



## Oral language and narrative skills in children with specific language impairment with and without literacy delay: A three-year longitudinal study

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### ABSTRACT

This longitudinal study compared the development of oral language and more specifically narrative skills (storytelling and story retelling) in children with specific language impairment (SLI) with and without literacy delay. Therefore, 18 children with SLI and 18 matched controls with normal literacy were followed from the last year of kindergarten (mean age = 5 years 5 months) until the beginning of grade 3 (mean age = 8 years 1 month). Oral language tests measuring vocabulary, morphology, sentence and text comprehension and narrative skills were administered yearly. Based on first and third grade reading and spelling achievement, both groups were divided into a group with and a group without literacy problems. Results showed that the children with SLI and literacy delay had persistent oral language problems across all assessed language domains. The children with SLI and normal literacy skills scored also persistently low on vocabulary, morphology and story retelling skills. Only on listening comprehension and storytelling, they evolved towards the level of the control group. In conclusion, oral language skills in children with SLI and normal literacy skills remained in general poor, despite their intact literacy development during the first years of literacy instruction. Only for listening comprehension and storytelling, they improved, probably as a result of more print exposure.

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## 1. Introduction

While it is well established that there is a considerable comorbidity between specific language impairment (SLI) and dyslexia (e.g., Catts, Adlof, Hogan, & Weismer, 2005; McArthur, Hogben, Edwards, Heath, & Mengler, 2000; Snowling, Bishop, & Stothard, 2000), the underlying causes for this comorbidity remain unclear. Phonological impairments are widely studied as a potential cause for dyslexia and its comorbidity with SLI. In contrast, other language skills such as vocabulary, morphology, syntax and narrative skills, and their role in the overlap between SLI and dyslexia have been studied less frequently.

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### 1.1. Narrative skills

Telling a story involves a number of higher-level language and cognitive skills. All language components come together to form a cohesive, well-formulated, meaningful story (Seiger-Gardner, 2009). The analysis of narratives provides information about grammatical skills and the ability of children to formulate sentences, to use cohesive devices relating meanings across sentences, and to organize the story content in a meaningful way.

It has been observed that typically developing children are generally able to comprehend and retell stories by the age of six years (Merritt & Liles, 1987). By the age of seven, stories with multiple episodes begin to emerge, and by age nine or ten children use considerable detail and complete their episodes (for an overview, see Crais & Lorch, 1994). As children mature, the number of complete episodes consisting of initiating events, attempts and consequences increases with age (Muñoz, Gillam, Peña, & Gulley-Faehnle, 2003).

There are different elicitation methods to evaluate narrative skills (for a review, see Liles, 1993). Two frequently used methods are story generation tasks (e.g., Frog, where are you? Mayer, 1969), in which children are instructed to compose stories from sequencing cards or wordless books, and story retelling tasks (e.g., the Bus Story Test; Renfrew, 1997), in which children listen to stories narrated by the experimenter and are asked to retell the stories back to the experimenter (Seiger-Gardner, 2009). Story retelling tasks result in longer stories with more story grammar components and complete episode structures than story generation tasks (Merritt & Liles, 1989; Westerveld & Gillon, 2010). Story retelling is more clinically useful with older children (9–11 years old) for the assessment of the global organization of content than story generation. In contrast, a story generation task allows the speaker to access a larger range of structural variation and content. It is also more exigent than retelling and generally offers a better indication of vocabulary ability or potential word-finding difficulties. Additionally, it is more representative of spontaneous communication, reflects more accurately the pragmatic characteristics of the narrative and the subject is less influenced by the context because no story was told in advance to the child (Liles, 1993). However, Merritt and Liles (1989) concluded that story retelling and story generation are both effective measures of narrative ability that both activate a cognitive organization consistent with story schema. McCabe, Bliss, Barra, and Bennett (2008) compared a fictional story generation task based on pictures (Frog, where are you?) with personal narratives without pictures in 7 years to 9 years 9 months old children with language impairment. They observed a significant longer story in the fictional generation task than in the personal narrative. However, more personal narratives met minimal narrative criteria. In the fictional generation task, the children often treated the pictures in isolation from each other rather than a series of events. Hence, the use of pictures might have a negative influence on narrative criteria.

Assessment of narrative skills offers a rich source of information about the higher-level language abilities of young children (Paul & Smith, 1993). Liles, Duffy, Merritt, and Purcell (1995) demonstrated that a large range of narrative production variables could be reliably represented by two dominant factors: a factor measuring global organization of content (i.e., episode structure), currently assigned as *macrostructure*, and a factor measuring within- and across-sentence structure (i.e., grammatical sentence structure, within subordinate clause productivity, and textual cohesion), also called *microstructure*. In contrast, a study of Westerveld and Gillon (2010) demonstrated that microstructure measures of oral narrative performance did not represent a single construct. Mean length of utterance in morphemes and grammatical accuracy loaded on different factors. Therefore, it is important to analyze oral narratives on a range of measures.

### 1.2. Oral language and narrative skills in children with SLI

It is well known that children with SLI show oral language problems across many different language domains (lexical and semantic, morphological, syntactic, phonological, and pragmatic deficits) that can be measured through standardized oral language tests (Schwartz, 2009). As a result, children with SLI may have difficulties with the linguistic abilities necessary to narrate stories.

A number of *cross-sectional studies* demonstrated a poorer *macrostructure* in the stories of children with (a history of) SLI compared to typically developing children. For instance, they obtain a lower information score (4 years) (Paul & Smith, 1993), fewer complete story episodes and more incomplete episodes (9 years–11 years 4 months) (Merritt & Liles, 1987), a lower narrative stage (6–7 years) (Paul, Hernandez, Taylor, & Johnson, 1996) and a lower macrostructure composite score (8–9 years) (Manhardt & Rescorla, 2002). Soodla and Kikas (2010) observed that SLI and control children between 6 and 8 years were equally capable to produce structurally complete stories (no group difference for the presence of the story grammar components such as setting, initiating events, internal response), but the SLI group scored significantly lower for the quantity of story information units (i.e., the amount of relevant information included in the story) in comparison to typically developing children. Also the *microstructure* of stories is poorer in children with SLI in comparison with typically developing children, as evidenced by fewer sentences (7 years 6 months–10 years 6 months) (Liles, 1985), fewer main and subordinate clauses (9 years–11 years 4 months) (Merritt & Liles, 1987), fewer complete cohesive ties (4 years, 6 years and 7 years 6 months–10 years 6 months) (Liles, 1985; Paul et al., 1996; Paul & Smith, 1993), fewer complex sentences and more tense errors (6–10 years) (Norbury & Bishop, 2003), a lower mean length of utterances (4–12 years) (Kit-Sum To, Stokes, Cheung, & T'sou, 2010; Paul & Smith, 1993), a lower syntax composite score (8 and 9 years) (Manhardt & Rescorla, 2002), referential problems and the use of less sophisticated vocabulary (4 years 10 months–12 years 1 month) (Kit-Sum To et al., 2010), and a smaller number of different word roots (4–6 years) (Paul et al., 1996; Paul & Smith, 1993).

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