The Development of Narrative Skills in Turkish-Speaking Children: A Complexity Approach

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Abstract

Narrative is a complex discourse unit. Creating it requires "a joint process of event comprehension and language production" (Trabasso & Rodkin, 1994, p.87), and perspective taking, understanding and explaining behaviors and emotions of others. In the present study, it is claimed that these requirements map onto three levels of complexity: 1) Plot complexity reflecting the temporal and thematic organization of the narrative, 2) Syntactic complexity expressing the coherent causal, temporal and logical order of the reported events, and 3) Evaluative complexity indicating the narrator's perspective toward the events. The aim of the present study was to examine the development in each level and their relationships with each other. Moreover, the contribution of Theory of Mind (ToM), executive function and the comprehension of complex syntactic structures to each level was analyzed. One hundred and five Turkish-speaking children in 4 age groups (3&4, 5,7&8, and 10&11years) and 15 adults participated in 1.Elicitation of narratives task, 2. Emotional Stroop Task, 3. First- (for 3- to 4-year-old children) and Second-order (for older children and adults) ToM tasks, 4. Real-apparent emotion task (for 3- to 4-year-old children), and 5. Comprehension of complement clauses task. As expected, preliminary results indicated developmental increases in plot complexity. Evaluative complexity and syntactic complexity were found to be positively related. Moreover, all levels of complexity correlated with executive function and plot complexity was also related to the comprehension of sentential complements. ToM was not related to any level of complexity. The significance of these findings for the development of narrative skills will be discussed.

Keywords: narrative skills; complexity; ToM; cognitive development

Introduction

Narrative as a complex discourse unit

Narrative is a type of discourse referring to goal-directed events that are sequenced in a causal and temporal order (Aksu-Koç & Tekdemir, 2004). According to Labov and Waletzky (1967), it has two main functions. Its referential function is to express the events in sequenced clauses that reflect the temporal order of the events. The other function, the evaluative function, refers to the expression of the narrator's interpretation of and attitude towards the referential components. Labov (1997) describes this function as follows: "evaluation of a narrative event is information on the consequences of the event for the human needs and desires" (p. 403). Bruner (1986) identified two levels of organization of narrative. One is the "landscape of action" referring to the plot of the story including events and actions. The other one is the "landscape of consciousness" consisting of thoughts, beliefs and emotions of the story characters. These two levels correspond to the functional distinction of Labov and Waletzky (1967) in such a way that the landscape of action matches with the referential function while the landscape of consciousness matches with the evaluative function. Considering the functions of narrative and its organization, it can be claimed that narrative is a complex discourse unit. Creating it requires "a joint process of event comprehension and language production (Trabasso & Rodkin, 1994, p.87), and perspective taking, understanding and explaining behaviors and emotions of others. In the present study, these requirements were claimed to correspond to three levels of complexity.

Plot complexity The plot is defined as the sequence of events connected to each other to construct a meaningful whole (Bruner, 1990). The plot line includes three main components: 1. *the onset* referring to a starting event, 2. the *unfolding* referring to the extension of the events in the story, and 3. the *resolution* including reaching to an outcome (Berman & Slobin, 1994). They reflect the temporal and thematic organization of the narrative which can be achieved through the comprehension of the events by the narrator (Berman & Slobin, 1994). Thus, it seems to be relevant for the referential function of narrative.

Evaluative complexity During narrating, sometimes the narrator departs from the plot and incorporates his/her evaluation into the narrative (Bamberg & Damrad-Frye, 1991). S/he reports the mental states of the characters, describes the reasons or outcomes of the events and the behaviors of the story characters, or integrates his/her own viewpoint into the narrative. These expressions fulfill the evaluative function of the narrative as parts of the landscape of consciousness (Bamberg & Damrad-Frye, 1991). Moreover, they also reflect the point of the narrative (Labov & Waletzky, 1697), i.e." why the events narrated are worth relating and paying attention to" (Thompson & Hunston, 2001, p.12) and the organization of the narrative discourse. Bamberg and Damrad-Frye (1991) suggested five categories with evaluative functions: 1) frames of mind including references to feelings and mental states of the characters, 2) causal connectors explaining the motivations of

the characters and the reasons of the events, 3) character speech including direct and indirect quotation of the speech of the characters, 4) hedges expressing the likelihood of the events according to the narrator, and 5) negative qualifiers stating the discrepancy between the expectations and real events or referring to the failures. These evaluative expressions are related to the comprehension of events and the interpretation of the behaviors and emotions of the characters in narrative.

The development of the use of the evaluative devices was examined in several studies indicating changes with age and culture (Bamberg & Damrad-Frye, 1991; Berman & Slobin,1994; Cortazzi & Jin,2001; Küntay & Nakamura, 2002). In the literature, Theory of Mind (ToM) was addressed as a predictor of children's ability to construct narratives with evaluative complexity (e.g. Astington, 2004; Baron-Cohen, Leslie, & Frith, 1985; Capps, Losh, & Thurber, 2000; Fernández, 2011). On the other hand, there are empirical findings suggesting that narrative abilities contributed to the development of ToM in preschool age children (e.g. Peskin & Astington, 2004; Peterson & Slaughter, 2006). Studies with older children did not support the relationship between the evaluative complexity and ToM (Longobardi, Spataro, & Renna, 2014; Meins, Fernyhough, Johnson, & Lidstone, 2006) and imply a dynamic developmental relationship between these two abilities.

Syntactic complexity The organization of narrative is reflected through the syntactic complexity, because the syntactic structures are means to express the coherent causal, temporal and logical order of the reported events. Recursion is one type of syntactic complexity. It is defined as embedding a clause inside another clause (Chomsky, 1965). It allows unlimited linguistic creativity, because in principle, there is no upper limit to the number of embedded clauses in a single sentence (Fitch, 2005). One way to create recursive hierarchies is subordination. Research has shown that children acquire complex clauses with subordination during the period of 2 to 4 years of age (Diesel & Tomasello, 2001). This time period matches with the period of ToM development. This temporal coincidence hints at (but does not prove) a possible causal relation between the two domains.

Fitch (2005) claimed that only humans are able to embed the representation of other minds into the representation of their own minds through ToM and this is the precursor for the ability to form syntactically complex, embedded structures.

Alternatively, de Villiers and de Villiers (2003) argued that the structural complexity of languages contributes to ToM development. This relationship was supported (e.g. de Villiers & Pyers,1997; 2002) .

Relations between the levels of complexity Although children's narratives were analyzed separately according to plot complexity, evaluative complexity and syntactic complexity; and the relationship between each of these levels and some relevant cognitive abilities such as ToM was examined to shed light on the narrative abilities of children, Mäkinen et al. (2014) proposed that a multidimensional analysis will provide a better account of children's narrative skills. In recent years, some research included the developmental patterns in different levels of complexity in combination with each other.

Regarding the relationship between the levels of plot complexity and syntactic complexity, Hakala (2013; as cited in Mäkinen et al. ,2014) found that among 5-year-old Finnish-speaking children's narratives those which were rich in content included more number of words. Likewise, Soodla and Kikas (2011) reported a positive correlation between the number of plot elements and the total number of words (TNW) in the narratives of Estonian children.

Mäkinen et al. (2014) extended these findings further to fictitious narratives of 4- to 8-year-old Finnish children. They also reported that the number of different words in type (NDW) was more related to the content of the narratives than TNW.

Beck, Kumschick, Eid and Klann-Delius (2012) demonstrated that the use of evaluative devices was positively correlated to the extent of the use of plot components in the narratives of 7- to 9-years-old German-speaking children.

Despite the fact that some studies provided some insight into the relationships between different levels of complexity, they are limited in some aspects. First of all, the relationships between plot, syntax and evaluation in narratives were secondary or minor topics in most of these studies. Moreover, none of these studies cover different developmental periods or wide age ranges although research has shown that patterns might change with age (e.g. Longobardi et al., 2014; Meins et al., 2006). In the present study, these problems were overcome in order to give a better account of children's narrative skills.

Present Study

The first aim of the present study was to examine the development of Turkish-speaking children's narrative skills related to different levels of complexity, namely plot complexity, evaluative complexity and syntactic complexity. Moreover, how the development in each type of complexity is related to executive function, ToM and the ability to comprehend and reproduce complex syntactic structures was studied.

Method

Participants

Eight-teen 3- and 4-year-olds (*M*= 52 months, *SD*= 4.25, range= 45-59.5 months; 11 boys and 7 girls), 22 5-year-olds (*M*= 64.05 months, *SD*= 3.67, range= 60-70 months; 11 boys and 11 girls), 33 7- and 8-year-olds (*M*= 93.18 months, *SD*= 5.24, range= 84-105 months, 12 boys and 21 girls), 32 10- and 11-year-olds (*M*= 134.97 months, *SD*= 5.16, range= 124-143 months, 16 boys and 16 girls); and 15 adults (*M*= 254.40 months, *SD*= 9.93, range= 243-278 months, 2 boys

and 13 girls) participated in the study. All participants were hearing native Turkish speakers and belonged to middle socioeconomic class.

Instruments

Elicitation of narratives task: The experimenter presented Mayer's 24-page wordless picture book 'Frog, where are you?' (1969) to the participants and asked them to tell a story while looking at the pictures.

Emotional Stroop Task: The Emotional Stroop Task developed by Lagattuta, Sayfan and Monsour (2011) was used as a measure of executive function. The experimenter presented 10 cards displaying a yellow cartoon happy face and 10 cards displaying a yellow cartoon sad face to the participants one by one in a random order. The participants had to respond saying *"üzgün'*sad'*"* to the happy face and *"mutlu* 'happy'*"* to the sad face. The total number of correct responses was calculated to evaluate the participants' performance on this task.

First-order ToM Task: The change of location task developed by Wimmer and Perner (1983) was used to assess ToM abilities of 3- and 4-year-old children.

Real-apparent emotion task: To assess 3- and 4-year-old children's ability to differentiate between the emotion a person feels and the emotion a person displays, the real-apparent emotion task included in Wellman and Liu's (2004) ToM scale was used.

Second-order ToM task: To assess ToM abilities of 5-, 7-, 8-, 10- and 11-year-old children and adults, the second-order false-belief task developed by Flobbe (2006) and adapted to Turkish by Arslan (2011) was administered. The experimenter told two stories to the participants. During the story telling, she presented drawings depicting the stories to foster the comprehension of the stories and asked questions regarding the details.

Comprehension of Complement Clauses Task: Altan (2008) developed a task to assess children's ability to comprehend complement clauses inspired by a task developed by Crain and Nakayama (1987; as cited in Thornton, 1996) and revised by Thornton (1996). On this task, the experimenter presented clauses including object nominalizations formed with the suffixes –mA, -mAK, -DIK and –(y)AcAK (e.g.*"Kaplumbağaya kutuda ne olduğunu sandığını sorar mısın?"* 'Can you ask the mouse what he thinks there is in the box?') as complement clauses. The participants were expected to direct the questions embedded in these clauses to a puppet introduced at the beginning of the task (e.g. "Kutuda ne olduğunu sanıyorsun?" What do you think there is in the box?"). The testing trials included six single-embedded and six double-embedded clauses in a random order.

Transcription and coding

Video-recordings of the narratives were transcribed by the experimenter using EUDICO Linguistic Annotator (ELAN). It was developed at the Max Planck Institute for Psycholinguistics, Nijmegen, Netherlands to analyze language, sign language and gestures (http://tla.mpi.nl/tools/tla-tools/elan/,Lausberg & Sloetjes, 2009).

Coding criteria for the levels of complexity

Plot complexity: Plot complexity was coded according to the presence of the subcomponents regarding plot onset, plot unfolding, resolution and search theme suggested by Bermand and Slobin (1994) for the book 'Frog, where are you?' (1969). The presence of each subcomponent received 1 point. The ratio of the participants' total points to the maximum possible total score was computed as the plot complexity score.

Evaluative complexity: In literature there was no consensus on the coding categories for evaluation (Shiro, 2003). In the present study, a) mental state terms referring to emotional states, motivation/ability, affect expression and cognitive states; b) hedges; c) enrichment expression; d) evaluative remarks; d) causative expressions; e) contrastive expressions; f) character speech; g) negative qualifiers were coded as evaluative categories. As the evaluative complexity score, the percentage of the number of clauses with at least one evaluative device to the total number of clauses was computed.

Syntactic complexity: The total number of the C-units described as a main clause with its subordinate clauses, the total number of words (TNW), the mean length of C-units (MLCU), the total duration of the narrative and the mean duration of a C-unit were included to analyze the general linguistic structure of the narratives. The score of the syntactic complexity was the percentage of the number of C-units with at least one subordinate clause to the total number of C-units.

Results & Discussion

Data from adult participants were excluded from the statistical analyses and considered only for comparison. To test the developmental change in three levels of complexity, a 4 (age) x 3(levels of complexity) MANOVA with age as the independent variable and the scores of plot complexity, evaluative complexity, and syntactic complexity as the dependent variables was conducted. Using Pillai's trace, there was a significant effect of age on the levels of complexity, V=.52, $F(9,300)$= 7.004, p<.001. However, separate univariate ANOVAs on the dependent variables revealed only a significant effect on the plot complexity, $F(3.100)$=24.53, p<.001. As shown in Figure 1, post-hoc analyses revealed that 3- and 4-year-old children's plot complexity score was lower than that of children in other age groups. Moreover, the plot complexity score of 5-year-old children was lower than that of children in the older age

groups. This suggested that with age, children's narratives include more plot components and gain a full structure including the elements regarding the onset, the unfolding and the resolution of the narrative.

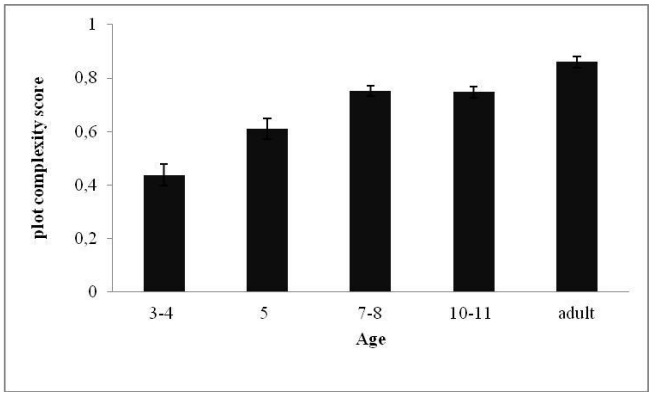

Figure 1: Mean ratio of participants' total plot complexity scores over the maximum possible total plot complexity score by age. Error bars represent standard errors.

Figure 2 displays that in each age group 20 to 30% of the clauses in the narratives included at least one evaluative device. The lack of any developmental change in the evaluative complexity suggested that between the ages of 3 and 11 years the extent of the use of evaluative devices does not change.

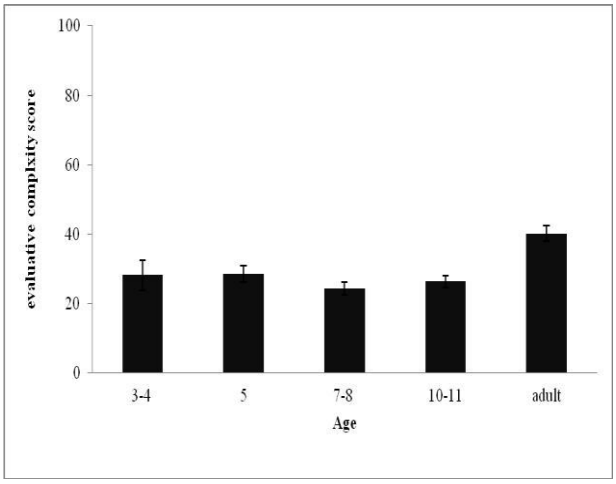

Figure 2: Mean evaluative complexity score by age. Error bars represent standard errors.

However, a qualitative analysis of the rate of the use of evaluative categories indicated that with age children started to integrate various elaborative devices into their narratives. For example, 3- and 4-year-old and 5-year-old participants did not use any hedges and evaluative expressions, and the youngest participants did not also use any causative markers whereas there were no missing evaluative categories in the narratives of 7- and 8- and 10- and 11-year-old children. This implied that the evaluative richness increases with age.

The lack of developmental change in the syntactic complexity and the low rate of complex clauses as shown in Figure 3 suggested that children in all age groups preferred simple sentences without any subordinate clause over complex ones in their narratives.

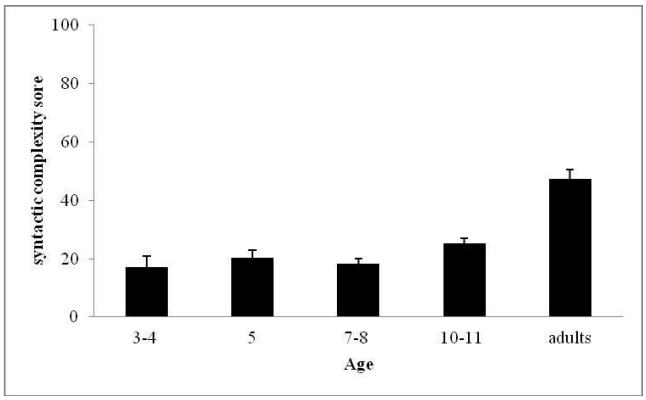

Figure 3:Mean syntactic complexity score. . Error bars represent standard errors.

A qualitative analysis of the use of different types of subordinate clauses showed that in 3- and 4-year-old participants' narratives, most of the subordinate clauses were noun clauses. This distribution changed with age. Five-year-old participants constructed noun and adverbial clauses to the same extent whereas older participants formed more adverbial clauses than noun clauses. These findings suggest a change in the structure of complex sentences in narratives with age.

To analyze the relationship between the three levels of complexity, correlation analyses were run. Partial correlations with age (in months) controlled showed that the evaluative complexity score was significantly correlated with the syntactic complexity score, r=.48, p<.001.

To analyze the cognitive underpinnings of the levels of complexity, correlation analyses were computed. Partial correlations with age (in months) controlled indicated that scores of all levels of complexities were significantly correlated with the score on the Emotional Stroop Task (r=.20, p<.05 for evaluative complexity, r=.27, p<.01 for plot complexity, and r=.23,p<.05 for syntactic complexity). This suggests that the executive function is related to the formation of the narratives. Furthermore, the plot complexity score was found to correlate with the score on the Comprehension of the Complement Clauses Task, r=.30,p<.01. Contrary to the expectations, ToM scores were not related to any level of complexity.

Further results of regression analyses will shed light on the predictive effect of ToM, executive function and the comprehension of sentential complements on each level of complexity. The significance of the findings will be discussed in terms of the development of narrative skills and its underlying cognitive mechanisms.

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