mind at age five on the forward word span task, they were limited to two items on the backward word span task. Performance on the forward word span task was found to be associated with referential adequacy in story-retelling. We can say that when reproducing a story whose event and grammatical structure is already given, children's ability to hold information in working memory was an asset. WM did not turn out to be a predictor for the other story types where pictures were used.

Children who performed well in ToM tasks also referred more adequately to characters in 1MC stories. ToM turned out to be associated with 2MC stories as well; but age is much important in determining children's referential adequacy in 2MC stories. As the differentiation of two characters and organization of events in these stories is much more difficult than 1MC stories, the older the children get, the more cognitive and linguistic strategies they develop helping them to refer to characters more adequately in 2MC stories. This finding indicates that when producing stories whose event and grammatical structure they have to construct verbally, children's ToM competence gains importance, but it is not sufficient for the telling of more complex stories even at age five. If we had older children, we might have seen a difference on 2MC character stories as well. For instance, Fernandez (2011) investigated the relationship between ToM and pragmatic language skills of Spanish-speaking children between 4;8 to 8;8 years. In addition to Wellman and Liu's (2004) first-order ToM tasks, these researchers used second-order ToM tasks which included more complex tasks. They found that only the second-order ToM tasks which require higher-order social and cognitive reasoning predicted pragmatic language skills as measured by a standardized language test and a storytelling task. For the first-order ToM tasks a ceiling effect was observed as most of the children performed successfully (Fernandez, 2011). Although the children in their study are older than the children in our study, their findings show that children who become successful in ToM measures also become successful in language tasks. In our study as well, except for two tasks (Diverse Beliefs and Explicit False Belief) in which they performed worse, Turkish children show a ceiling effect. This might be the

reason why children's ToM performance was not highly associated with adequacy in 2MC stories.

The finding in the present study that children who are successful on the ToM tasks are also successful in making adequate reference to characters in their stories supports the insight that children with well-developed ToM capacities better understand the listener's needs and know how to respond to it. In discussing the different ways in which language may be relevant to ToM, Astington and Baird (2005) claim that language enables children to represent mental states symbolically and to keep in mind separately, and, when necessary, in contrast to one another as in the case of a false belief derived from one state of reality and a true belief derived from another. Also, the critical age for the development of the necessary skills for making such representations is also roughly four (Wellman & Liu, 2004; Miller, 2006, Astington & Baird, 2005).

Although WM did not predict referential adequacy in narratives, both forward word span and backward word span tasks predicted ToM abilities suggesting that the relation between referential abilities and working memory could be mediated by ToM which enables taking the informational needs of the listener into account in formulating linguistic messages. Put differently, a well developed memory capacity might be indirectly relevant to reference tracking in narrative discourse to the extent that the child is able to differentiate between his own mental representations and those of another on the basis of an assessment of their respective access to knowledge (Carlson, Moses & Breton, 2002; Gordon & Olson, 1998; Keenan, Olson & Marini, 1998).

All in all, it has been found that children's adequate use of referential expressions in different types of story contexts develops across age groups and this development is closely related to the development of ToM skills which are necessary for evaluating the viewpoint of the other. In addition, WM has been found to predict ToM skills; children who can keep more units of information in mind are also better able to maintain two different representations of the same reality in mind. Starting around age four, children can hold more information in mind, understand the belief, knowledge and emotion state of the others and organize their narratives, perhaps not perfectly, but in accordance with the needs of the listener.

Development of Linguistic Forms

For character introductions, we expected that younger children would prefer definite forms and the use of indefinite forms would increase with age. In support of this hypothesis, we found that the use of indefinite noun phrases for character introductions increases across age groups. For first character introductions, majority of three-year-olds use zero pronouns and bare noun phrases. Four- and five-year-olds use bare noun phrases, and the use of indefinite noun phrases reach 40-50% level only at age five and only for retelling where the linguistic structures are already given, and for the toy story which requires reciprocation on the part of the listener who moves the toys based on the narrator's descriptions.

In second character introductions, children of all ages use possessive noun phrases if they are narrating 1MC stories where this relation was prominent. In 2MC stories, younger children again use zero pronouns whereas older ones use bare noun phrases. Indefinite noun phrases are observed around 30-40% for 5-year-olds, and only in the toy story. For toy story, this increase in use of indefinite referential

expressions appropriate for new information not shared by the listener around five years can be tied to developments in ToM whereby sensitivity to the informational needs of the listener is enhanced. Through seeing toys as memory prompts in front of them and following the actions of confederate, they become much more aware of the knowledge and attention state of the listener and thereby choose appropriate forms.

In summary, Turkish preschool children's character introductions progress from use of zero pronouns to bare noun phrases which can be interpreted as either definite or indefinite, to indefinite noun phrases, the use of which however, barely reaches 50% by age five. In fact, Küntay (2002) reports adult like usage of indefinite forms only around age seven. As noted earlier, research on different languages such as English, German, Finnish and Chinese have revealed similar results. (Dasigner & Küntay, 1998; Hickman et al., 1996; Küntay, 1999; 2002; van Hout, Harrigan & de Villiers, 2009).

With respect to maintaining reference to a character, we hypothesized that children would prefer zero forms and the use of pronominal or nominal forms would be scarce and discourse motivated. Our hypothesis was supported as children used zero pronouns in high percentages, for all story types and at all age levels. The second form that was preferentially used was pronouns. The percentage of children who maintained the second character across stretches of discourse were low, however those who did also used zero pronouns. These findings are in line with previous research (Wong & Johnston, 2004; Hickman & Hendriks, 1999; Hickman, Kail & Roland, 1995). Hickman & Hendriks (1999) also report from their comparisons of English, French, German, and that zero forms which encode the most presupposed referent in the discourse are the predominant forms for reference

maintenance. If not zero pronouns, children preferred definite nouns or pronominals when continuing to refer to the same character. The choice of referential forms was determined not only by discourse functions but also by the context in which the narrative is elicited, that is, by whether the speaker and the hearer had shared knowledge or not. From four years on, children become more sensitive to instances of coreference and use pronominals rather than nominals in contexts of mutual knowledge.

For reintroductions, it was expected that younger children would prefer zero or pronominal forms, older children the use of nominal forms that are more informative. The rate of reintroductions increased with age. As expected, the use of bare noun phrases increased across age groups whereas younger children used pronouns and zero pronouns in first and second character reintroductions. However, these were not rated as inadequate since given the context of use, the identity of the referent was clear for the listener. As noted by Karmiloff-Smith (1981) if the context and the cues make the linguistic form understandable, the boundaries between certain linguistic categories for specific functions became less important and pragmatics determines the course of the communication.

In Orsolini, Rossi and Pontecorvo's (1996) study analyzing the reintroduction of referents in narratives by children speaking Italian, a pro-drop language, it is reported that children between 4- to 10-years increasingly use full nouns for character reintroductions, and zero forms are the second most frequently used devices. Italian children preferred using personal pronouns only when the subject was needed to be emphasized. According to Orsolini et al. (1996), the possible cause for the common use of zero forms might be the fact that depending on the salience of

the character and the presence of a mutually shared context, children might rightly think that the referent is highly accessible for the listener and null pronouns would not create any ambiguity. In such contexts, when null forms are quite adequate both for the speaker and the listener, actually the use of full nouns sometimes becomes redundant.

Similar to the evaluation of the inadequate linguistic forms by combining adequacy and linguistic coding results, Orsolini et al. (1996) assessed zero forms in terms of their predictability, that is the salience of the referent within the immediately preceding and following discourse through verbs' semantic relatedness, structural parallelisms, shifts from singular to plural reference etc., and found that that zero forms are usually unpredictable; but with age there is a decrease in unpredictability. Nine- and ten-year-old children prefer using full nouns and even if they use zero forms, they rely upon the context which makes the referent salient. In brief, when older children choose null forms, they based their choice on pragmatic convenience while preschool children may not bet very well aware of this sort of differentiation. In our study as well, when the previous sentence bears some relation to the main character (as in 1MC stories) and the main character is reintroduced in the next sentence, zero forms are accepted as adequate because they can be inferred from the context. Hence four-and five-year olds use less explicit forms such as pronouns and zero forms depending on the topicality of the character in the story. Bamberg (1987) evaluated this situation as a shift from macro level to micro level. If there is a main character in the story and if he/she is referred to recurrently, children can conveniently use null forms. However, as children grow older, they become aware of the discourse rules and constraints and feel more bounded by them. So they

begin to use full nouns to serve the appropriate function. In a similar vein, Wong and Johnston (2004) explain the use of both nominal and pronominal forms for reintroductions, between ages three and nine, by noting that children usually use pronominals for main character reintroductions and nominals for minor character reintroductions. This pattern suggests the use of "thematic subject strategy" suggested by (Karmiloff-Smith, 1981). On the basis of all these observations we can conclude that children's choice of referring expressions is not only affected by listener's needs; but also by children's own narrative representation, as has also been argued by Arnold (2008; 2009). In order to deal with narrative structure as a whole, children use thematic subject strategy and it allows them to produce well-formed utterances and create cohesion among events and actions of characters based on their own mental model.

Considering referential adequacy across the introduction, maintenance and reintroduction functions, it was observed that children in all age groups produced more referentially inadequate acts in introduction than in maintenance and reintroduction. The reason why there were less inadequate reintroductions was that many children did not reintroduce a character. The findings therefore suggest that reference maintenance skills develop earlier than introduction and reintroduction in Turkish. In fact, the forms used in majority of the references that were judged to be inadequate were zero pronouns or pronouns which are the appropriate forms for the maintenance function. These findings are similar to the findings of Wong and Johnston (2004) who found the maintenance function to be easier than reintroduction in Chinese which also allows the use of zero pronouns and also Hickman & Hendriks

(1999) whose study shows that zero forms are the predominant forms for reference maintenance as they encode the most presupposed referent in the discourse.

In summary, children's capacity to use appropriate linguistic forms for appropriate contexts increased with age throughout all functions. Though the adequacy of referential acts mostly depends on the appropriateness of linguistic forms, it has been observed that other linguistic forms used can be adequate if the context and the attention focus of the listener permits it. In this sense, children demonstrate a significant development at age four which enables them to consider the circumstances they are in and the purposes of their referential acts under these circumstances.

Contributions of the Study

In this thesis, it has been found that preschool children's ability to track character references in narratives by using appropriate linguistic forms to introduce, maintain and reintroduce characters increases with age. Moreover, the development of ToM abilities predicts children's referential adequacy skills when the narrative construction task is not very complex and when children's awareness of the listener's informational needs are enhanced. Thus, the study is important as it has revealed relationship between children's narrative skills and ToM capacity and suggests that ToM development contributes to the development of children's pragmatic competence and ability to use adequate character references in narrative discourse contexts.

The study also provides evidence for to the contribution of WM to ToM development and maybe indirect relationship with referential adequacy. Moreover, the study offers the scaling of ToM tasks used by Wellman and Lui (2004) in a non-

western culture and gives information about the ToM abilities of Turkish preschool children.

The study has also revealed information about the specific linguistic forms used for character references in introduction, maintenance and reintroduction functions and contributes to the existing literature by investigating these forms in Turkish.

Limitations and Suggestions for Further Study

Although the present study contributes to the existing literature, it has some shortcomings. The adequacy of referential expressions was assessed in terms of linguistic forms used appropriately for introduction, maintenance and reintroduction functions. However, the effect of word order (i.e. preverbal and postverbal positions) in marking new and given information was not assessed. Further analyses displaying the word orders commonly used for new and given information in Turkish could form a significant part of this study.

A variety of narrative elicitation methods were used. However, we might not have been able to create the communicative context we desired and convey the demands of the task to the children properly in the toy story as ToM did not predict adequacy performance in this story type. As a further study, it would be illuminating to include again a communicative task which would ensure the intended interaction between the speaker and the listener.

All stories used in the study were based on some verbal or visual props and overtly shaped children's narrative constructions. In a further study, it would be interesting to elicit spontaneous stories from children and examine referential adequacy skills in these contexts.

Only preschool children participated in our study and their adequacy performances were evaluated. However, as the age of full mastery for the use of referentially adequate linguistic forms is controversial, it would be illustrative if elementary school children of different age groups and also adults as control group were included in the future research.

APPENDICES

APPENDIX A: STORYTELLING TASKS

STORY RETELLING (HİKÂYE TEKRARI)

Anlatı Verisi Toplama Formu

Çocuğun ismi: _____Sınıf: _____

Doğum tarihi Gün Ay Yıl Araştırmacı: _____

Tarih: _____

Cinsiyet: Kız___ Erkek___

DİNLEYEREK ANLAMA VE GERİ ANLATMA

I. a. Dinleyerek Anlama: Doğumgünü sürprizi

Yönerge: Çocuğa şöyle deyiniz: "Şimdi beraber hikâyeler anlatacağımız bir oyun oynayacağız; bazen ben hikâyeler anlatacağım bazen de sen anlatacaksın. Tamam mı?" Hikâyeyi dinleyecek kişiyi tanıtın: "Bu benim arkadaşım Treysi. Treysi bizimle beraber hikâye anlatmak istiyor çünkü çocuklar için bir hikâye kitabı hazırlıyor. Bizim anlattığımız hikâyeleri de yazacak ve diğer çocuklar okuyacak. O yüzden sen çok güzel dinle ve anlat hikâyeleri, tamam mı? Ama şimdi dışarıda biraz işi var. Bu yüzden dışarı çıkacak. Ama daha sonra geri dönüp bazı hikâyelerimizi dinleyecek. Şimdilik Treysi ablaya hoşçakal diyelim."

"Şimdi sana bir hikâye anlatacağım. Dikkatli dinle çünkü hikâyeyi bitirdiğimde, sana bazı sorular soracağım, tamam mı?" Çocuğa hikâyeyi okuyun. Hikâyeyi anlaşılır bir şekilde anlatmaya ve yavaş, samimi bir okuma hızıyla okumaya dikkat edin

Bir zamanlar Zeynep adında bir kız varmış. O gün onun doğumgünüymüş. Zeynep çok heyecanlıymış çünkü doğumgünü hediyesi olarak bisiklet istiyormuş. Sabah

kalkmış ve hediyesini bulmak için oturma odasına koşmuş. Oturma odasında büyük bir yap-boz görmüş. Ama çok üzülmüş çünkü bu onun istediği hediye değilmiş. Annesi "Neden parka doğru bir yürüyüşe çıkmıyoruz?" demiş. Zeynep annesiyle beraber dışarı çıktığında bahçede güzel bir bisiklet görmüş. Annesi "Sürpriz!" demiş. Annesi Zeynep'e o güzel bisikleti almış. Zeynep bisiklete binmiş ve parka gitmiş. Çok mutluymuş. (*Hikâyemiz burda bitti!)*

Kavrama Soruları (doğru cevaplar): Hikâyeyi bitirdikten sonra, çocuğa şöyle deyin: "Şimdi sana hikâyeyle ilgili bazı sorular soracağım".

- Eğer çocuk herhangi bir soruya yanlış cevap verirse, devam etmeden önce doğru cevabı söyleyin.
- Çocuğun bir önceki soruya verdiği cevabın içinde soruya uygun bir bilgi bulunduğunu düşünüyorsanız bile her hatırlatma sorusunu sorun.

1) Kızın adı neymiş? *(Zeynep)*
   _____
2) Zeynep için o günün özelliği neymiş? *(onun doğumgünüydü)*
   _____
3) Zeynep sabah neden üzülmüş?*(çünkü bisikleti alamadı)*
   _____
4) Zeynep üzüldüğünde annesi ona ne demiş?*(parka yürüyüşe çıkalım)*
   _____
5) Zeynep dışarı çıktığında ne olmuş?*(bisikleti görmüş)*
   _____
6) Zeynep'in annesi bisikleti neden dışarıda saklamış?*(sürpriz*

yapmak istemiş)

_____

7) Zeynep bisikleti nereye kadar sürmüş?*(parka kadar)*

_____

I.b. Hikâyenin geri anlatımı:

Yönerge: Çocuk kavrama sorularını cevaplamayı bitirince, tekrar anlatım için kuklayı geri getirin. Çocuğa de ki, "Aaa bak… Treysi abla geri geldi. İşlerini bitirmiş. Ama benim sana az önce anlattığım hikâyeyi dinleyemedi. Treysi abla bu hikâyeyi dinlemeyi gerçekten çok istiyor. Sen Yogi'ye hikâyeyi anlatabilir misin?

(ya da: Sana sorduklarım da dâhil hatırladığın her şeyi anlat)

İzin verilebilir ekleme: "Hikâyedeki çocuğa neler olduğunu anlat?"

*(Çocuğun anlattıklarını kasete kaydettiğinizden emin olun.*Çocuğu dikkatlice dinleyin ve daha sonra yazarken size yardımcı olacak bazı sözleri not alın. Çocuğu *durdurmayın,* ama eğer bir kelimeyi anlamazsanız açıklaması için sorabilirsiniz. Ancak çocuğun anlatımının akıcılığını durdurmamaya çalışın.Sonra *aynı gün içinde yazmak* için teybi dinleyin.

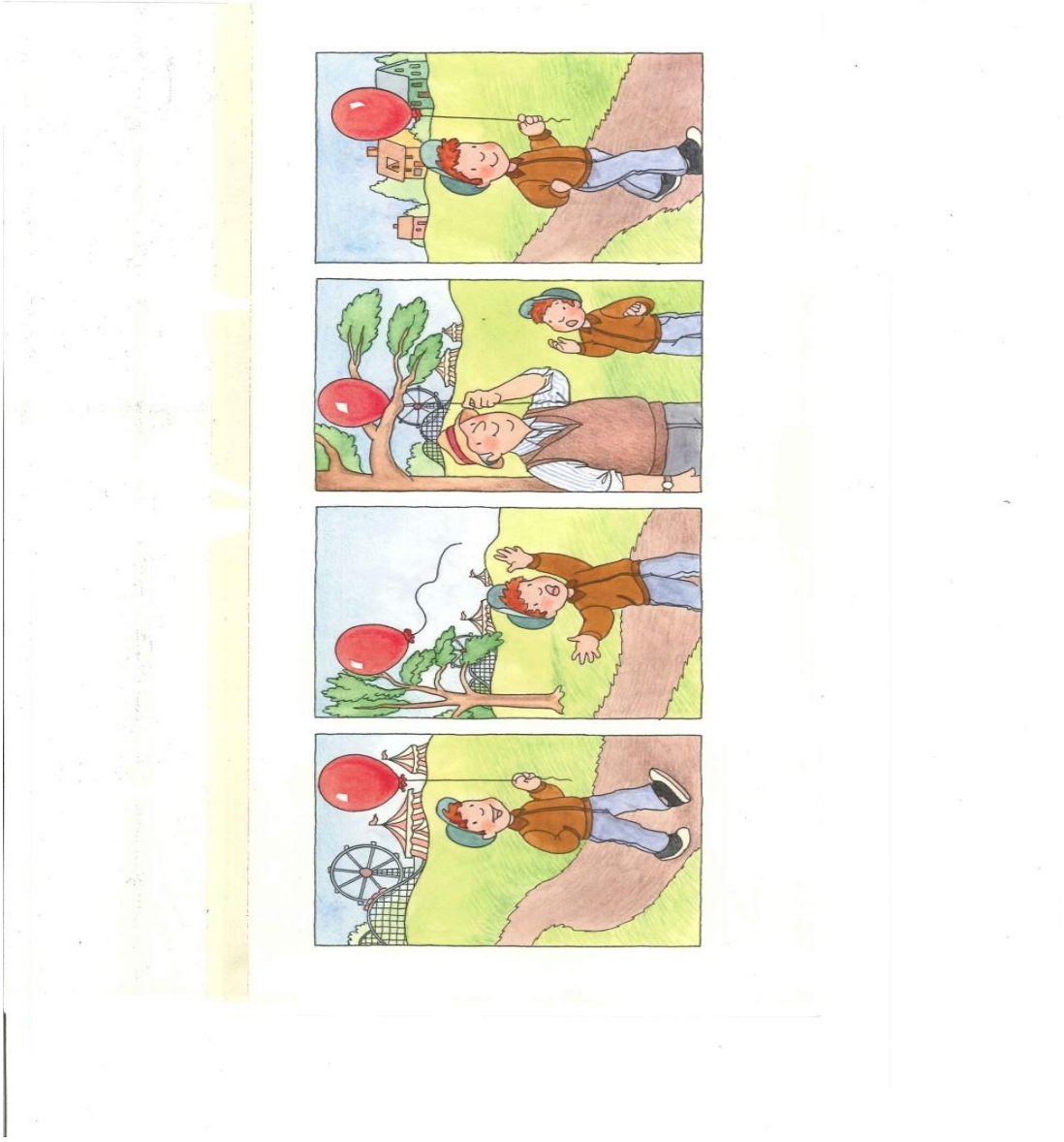
İzin verilen eklemeler: "Hmm,Hmm..." Ya da "Eklemek istediğin başka bişey var mı?"

PICTURE-ELICITED STORIES (SIRALI RESİMLERLE HİKÂYE)

Dinleyerek ve İzleyerek Anlama

Yönerge: Çocuğa şöyle deyiniz:“Şimdi seninle bir oyun daha oynayacağız. Senden burada gördüğün resimlerle ilgili bir hikâye anlatmanı isteyeceğim (4 resmi sırayla çocuğun önüne koyun ve parmağınızı soldan sağa doğru hareket ettirin).Bu oyunun kuralı gereği resimleri Treysi ablaya göstermeyeceğiz. Ama sen hikâyeleri o kadar güzel anlat ki Treysi abla kitabında hikâyeyi çok güzel yazsın.

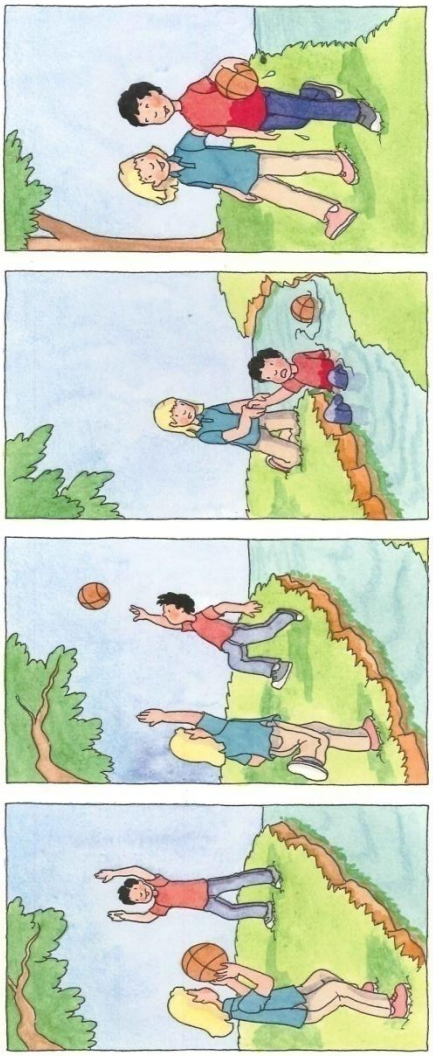
Balloon Story (Balon Hikâyesi)



Nightmare Story (Rüya Hikâyesi)

Beach Story (Kumsal Hikâyesi)

Stream Story (Nehir Hikâyesi)



Toy Story (Oyuncaklı Hikâye)

Yönerge: Bu hikayedede sana resimler göstereceğim ama bu sefer Treysi ablanın önünde resimlerde gördüğün oyuncaklar olacak. Sen hikâyeyi anlattıkça Treysi abla oyuncakları oynatacak. Ben de kameraya çekeceğim, oyuncaklı bir film yapacağız. Sen anlatırken bir yandan da Treysi abla düzgün yapıyor mu diye kontrol et ki filmimiz güzel olsun.

Appendix B

WORKING MEMORY (İŞLEM BELLEĞİ)

Word Span Tasks (Sözcük Dizisi)

Forward Word Span (Düz Sözcük Dizisi)

İki bölümü vardır: Düz sözcük dizisi, ve ters sözcük dizisi. Bunlar ayrı ayrı uygulanır. Çocuk düz dizilerden hiç puan alamasa bile ters diziler uygulanır.

DÜZ SÖZCÜK DİZİSİ

Başlama

Tüm çocuklar için1.maddeden başlanır.

Testi Bırakma

Herhangi bir maddenin her iki denemesinde de başarısızlık olunca test bırakılır.

Yönerge ve Isınma Maddeleri

"BAZI SÖZCÜKLER SÖYLEYECEĞİM. BENİ DİKKATLE DİNLE VE BEN BİTİRİNCE SÖYLEDİKLERİMİ AYNEN TEKRAR ET. ÖRNEĞİN EĞER BEN "AT-EŞEK" DERSEM, SEN NE DİYECEKSİN?" deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk doğru tekrarlarsa (AT-EŞEK) "DOĞRU" deyin ve ikinci ısınma maddesine geçin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin, YANİ, "HAYIR, "AT-EŞEK" DEMELİSİN" deyin ve ikinci ısınma maddesine geçin.

ŞİMDİ BU SÖZCÜKLERİ DENE, UNUTMA BENİM SÖYLEDİKLERİMİ AYNEN TEKRAR EDECEKSİN. ÖRNEĞİN BEN "AYI-KUŞ-KEDİ" DERSEM, SEN NE DİYECEKSİN?" deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk doğru cevap verirse (AYI-KUŞ-KEDİ) “DOĞRU” deyin, ve asıl listenin 1. maddesine geçin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin. Yani ”HAYIR, “AYI-KUŞ-KEDİ” DEMELİSİN” deyin. Bu durumda üçüncü ısınma maddesine geçin.

ŞİMDİ BU SÖZCÜKLERİ DENE, UNUTMA BENİM SÖYLEDİKLERİMİ AYNEN TEKRAR EDECEKSİN. ÖRNEĞİN BEN “KUŞ-ASLAN-FİL” DERSEM, SEN NE DİYECEKSİN?” deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk doğru cevap verirse (KUŞ-ASLAN-FİL) “DOĞRU” deyin ve asıl listenin 1.maddesine geçin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin. Yani ”HAYIR, “KUŞ-ASLAN-FİL” DEMELİSİN” deyin. Çocuğun yönergeyi anladığından emin olursanız asıl listenin 1. maddesine geçin. Emin olamazsanız işlemi sonlandırın.

Sözcükler saniyede bir tane olacak şekilde söylenmelidir. Çocuk bir maddenin ilk denemesinde başarısız olsa bile ikinci deneme de verilir.

Puanlama

Tüm madedeler şu şekilde puanlanır:

Eğer çocuk her iki denemede başarılı ise 2 puan,

Eğer çocuk sadece bir denemede başarılı ise 1 puan,

Eğer çocuk her iki denemede de başarısızsa 0 puan.

DÜZ DİZİ İÇİN EN YÜKSEK PUAN:14

Madde	Deneme 1	Deneme2
1	fil- köpek-aslan	aslan- at -ayı
2	fil-eşek-at-kedi	aslan-at-kuş-köpek
3	köpek-eşek-ayı-fil-fare	kuş-ayı-at-köpek-aslan
4	fil-köpek-fare-at-kedi-eşek	kedi-fare-aslan-eşek-köpek-fil
5	kuş-at-kedi-eşek-ayı-fil-köpek	fare-köpek-kuş-ayı-at-aslan-fil
6	at-aslan-eşek-kuş-fare-kedi-aslan-fil	ayı-fil-kedi-aslan-fil-at-kuş-eşek
7	kuş-fil-köpek-kedi-at-ayı-eşek-aslan-fare	eşek-ayı-aslan-fare-at-kedi-köpek-fil-kuş

Backward Word Span (Ters Sözcük Dizisi)

Başlama

Tüm çocuklar için madde 1'den başlanır.

Test Bırakma

Herhangi bir maddenin her iki denemesinde de başarısızlık olunca.

Yönerge ve Isınma Maddeleri

"ŞİMDİ SANA BAZI SÖZCÜKLER DAHA SÖYLEYECEĞİM. FAKAT BU SEFER BEN BİTİRDİĞİM ZAMAN SENİN ONLARI SONDAN BAŞA DOĞRU TEKRAR ETMENİ İSTİYORUM. ÖRNEĞİN EĞER BEN "AT-EŞEK" DERSEM, SEN NE DİYECEKSİN?" deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin, YANİ, "HAYIR, "EŞEK-AT" demelisin.

Eğer çocuk doğru tekrarlarsa (EŞEK-AT) "DOĞRU" deyin ve ikinci ısınma maddesine geçin.

ŞİMDİ BU SÖZCÜKLERİ DENE, UNUTMA BENİM SÖYLEDİKLERİMİ SONDAN BAŞA DOĞRU SÖYLEYECEKSİN. ÖRNEĞİN BEN "AYI-KUŞ-KEDİ" DERSEM, SEN NE DİYECEKSİN?" deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin. Yani "HAYIR, "KEDİ-KUŞ-AYI" demelisin.

Eğer çocuk cevap verirse (KEDİ-KUŞ-AYI) "DOĞRU" deyin ve üçüncü ısınma maddesine geçin.

ŞİMDİ BU SÖZCÜKLERİ DENE, UNUTMA BENİM SÖYLEDİKLERİMİ SONDAN BAŞA DOĞRU SÖYLEYECEKSİN. ÖRNEĞİN BEN "KUŞ-ASLAN-FİL" DERSEM, SEN NE DİYECEKSİN?" deyin ve çocuğun cevap vermesi için bekleyin.

Eğer çocuk örneği tekrar etmekte başarısız olursa ona doğru sıralamayı söyleyin. Yani "HAYIR, "FİL-ASLAN-KUŞ" demelisin. ÇOÇUĞUN YÖNERGEYİ ANLADIĞINDAN İYİCE EMİN OLUN.

Eğer çocuk cevap verirse (FİL-ASLAN-KUŞ) "DOĞRU" deyin ve 1.maddeye geçin.

Sözcükler saniyede bir tane olacak şekilde söylenmelidir. Çocuk bir maddenin ilk denemesinde başarısız olsa bile ikinci deneme de verilir.

Puanlama

Tüm maddeler şu şekilde planlanır:

Eğer çocuk her iki denemede başarılı ise 2 puan,

Eğer çocuk sadece bir denemede başarılı ise 1 puan,

Eğer çocuk her iki denemede başarısızsa 0 puan.

TERS DİZİ İÇİN EN YÜKSEK PUAN:14

Madde	Deneme 1	Deneme2
1	ayı-kuş	aslan-fil
2	fil-kedi-eşek	ayı-kuş-fare
3	kedi-ayı-fare-aslan	köpek-eşek-fare-fil
4	eşek-at-fil-kuş-kedi	fare-kedi-köpek-kuş-ayı
5	at-aslan-kuş-ayı-fare-köpek	fil-aslan-kedi-at-fare-eşek
6	köpek-kuş-fare-ayı-fil-eşek-ayı	eşek-kuş-kedi-fare-ayı-köpek-at
7	aslan-fare-at-aslan-fil-ayı-kuş-köpek	fil-at-kedi-fare-kuş-eşek-köpek-ayı

Sözcük dizisi testi için toplam puan, düz sözcük dizisi ve ters sözcük dizisi puanlarının toplanması yoluyla elde edilir.

Appendix C

THEORY OF MIND TASKS (ZİHİN KURAMI İŞLEMLERİ)

Diverse Desires (Farklı İstekler)

(Üzerinde yetişkin bir adam, havuç ve kurabiye resimleri olan bir kâğıt)

Ön Test Sorusu

E: Bak burada Ali amca var. Ali amca hafif bir şeyler yemek istiyor. Burada iki çeşit yiyecek var: havuç ve kurabiye. Sen hangi yiyeceği yemek istersin? Havucu mu yoksa kurabiyeyi mi tercih edersin? (own desire question)

C:

Eğer çocuk havucu tercih ederse…

E: Çok güzel bir seçim ama Ali amca kurabiye istiyor. Havuçları sevmiyor. En çok kurabiyeleri seviyor.

Eğer çocuk kurabiyeyi tercih ederse tam tersine Ali amcanın havuç istediği söylenecek.

Test Sorusu 1

E: O zaman şimdi yemek yeme vakti. Ali amca yiyeceklerden sadece birini alabilecek. Ali amca hangi yiyeceği isterdi? Havucu mu yoksa kurabiyeyi mi?

C:

Çocuğun bu soruya verdiği cevabın doğru olarak kabul edilebilmesi için kendi tercihinin tam tersini söylemesi gerekiyor.

Diverse Beliefs (Farklı İnançlar)

(Üzerinde kız çocuk, çalılıklar ve garaj resmi olan bir kağıt)

E: Bak bu Ayşe. Ayşe kedisini arıyor. Kedisi ya çalılıkların arasında ya da garajda saklanıyor olabilir. Sence kedi nerede? Çalılıkların arasında mı yoksa garajda mı? (own belief question)

C:

Eğer çocuk çalılıklar derse…

E: Evet, bu iyi bir fikir. Ama Ayşe kedisinin garajda olduğunu sanıyor.

Ya da eğer çocuk garaj derse, o zaman Ayşe'nin kedisinin çalılıklarda olduğunu sandığı söylenecek.

Test Sorusu 1

E: Öyleyse Ayşe kedisi için nereye bakacak? Çalılıklara mı yoksa garaja mı?

C:

Çocuğun bu soruya verdiği cevabın doğru olarak kabul edilebilmesi için kendi inancının tam tersini söylemesi gerekiyor.

Knowledge Access (Bilgiye Erişim)

(Üzerinde ne kutusu olduğuna dair hiçbir işaret bulunmayan bir kutu ve içine yerleştirilen bir oyuncak timsah)

(O ana kadar odada olan araştırmacının yardımcısı işi olduğunu söyleyerek dışarı çıkar)

E: Bak burada bir kutu var. Sence bu kutunun içinde ne var?

C:

(Çocuk bilmediğine dair herhangi bir cevap verebilir)

Daha sonra kutu açılır ve çocuğa kutunun içinde ne olduğu gösterilir.

E: Bakalım ne varmış… Aa kutunun içinde oyuncak bir timsah varmış.

(Kutu tekrar kapatılır)

E: Tamam, ne vardı kutunun içinde?

C:

Test Sorusu 1

E: … abla kutunun içinde ne olduğunu hiç görmedi. Şimdi …abla geliyor. … abla kutunun içinde ne olduğunu biliyor mu? (the target question)

C:

Test Sorusu 2

E: … abla kutunun içinde ne olduğunu gördü mü? (the memory question)

C:

(Daha sonra araştırmacının yardımcısı odaya girer ve aynı sorular ona da sorulur)

Doğru cevap 1: Hayır

Doğru cevap 2: Hayır

Unexpected Contents (Beklenilmeyen İçerik)

(İçinde kalemler olan bir bonibon kutusu)

Ön Test Sorusu

E: Bak şimdi sana ne göstereceğim. Sence bu kutunun içinde ne var?

C:

E: (Kutu açılıp içindekiler çocuğa gösterilir) Aa kutuda ne varmış?

C:

Test Sorusu 1

E: Evet kutunun içinde kalemler varmış. Peki, ben bu kutuyu açmadan önce sen içinde ne olduğunu sanmıştın?

C:

Test Sorusu 2

E:….abla henüz bu kutuyu ve içindekileri görmedi, birazdan … ablayı da çağıracağım. … abla ben bu kutuyu açmadan önce içinde ne olduğunu sanır?

C:

Tahminin Açıklanması

E: Neden?

C:

Doğru cevap 1. Şeker, Çikolata

Doğru cevap 2. Şeker, Çikolata

Doğru cevap 3. Çünkü üzerinde şekerler var, şeker kutusu, çünkü içindekileri görmedi.

(2 puan)

(1 puan neden sorusu için)

Explicit False Belief (Belirgin Yanlış İnanç)

(Üzerinde erkek çocuk, bir sırt çantası ve dolap resmi olan bir kağıt)

E: Bak bu Emre. Emre eldivenlerini arıyor. Eldivenler sırt çantasında ya da dolabın içinde olabilir. Aslında, Emre'nin eldivenleri sırt çantasında. Ama Emre eldivenlerin dolapta olduğunu sanıyor.

Test Sorusu 1

E: Öyleyse Emre eldivenlerini bulmak için nereye bakacak? Sırt çantasına mı yoksa dolaba mı? (the target question)

C:

Test Sorusu 2

E: Emre'nin eldivenleri aslında nerede? Sırt çantasında mı yoksa dolapta mı? (the reality question)

C:

Doğru cevap 1: Dolap

Doğru cevap 2: Sırt Çantası

Belief-Emotion (İnanç-Duygu)

(Araştırmacının yardımcısı, içine kağıt doldurulmuş kapalı ve çocukların tanıyabileceği bir mısır gevreği kutusu)

Araştırmacının yardımcısının işi çıkar ve ortadan kaybolur

E: Bak burada ne var. Bu kutu ne kutusu?

C: (Doğru cevap: Mısır gevreği)

E: Biliyor musun … abla mısır gevreğini çok sever. Mısır gevreği onun en sevdiği yiyecek.

Ardından mısır gevreği kutusu açılır ve içindekiler çocuğa gösterilir.

E: Bakalım kutunun içinde ne varmış. Aslında kutunun içinde kağıtlar varmış. Mısır gevreği yokmuş. Kağıttan başka bir şey yok.

(Kutu yeniden kapatılır)

E: Tamam, … ablanın en sevdiği yiyecek hangisiydi?

C: (Doğru cevap: Mısır gevreği)

Test Sorusu 1

E:. … abla kutunun içinde ne olduğunu hiç görmedi. Birazdan …abla gelir. Yemek zamanı da geldi. Hadi bu kutuyu …ablaya verelim. Sence …abla kutuyu alınca nasıl hissedecek? Mutlu mu yoksa üzgün mü? (the target question)

C:

Test Sorusu 2

E: … abla kutunun içindekileri gördükten sonra nasıl hissedecek? Mutlu mu yoksa üzgün mü? (the emotion-control question)

C:

Çocuk cevapları verdikten sonra …abla gelir, mısır gevreği kutusu açılır ve ablanın kutunun içini görmesi sağlanır.

Real-Apparent Emotion (Gerçek-Görünen Duygu)

(Üzerinde mutlu, nötr ve üzgün suratların resmi olan bir kağıt)

Çocukların öncelikle bu ifadeleri bilip bilmedikleri kontrol edilecek. Sonra üzerinde kız çocuk resmi olan bir kâğıt gösterilecek.

E: Bu hikâye bir çocukla ilgili. Bu çocuğun adı İpek. Ben aslında sana bu çocuğun içinde nasıl hissettiğini ve bunun yüzünde nasıl göründüğünü soracağım. Ya da yüzündeki ifade içinde hissettiklerini de yansıtabilir. Senden bana çocuğun aslında nasıl hissettiğini ve yüzündeki ifadenin neyi gösterdiğini söylemeni istiyorum.

Bu hikaye İpek ile ilgili. İpek ve arkadaşları oyun oynuyorlarmış ve birbirlerine fıkra anlatıyorlarmış. Büyük çocuklardan biri, Selin, İpek hakkında biraz kötü bir şaka yapmış ve herkes gülmüş. Herkes çok komik olduğunu düşünmüş ama İpek o kadar komik bulmamış. Ancak İpek şakayla ilgili hissettiklerini diğer çocukların anlamasını istememiş çünkü anlarlarsa onunla dalga geçeceklerini düşünmüş. Bu yüzden nasıl hissettiğini saklamaya çalışmış.

İki hafıza sorusu:

E: Selin İpek ile ilgili kötü bir şaka yaptığında diğer çocuklar ne yaptı? (güldüler veya komik olduğunu düşündüler)

C:

E: Hikâyede İpek'in nasıl hissettiğini bilselerdi diğer çocukların davranışı ne olacaktı? (dalga geçeceklerdi)

C:

Üç yüz ifadesinin yer aldığı kâğıda işaret ederek:

Test Sorusu 1:

E: Öyleyse herkes güldüğünde İpek aslında nasıl hissetmişti? Mutlu muydu, üzgün müydü? Yoksa bir şey hissetmedi mi? (the target feel question)

C:

Test Sorusu 2:

E: Herkes güldüğünde İpek nasıl bir yüz ifadesi takınmaya çalıştı? Mutlu mu, üzgün mü yoksa bir şey hissetmemiş gibi mi görünüyordu? (the target-look question)

C:

Doğru cevap 1: Üzgün

Doğru cevap 2: Mutlu

Toplam puan :

REFERENCES

Aksu-Koç, A. (2005).Role of the home-context in the relations between narrative abilities and literacy practices. D. Ravid& H. Bat-ZeevShyldkrot (Eds.), *Perspectives on language and language development.* Dordrecht: Kluwer.

Aksu-Koç, A. & Mersin-Alıcı, D. (2000). Understanding sources of beliefs and marking of uncertainty: The child's theory of evidentiality. In E.V. Clark (Ed.), The Proceedings of the 30th Annual Child Language Research Forum. Stanford, CA: Center for the Study of Language and Information, Stanford University.

Aksu-Koç, A. & von Stutterheim, C. (1994). Temporal relations in narrative: Simultaneity. In R. A.Berman & D. I. Slobin, *Relating events in narrative: A crosslinguistic developmental study* (pp.393-456). Hillsdale, NJ: Lawrence Erlbaum Associates.

Aksu-Koç, A., Ögel-Balaban, H. & Alp, I. E. (2009). Evidentials and source knowledge in Turkish. In S. A. Fitneva & T. Matsui (Eds.), *Evidentiality: A window into language and cognitive development, New Directions for Child and Adolescent Development*, 125, 13–28. San Francisco: Jossey-Bass.

Aksu-Koç, A., Aydın, Ç., Avcı, G., Sefer, N., Yaşa, Y. (2005). The relation between Mental Verbs and Theory of Mind Performance: Evidence From Turkish Children, X. International Congress for the Study of Child Language, Berlin.

Arnold, J.E., Bennetto, L., Diehl, J.J. (2009). Reference production in young speakers with and without autism: Effects of discourse status and processing constraints. *Cognition*, 110, 131-146.

Arnold, J.E. & Griffin, Z.M. (2007). The effect of additional characters on choice of

referring expression: Everyone counts. *Journal of Memory and Language*, 56, 521–536.

Arnold, J.E. (2008). Reference Production: Production-internal and Addressee-oriented Processes. *Language and Cognitive Processes*, 23, 495-527.

Astington, J.W., & Baird, J.A.(2005). Introduction: Why language matters? In J.W. Astington & J.A. Baird (Eds.) *Why language matters for theory of mind* (pp. 3-25). Maheah, NJ: Lawrance Erlbaum.

Astington, J.W., & Jenkins, J.M. 1999. A longitudinal study of the relation between language and theory of mind development. *Developmental Psychology*, 35(5), 1311-1320.

Bahtiyar, S.A.& Küntay, A.C. (2009). Integration of communicative partner's visual perspective in patterns of referential requests. *Journal of Child Language*, 36, 529-555.

Bamberg, M. G. W. (1987).*The acquisition of narratives: Learning to use language*. Berlin: Mouton de Gruyter.

Berman , R. A. Slobin , D. I. (1994). *Different ways of relating events in narrative: A cross-linguistic developmental analysis*. Hillsdale, NJ: Erlbaum.

Bruner, J. S. (1986). *Actual Minds, Possible Worlds.* Cambridge, MA: Harvard University Press.

Brown, R. (1973). *A first language: The early stages.* Cambridge, MA: Harvard University Press.

Carlson, S. M., Moses, L. J., & Breton, C. (2002). How specific is the relation between executive function and theory of mind? Contributions of inhibitory

control and working memory. *Infant and Child Development,* 11, 73-92.

Carlson, S.M., Moses, L.J., Claxton, L.J. (2004). Individual differences in executive functioning and theory of mind: An investigation of inhibitory control and planning ability. *Journal of Experimental Child Psychology*, 87, 299-319.

Clancy, P. (1992). Referential strategies in the narratives of Japanese children. *Discourse Processes, 15,* 441–467.

Dasinger, L. (1995). *The development of discourse competence in native Finnish speaking children: A study of the expression of definiteness.* Unpublished doctoral dissertation, University of California, Berkeley.

Dasinger, L., & Küntay, A. (1998). Introducing referents in elicited discourse: Finnish vs. Turkish. In A. Aksu-Koc, E. Erguvanli-Taylan, A. Sumru Ozsoy & A. Küntay (Eds.) Perspectives in language acquisition: Selected papers from the International Congress for the Study of Child Language (July 14-19, 1996).

Davis, H.L. and Pratt, C. (1995) The development of children's theory of mind: the working memory explanation. *Australian Journal of Psychology,* 47, 25–31

de Villiers, J.G. & de Villiers, P.A. 2000. Linguistic determination and the understanding of false beliefs. In p. Mitchell & K.J. Riggs (Eds.), *Children's reasoning and the mind*, (pp. 191-228). East Sussex: Psychology Press.

de Villiers, J.G. & Pyers, J.E. (2002) Complements to cognition: a longitudinal study of relationship between complex language and false belief understanding. *Cognitive Development*, 82, 1-24.

De Villiers, P.A. (2005). Role of language in theory of mind development: What deaf children tell us?. In J.W. Astington & J.A. Baird (Eds.) *Why language matters*

for theory of mind (pp. 266-298). Maheah, NJ: Lawrance Erlbaum.

Doherty, M.J. (2009). *Theory of Mind: How Children Understand Others' Thoughts and Feelings.* Hove; New York: Psychology Press.

Dunn, J. & Brophy, M., (2005). Communication, relationships and individual differences in children's understanding of mind. In J.W. Astington & J.A. Baird (Eds.) *Why language matters for theory of mind* (pp. 50-70). Maheah, NJ: Lawrance Erlbaum.

Fernandez, C. (2011). Mindful storytellers: emerging pragmatics and theory of mind development. *First Language*, 1-27.

Gopnik , A. Wellman , H. M. (1992). Why the child's theory of mind really is a theory. *Mind and Language*, 7, 145-171.

Gordon, A.C. and Olson, D.R. (1998). The relation between acquisition of a theory of mind and the capacity to hold in mind *Journal of Experimental Child Psychology,* 68, 70–83.

Granti, T. (2004). *The relationship between metacognitive vocabulary and theory of mind development*. Unpublished masters thesis, Boğaziçi University, Istanbul.

Guajardo, N.R., Watson, A.C. (2002). Narrative discourse and theory of mind development. *Journal of Genetic Psychology*, 163, 305-325.

Happe, F. G. E. (1995). The role of age and verbal ability in the theory of mind task performance of subjects with autism. *Child Development,* 66, 843–855.

Harris, P.L. (2005). Conversation, Pretense and Theory of Mind. In J.W. Astington & J.A. Baird (Eds.) *Why language matters for theory of mind* (pp. 70-84). Maheah, NJ: Lawrance Erlbaum.

Hickmann, M., Hendriks, H., Roland, F., & Liang, J. (1996). The marking of new information in children's narratives: A comparison of English, French, German, and Mandarin Chinese. *Journal of Child Language,* 23, 591-619.

Hickmann, M. & Hendriks, H. (1999). Cohesion and anaphora in children's narratives: a comparison of English, French, German and Mandarin Chinese. *Journal of Child Language*, 26, 419-452.

Hickmann, M., Kail, M. & Roland, F. (1995). Cohesive anaphoric relations in French children's narratives as a function of mutual knowledge. *First Language* 15, 277-300.

Hudson, J.A. & Shapiro, L. R. (1991). From Knowing to Telling: The Development of Children's Scripts, Stories and Personal Narratives. A. McCabe. & C. Peterson (eds). *Developing Narrative Structure*. Lawrence Erlbaum Associates, New Jersey.

Jacques, S., Zelazo, P.D. (2005). Language and development of cognitive flexibility: Implications for theory of mind. In J.W. Astington & J.A. Baird (Eds.) *Why language matters for theory of mind* (pp. 144-162). Maheah, NJ: Lawrance Erlbaum.

Kail, M. & Hickman, M. (1992).French children's ability to introduce referents in narratives as a function of mutual knowledge. *First Language*, 12, 73-94.

Karmiloff-Smith, A. (1981). *A functional approach to child language: A study of determiners and reference.*Cambridge: CambridgeUniversity Press.

Keenan, T., Olson, D. R.,&Marini, Z. (1998).Working memory and children's developing understanding of mind. *Australian Journal of Psychology, 50,* 76–82.

Küntay, A.C. & Koçbaş, D. (2009).Effects of lexical items and construction types in English and Turkish character introductions in elicited narrative. In J. Guo, E. Lieven, S. Ervin-Tripp, N. Budwig, S. Özçalışkan& K. Nakamura (eds), *Crosslinguistic approaches to the psychology of language: Research in the tradition of Dan Isaac Slobin*. (pp. 81-92). New York, London: Psychology Press, Taylor&Francis Group.

Küntay, A. (2002). Development of the expression of indefiniteness: Presenting new referents in Turkish Picture-Series Stories. *Discourse Processes*, 33, 77-101.

Küntay, A. (1997). *Extended discourse skills of Turkish preschool children across shifting contexts*. Unpublished PhD Thesis, University of California, Berkeley.

Labov, W. & Waletzky, J. (1967). Narrative analysis: Oral versions of personal experience in C. B. Paulston, G. R. Tucker (eds.) *Sociolinguistics: the Essential Readings,* (pp. 74-105). Wiley- Blackwell Publishing. Retrieved from www.books.google.com

Lee, K., Olson, D.R. & Torrance, N. (1999) Chinese children's understanding of false beliefs: the role of language. Journal of Child Language, 20, 1-21.

Leslie, A. M. (1987). Pretense and representation: The origins of "theory of mind". *Psychological Review*, 94, 412-426.

Matthews, D., Lieven, E., Theakson, A., Tomasello, M. (2006).The effect of perceptual availability and prior discourse on young children's use of referring expressions.*Applied Psycholinguistics*, 27, 403-422.

Maratsos, M.P. (1976). *The use of definite and indefinite reference in young children: an experimental study of semantic acquisition.* Cambridge:

Cambridge University Press.

Miller, C. A. (2006). Developmental relations between language and theory of mind. *American Journal of Speech–Language Pathology*, 15, 142–154.

Nakamura, K. (1993). Referential structure in Japanese children's narratives: The acquisition of *wa* and *ga.* In S. Choi (Ed.), *Japanese/Korean linguistics* (pp. 84–99). Stanford, CA: Stanford University Center for the Study of Language and Information.

Nelson, K. (1998). Chapters 1, 4 and 5. *Language in cognitive development: The emergence of the mediated mind*. Cambridge: CambridgeUniversity Press.

Nicolopoulou,A. &Richner, E.S. (2007). From Actors to Agents to Persons: The development of character representation in young children's narratives. *Child Development*, 78, 412-429.

Nicolopoulou, A. (2010). Story pictures for narrative elicitation. http://cas.lehigh.edu/CASWeb/default.aspx?id=1430

O'Neill, D. (2005). Talking about "New" Information: The Given/New Distinction and Children's Developing Theory of Mind. In J.W. Astington & J.A. Baird (Eds.) *Why language matters for theory of mind* (pp. 144-162). Maheah, NJ: Lawrance Erlbaum.

O'Neill, D. (1996). Two-year-old children's sensitivity to a parent's knowledge state when making requests. *Child Development*, 67, 659-677.

Orsolini, M., Rossi, F., & Pontecorvo, C. (1996).Re-introduction of referents in Italian children's narratives.*Journal of Child Language*, 23, 465-486.

Perner, J. (1991). *Understanding the representational mind.* Cambridge, MA: MIT

Press.

Shatz, M. ,Diesendruck, G., Martinez-Beck, I., &Akar, D. (2003). The influence of language and socioeconomic status on children's understanding on false belief. *Developmental Psychology*, 39, 717-729.

Scheneider and Dube (1997).Effect of pictorial versus oral story presentation on children's use of referring expressions in retell. *First Language*, 17, 283-302.

Shatz, M., Wellman, H. M., & Silber, S. (1983). The acquisi-tion of mental verbs: A systematic investigation of first reference to mental state. *Cognition,* 14, 301-321.

Tager-Flusberg, H. (2000). Language and understanding minds: connections in autism. In S. Baron-Cohen, H. Tager-Flusberg, & D. J. Cohen, *Understanding other minds: perspectives from developmentalcognitive neuroscience* (2nd ed.). Oxford: Oxford University Press.

Tardif, T., & Wellman, H.M., (2000). Acquisition of mental state language in Mandarin- and Cantonese speaking children. *Developmental Psychology*, 36, 25-43.

Tardif, T., Wellman, H.M., & Cheung, K.-M. (2004). False belief understanding in Cantonese-speaking children. *Journal of Child Language,* 31, 779–800.

Tomasello, M., Kruger, A. & Ratner, H. (1993) Cultural learning. *Behavioral and Brain Sciences* 16:495–552.

van Hout, Harrigan A.& de Villiers, J.(2009). Comprehension and Production of Definite and Indefinite Noun Phrases in English Preschoolers. Proceedings of the 3rd on Generative Approaches to Language Acquisition North America (GALANA 2008), ed. Jean Crawford et al.,76-87. Somerville, MA: Cascadilla Proceedings Project.

Vinden, P.G. 1996. Junin Quechua children's understanding of mind. Child Development, 67, 1707-1716.

Warden, D.A. (1976).The influence of context on children's use of identifying expressions and references. *British Journal of Psychology*, 67, 101-112.

Wellman, H. M. (2002). Understanding the psychological world: Developing a theory of mind. In U. Goswami (Ed.), *Handbook of Childhood Cognitive Development* (pp. 167 – 187). Oxford, England: Blackwell.

Wellman & Liu (2004). Scaling of Theory of Mind Tasks. *Child Development*, 75, 523-541.

Wigglesworth, G. (1990). Children's narrative acquisition: A study of some aspects of reference and anaphora. *First Language, 10,* 105–125.

Wigglesworth, G. (1997). Children's individual approaches to the organization of narrative. *Journal of Child Language*, 24, 279-309.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition,13*, 103–128.

Wong, A. M.-Y. & Johnston, J.R. (2004).The development of discourse referencing in Cantonese-speaking children. *Journal of Child Language*, 31, 633-660.

Zelazo, P.D. (1999) Language, levels of consciousness, and the development of intentional action, in *Developing Theories of Intention: Social Understanding and Self-control* (Zelazo, P.D., Astington, J.W. and Olson, D.R., eds), pp. 95–117, Erlbaum