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Predicting narrative ability: parental and child factors in early interaction

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Narrative skills are important for later literacy and school language, such that it is important to indicate what the precursors may be of these skills. This study examined the behavior of three Dutch children and their parents in early nonpresent talk interaction (age 1;9 - 3;9) in relation to the children’s narrative skills at age seven. At that age the children displayed clear individual differences in the different aspects of narrative ability measured (narrative productivity, narrative story structure and narrative complex language). Some relation could be shown between behavior in early interaction and later narrative skills. The amount of nonpresent talk in interactions that parents involve the child in proved to be related to narrative productivity and child initiative to narrative complex language at age seven.

1. Introduction

A substantial body of research has shown that oral narrative ability is a good predictor of academic performance at school (Tannock, Purvis & Schachar, 1993; Snow, Burns & Griffin, 1998; Curenton & Lucas, 2007; Scarborough, 2009; Henrichs, 2010; Scheele, Leseman, Mayo & Elbers, 2012). For example, children who have good oral narrative skills have been shown to have better reading abilities than those with less well developed oral narrative skills (Bishop & Edmundson, 1987; Chang, 2006; Dickinson & Porche, 2011). Considering the central position of narrative skills for school achievement it is highly relevant to establish which aspects of language development promote the emergence of these narrative skills. This study looked for potential precursors of later narrative ability in the interaction between parents and children during early stages of their language development. More precisely, three children were followed longitudinally, which enabled us to explore what kind of linguistic behavior of parents and children during their first years of life can be related to narrative skills at a later stage.

A specific potential precursor that is studied in this paper, is the involvement of children in so-called nonpresent talk. Previous literature has shown that discussion of
the not-here-and-now in early parent-child interaction appears to be related to narrative development. Based on the theoretical framework of Ninio and Snow (1996), Uccelli, Hemphill, Pan, and Snow (2005) investigated the influence of nonpresent talk interaction of mother-child dyads at age 1;8 and 2;8 on two narrative genres at age five. It appeared that the more children were engaged in nonpresent talk at 1;8 and 2;8, the better narrators of personal experience they tended to be at age five. The same was true for the fantasy narrative. The claim is that the more parents engage in nonpresent talk with their young children, the more opportunities children have to learn to represent past events, to report intentions, feelings and reactions, and to tie experience in one context to experience in another. These are all skills supposed to be critical to later autonomous narrative production. Dickinson and Tabors (2001) found that nonpresent talk occurred more frequently in intensive parent-child interaction, such as eating together and playing together, in contrast to settings focused on caregiving, such as changing nappies, or dressing. The implication is that searching the settings in which nonpresent talk occurs might also be relevant for the exploration of factors influencing later narrative skills.

As is apparent from the reviewed literature, most previous research has focused on the influence of adult behavior in early interaction on children’s later language. To date only little research has examined the behavior of the child within early interaction about the not-here-and-now in relation to later narrative abilities. Farrant and Reese (2000) and Reese (1995) found children’s increasing participation in conversations between age three and four to be related to their narrative ability, i.e. their ability to comprehend and produce a narrative at age five. The results thus point to a relation between participating in conversational interactions and narrative ability. From the previous literature it is not clear whether engagement in early nonpresent talk interaction induced by the parents is different from participating in nonpresent talk initiated by the children with respect to later narrative ability. The present research aims to fill this gap by studying initiation of early interaction in nonpresent talk. Furthermore, narrative ability refers to a multilevel skill. At least three different components of narrative ability can be distinguished: narrative productivity, narrative story structure and narrative complex language (de Blauw, 2015). Previous literature has not always distinguished these different facets of narrative ability, or has examined the different facets consistently. Our research aim is therefore to investigate whether aspects of parental and child behavior in early nonpresent talk interaction can be related to these three different facets of narrative ability within a longitudinal study.

2. General method

The present study analysed data from an in-depth longitudinal study (De Blauw, 2015) of three children in two monolingual Dutch, middle class families1. The children, two non-identical twin sisters Hazel and Floor, and one boy Stijn participated in the study.

1 The data were taken from a longitudinal database in which the children were recorded from age 0;3 to 10 years.
The disadvantage of a multiple case study approach is of course the limited generalizability and general applicability of the results. The great advantage is however the considerable amount of data that is generated. The measures of narrative ability were made at age seven using different instruments in order to establish the similarities and differences between the children to which the variables in early interaction could then be related. The analysis of early spontaneous interaction between 1;9 and 3;9 (at seven time points: 1;9, 2;0, 2;3, 2;6, 2;9, 3;3, and 3;9) was based on video recordings of the children with their parents, lasting between one to two hours per session. Nonpresent talk interaction segments (NPT) were selected and analysed from these recordings (see below, excerpt 2). To compare the two families all results were measured per hour. In order to investigate the role of context on NPT, all NPT segments were coded for setting. Five main categories of setting were distinguished: eating & drinking, body care, toy play, parent-child routines and other (such as on the move indoor & outdoor).

3. Results

In the following sections the baseline measures for narrative ability will be presented first, followed by the method and results for analysing NPT with regard to (a) parental engagement and (b) children’s initiatives.

Narrative ability at age seven
Three types of narration were assessed around age seven: story generation using the Frog Story (Mayer, 1969), story reproduction using the Bus Story (Renfrew, 1991), and spontaneously produced narratives which were taken from the spontaneous speech of the children in interaction with their parents or the investigator at that age. A multilevel approach was taken, focusing on three components of narrative ability: narrative productivity, narrative story structure and narrative complex language (see Table 1).

Narrative productivity was operationalised as the length of the narratives (total utterances per narrative), and the number of spontaneously produced narratives. Narrative story structure refers to the ability to produce a comprehensible, cohesive and well-structured story, including the number of planning components (i.e., the elements of the story required to convey the whole narrative such as the frog escaping in the Frog Story). Narrative complex language is operationalised using different measures. Related to vocabulary the use of specific lexical items (for the narrative in question) was recorded and the Type-Token Ratio (TTR) calculated to measure the diversity of vocabulary. With respect to grammar the number of complex clauses and the Mean Length of Five Longest Utterances (MLU5) were measured.

The results from the Frog story task (Mayer, 1969; Berman & Slobin, 1994) and the Bus story task (Renfrew, 1991) indicated that all three children were performing at the high end of the normal range, or even above this norm, when compared to seven-year-
old Dutch children from other studies (Blankenstijn & Scheper, 2003; Ketelaars, 2010; Jansonius et al., 2014). The production of spontaneous narratives could not be compared to other studies because no figures are available for Dutch. The frequency of spontaneously produced narratives varied considerably between the three children, ranging from only one narrative from Hazel in the three hours of recording to twelve narratives produced by Stijn, and seven produced by Floor (see Excerpt 1). The personal narrative was the most frequent type (see Excerpt 1).

Excerpt 1: An example of a personal narrative in spontaneous speech around age seven. Floor (age 6;9) talking about her favourite elephant rucksack falling into the ditch. Setting: playing and in conversation with investigator.

Floor: [showing her rucksack] En Tetty was een keertje in de sloot gevallen. ‘And once Tetty fell in the ditch.’

Wij speelden dat we de vlaggen uithangen, uithangden met drie tassen. Maar dat wou niet zo goed. ‘We were playing hanging out flags, hanging out three bags. But it didn’t go right’

En toen had Hazel Tetty per ongeluk achter het hek gegooid. ‘And then Hazel threw Tetty by accident over the fence.’

En toen wou Hazel Tetty weer vastpakken en toen viel Tetty in de sloot. Toen lag die met zijn neus boven gelukkig. ‘And then Hazel wanted to pick Tetty up but Tetty fell in the ditch. Luckily he landed with his nose upwards.’

Toen heeft Marjoleine Tetty eraf, eruit gehaald. Marjoleine had toen Tetty in de wasmand, wasmachine gestopt. En toen moest-ie nog een tijdje bij de kachel. ‘Then Marjoleine got Tetty out. Marjoleine put Tetty in the washing basket, washing machine. Then he had to be near the radiator for some time.’

Maar dat vond Tetty helemaal niet leuk! Als die zo had gelegen, was gevallen [drops the elephant on its front] dan had Tetty al gezonken zijn. Maar zo niet [turns it over on its back]. ‘But Tetty didn’t like it at all. If he had been like this, had fallen like this, then Tetty would have sunk. But not this way up.’

Table 1 shows both the scores on the various measures under the three narrative components. In order to compare the children with one another and in order to relate to Non Present Talk (NPT) between 1;9-3;9, the children’s relative ranking was determined. Many of the individual differences in scores between the children were small but the relative ranking per narrative component is important here.
Table 1: Narrative ability at age seven, raw scores and ranking; Frog story task, Bus story task, narratives in spontaneous speech; comparative differences. In brackets: result based on one narrative

<table>
<thead>
<tr>
<th>Narrative component</th>
<th>Hazel</th>
<th>Floor</th>
<th>Stijn</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>score</td>
<td>score</td>
<td>score</td>
</tr>
<tr>
<td><strong>NARRATIVE PRODUCTIVITY</strong></td>
<td>rank</td>
<td>rank</td>
<td>rank</td>
</tr>
<tr>
<td>Frog: Total no Utterances</td>
<td>57</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Bus: Total Utterances</td>
<td>204</td>
<td>193</td>
<td>211</td>
</tr>
<tr>
<td>Spon. sp: mean TU/ per narr.</td>
<td>(8)</td>
<td>11.4</td>
<td>12.3</td>
</tr>
<tr>
<td>Spon. sp: number of narr.</td>
<td>1</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td><strong>Mean ranking</strong></td>
<td>2.3</td>
<td>2.3</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>NARRATIVE STORY STRUCTURE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frog: story score</td>
<td>33</td>
<td>36</td>
<td>32</td>
</tr>
<tr>
<td>Frog: planning components</td>
<td>16</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Bus: planning components</td>
<td>19</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td><strong>Mean ranking</strong></td>
<td>1.8</td>
<td>1.2</td>
<td>3</td>
</tr>
<tr>
<td><strong>NARRATIVE COMPLEX LANGUAGE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frog: language score</td>
<td>42</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>Frog: MLU5</td>
<td>14</td>
<td>8.8</td>
<td>8.6</td>
</tr>
<tr>
<td>Bus: MLU5</td>
<td>14.2</td>
<td>9.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Spon: MLU5</td>
<td>(8)</td>
<td>18.4</td>
<td>17.4</td>
</tr>
<tr>
<td>Frog: Subordinate clauses</td>
<td>4</td>
<td>4</td>
<td>2.5</td>
</tr>
<tr>
<td>Bus: Subordinate clauses</td>
<td>9</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Spon: Subordinate clauses</td>
<td>(3)</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Frog: TTR</td>
<td>0.29</td>
<td>0.37</td>
<td>0.29</td>
</tr>
<tr>
<td>Bus: TTR</td>
<td>0.36</td>
<td>0.33</td>
<td>0.35</td>
</tr>
<tr>
<td>Spon: TTR</td>
<td>(0.78)</td>
<td>0.67</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Mean ranking</strong></td>
<td>1.4</td>
<td>2.2</td>
<td>2.5</td>
</tr>
</tbody>
</table>

In terms of narrative productivity Stijn ranked highest due to the fact that he produced the most and the longest narratives in spontaneous speech and in one of the two elicited tasks. Floor ranked highest on narrative story structure. She excelled in telling a clear and coherent story to the listener. Hazel ranked highest on the narrative measures that reflect narrative complex language: specific lexicon, the number of complex clauses, MLU5, and TTR. The fact that Hazel produced far fewer narratives in spontaneous speech indicates that high complex language ability does not necessarily imply a high productivity of narratives. In sum the three children, although all performing average or above in comparison to their peer group, have different relative strengths. These will be compared to the variables measured at an earlier age.

**NPT between age 1;9 and 3;9**

Since Non Present Talk (NPT) is the focus of this study, it was crucial to distinguish NPT from Present Talk. Present talk (PT) is interaction that refers to the here-and-now, i.e. what can be seen, heard, touched. The method used by Uccelli (2009) formed the basis for the procedure used here for the demarcation of the boundaries of a NPT
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segment from the surrounding PT (see Excerpt 2). In this study the following definition of NPT was used: a topic-specific discussion that relates to the not-here-and-not-now, i.e. what cannot be seen and heard and touched.

Excerpt 2: An example of the demarcation of an NPT segment from the present.
Situation: Stijn (1;9) and his parents are in the kitchen. The mother starts discussing the holidays two weeks earlier (‘oh we ate a lot of ice-creams during the holidays, didn’t we!’). At that point the NPT starts.

Stijn: [shows ice-cream stick] ij.
‘y’

Mother: Goed zo, ijs. Dat is van het ijs heh. Oh we hebben zoveel ijs gegeten op vakantie heh!
‘All right, ice-cream. That’s from the ice-cream, isn’t it? Oh we ate a lot of ice-creams during the holidays, didn’t we!’

Father: Stijn weet je nog in dat zwembad?
‘Stijn, do you remember that swimming pool?’
[The conversation continues about the holidays until the mother returns the conversation in the ‘here-and-now’.]

All NPT interaction segments were identified in the recordings between 1;9 and 3;9. They were transcribed into orthographic Dutch, including the immediately preceding present tense utterances. Each segment was coded for source (file, child, age) and the length of recording (in seconds) was noted. The general setting was noted for later analysis and comments were made on non-verbal behavior. Four categories of NPT were defined: 1. ‘discussing past events’, 2. ‘discussing future events’, 3. ‘fantasy talk’ and 4. ‘NPT other’ (De Blauw & Baker, 2009).

From 1;9 to 3;9 about 20% of all recorded parent-child interaction was found to be NPT. This average percentage is quite high in comparison to the literature (c.f. Uccelli et al. 2005). This higher percentage is probably due to a difference in definition. NPT ‘discussing future events’ and NPT ‘other’ were included in the present study, whereas only two categories - ‘discussing past events’ and ‘fantasy talk’- were used by Uccelli et al. (2005).

Before setting out the results, some general remarks can be made about the development of NPT in these early years. Based on Uccelli et al. (2005) it was expected that NPT would increase between 1;9 and 3;9, but the three children in this study did not show such a clear development. All three showed a relative peak of NPT at 2;9. This appears to be due to the high amount of fantasy talk at that point.

Parental-child interaction in early NPT
Splitting up the data shows that the three children are involved in NPT ranging from about 4 times to 15 times per hour, with an exception of 24 times per hour for Stijn at 2;9 (see Figure 1).
Over the two year period, NPT-Past is a larger category than the categories NPT-Future and NPT-Fantasy. From age 1;9 the time reference gradually moved further away from the here-and-now (see Figure 2). At age 1;9 most past events that were discussed were restricted to the recent past (see Excerpt 3). At 2;9 most discussions of the past were related to what has happened on the preceding days of the week. At 3;9 events that happened more than 6 months ago were included for the first time, as demonstrated in Excerpt 4.

Excerpt 3: An example of NPT-Past recent.
Situation: Floor (1;9) was in the paddling pool 10 minutes earlier

Mother: *het was lekker in het water heh*  
‘the water was good, wasn’t it’

Floor: [points]

Excerpt 4: An example of NPT-Past more than 6 months ago.
Situation: Hazel and Floor (3;9) are looking at pictures of the childcare in their former home town. They have moved 18 months earlier.

Hazel: *Floor ging de fiets overeind zetten, want ze was van de fiets gevallen*  
‘Floor was standing up the bike, because she had fallen off the bike’

Floor: *nee, nee, niet daar. Thuis.*  
‘No, no, not there. At home’
Although discussing future events occurs less frequently in comparison to discussing past events, the same developmental trend can be observed. Up to 2;9 all sequences referred to the immediate future, close to the here-and-now. Talking about future events increased from age 2;9 on, discussing events in the future weeks and even months ahead.

Of all analyzed NPT segments between 1;9 and 3;9 (a total number of 123 NPT segments in the Hazel-Floor family and a total number of 143 NPT segments in the Stijn family), most NPT, almost a third of all cases, occurred while sitting together in order to eat or drink, including regular mealtimes as well as sitting down for coffee in the morning, tea time in the afternoon or during ‘snack time’ (see Table 2). This result supports Dickinson and Tabor’s (2001) finding that discussing the not-here-and-now takes place most frequently in intensive parent-child interaction. In this study the setting ‘parent-child routines’ was also a frequent context for NPT, although more often in the Stijn family than in the family of the girls. Parent-child routines are cooperative situations where both partners are actively involved, such as household work, preparing drinks and snacks together, discussing books, or a video, and singing songs, playing games and role play. NPT during toy play involves the child on his or her own engaged in play, with an adult around who is not actively engaged but who is communicating from time to time. The two families scored similarly for most settings, but the Stijn family had more NPT during parent-child routines while Hazel and Floor were more often engaged in toy play. This suggests that the settings in which NPT is taking place may vary between families, reflecting family preferences. It is not clear what effect these differences may have.

Table 2: Distribution of NPT segments across the setting types in the period 1;9 - 3;9 for both families

<table>
<thead>
<tr>
<th>Setting Type</th>
<th>Hazel/Floor</th>
<th>Stijn</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAT &amp; DRINK</td>
<td>29%</td>
<td>28%</td>
</tr>
<tr>
<td>CARE</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>TOY PLAY</td>
<td>29%</td>
<td>21%</td>
</tr>
<tr>
<td>PARENT-CHILD ROUTINE</td>
<td>17%</td>
<td>33%</td>
</tr>
<tr>
<td>OTHER</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

As discussed earlier, a relationship between the amount of engagement in NPT at early ages and later narrative ability could be predicted on the basis of previous research (Reese, 1995; Uccelli et al., 2005). Figure 1 showed that at most data points Stijn is most frequently engaged in NPT, followed by Hazel, and then Floor. Stijn also scored highest on narrative productivity at age seven. This suggests a possible connection between early engagement in NPT and narrative ability at age seven but only for one component of narrative ability, i.e. narrative productivity. In this study it was not, however, the case that this led to the highest scores in narrative story structure, or
narrative complex language. The relation seems to be restricted to narrative productivity.

Initiation of interactions in NPT by the children

Figure 3 sets out the proportion of NPT initiatives taken by the children in early interaction in relation to the total number of initiatives taken by parents and children. Up until 2;6 the parents take more initiatives in NPT, but after 2;6 the children start to initiate more frequently than the parents. Hazel takes far more initiating moves than her sister does at the three age points analyzed here (Figure 3), and also more than Stijn.

![Figure 3: Percentage of NPT initiated by children, at 2;6, 2;9 and 3;9](image)

It is interesting to note that the settings of child initiating behavior may vary between families. It appeared that Hazel and Floor take initiative mostly in discussions on past events and on knowledge. Stijn initiates more in fantasy talk and in retelling stories.

Child’s initiating behavior in parent-child social interaction, starting in the first year of life, is considered to be a sign of advanced language acquisition (Ninio & Snow, 1996). In the current study the child (Hazel) who scored highest in the amount of initiating behavior of NPT between 1;9 - 3;9 excelled at age seven on narrative complex language. The relation between NPT and narrative story structure is less visible. Floor scored highest on narrative story structure but did not excel in any of the studied aspects of NPT nor on frequency of NPT nor on NPT initiating behavior. In the present study again child initiations are related to one component of narrative ability narrative complex language (Table 3). Stijn is more frequently engaged in NPT, and Hazel demonstrates most initiating behavior in NPT. These features of early interaction appear to be related to two different components of narrative ability at age seven: narrative frequency and narrative complex language.

<table>
<thead>
<tr>
<th>Table 3: Ranking the children on NPT 1;9 - 3;9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazel</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Frequency NPT</td>
</tr>
<tr>
<td>Initiating NPT</td>
</tr>
</tbody>
</table>
4. Discussion

This research was undertaken to address the relation between early parent-child interaction within nonpresent talk and later narrative ability. In order to investigate this relationship in detail, early nonpresent talk interactions were analyzed with respect to the amount of nonpresent talk a child was engaged in, and the amount of initiative behavior that a child displayed to interact within the setting of the not-here-and-now. These two variables were investigated in relation to three components of narrative ability, measured around three years later.

The findings presented above point to two potential precursors of later narrative ability: the amount of engagement in NPT, and the child’s ability to initiate NPT. Both variables seem to be related to different components of narrative ability at age seven. With regard to the parental factor the present study found the following: the child who was most engaged in nonpresent talk showed the best score on narrative productivity. Until age 2;6 most NPT interactions are initiated by the parents. After 2;6 the children increasingly start these conversations themselves. With regard to the child-related factor this study found the child who initiated most NPT interactions showing the highest score on later narrative complexity.

Previous research (Uccelli et al., 2005; Reese, 1995; Reese & Newcombe, 2007) claimed that the more parents engage in nonpresent talk with their young children, the more opportunities children have to learn to represent past events, to report intentions, feelings and reactions, and to tie experience in one context to experience in another. All these skills are posited as critical for later autonomous narrative production. This means that the more NPT parents offer, the more narratives the children produce and on the whole the longer the narrative. The result obtained here confirms such previous findings on the general role of input for children’s later narrative production, but our study suggests that this is specifically related to the component narrative productivity. It does not appear to influence the other two narrative components so clearly. This indicates that in order to get a comprehensive overview of children’s narrative skills, narrative ability has to be considered as a multilevel concept. The three components, as distinguished in the current study, delivered complementary information on factors involved in narrative skills of young children.

Only a few researchers (Farrant & Reese, 2000; Reese, 1995) have suggested that child characteristics may play a role in narrative development. In that research children’s increasing amount of participation in conversations is seen to be related to their story production at later age. The current study underlines these findings and extends them, in the sense that specifically narrative complex language seems associated with child initiation of NPT. It is plausible that a child who has well developed complex language skills feels more confident in instigating NPT, but personality differences may also be important.

The two families involved in this study were comparable on variables such as cultural background, monolingualism, SES and in their beliefs on parenting and the upbringing of children in Dutch society. It is the question whether these results can be
generalized to other groups of children. This study needs to be repeated on a far larger scale, first of all to test the suggested relationships between early linguistic behavior and later narrative skills, and secondly to investigate whether the results can be generalized to children from other backgrounds than the three children who participated in our study. If the results are confirmed, then parents, and in general adults working with young children, should be encouraged to use NPT and to elicit child initiatives. Most research to date has focused on parental factors influencing narrative skills. However this study draws attention to child factors relating to later narrative ability.

References

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