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Opportunities to Talk Matter in Shared Reading: The Mediating Roles of Children's Engagement and Verbal Participation in Narrative Listening Comprehension

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ABSTRACT

Research Findings: The present study examined children's listening comprehension during a two-semester-long dialogic reading. We explored the extent to which the development of children's listening comprehension was accounted for by initial listening comprehension and whether children's engagement and the amount and level of their verbal participation in shared reading contributed to their later listening comprehension. The opportunities provided by teachers, such as closed and open-ended questions were also examined. A total of 60 five-year-old children participated in 15 story groups. Children's listening comprehension was evaluated twice. Teachers rated the children's behavioral and cognitive engagement. Children's verbal participation and the teachers' questions were observed directly. A theoretical model involving direct and indirect pathways in the development of listening comprehension was analyzed. Path modeling showed that the children's cognitive engagement and the amount of verbal participation mediated the development of individual differences in listening comprehension. Additionally, teachers' open-ended questions contributed indirectly to listening comprehension via children's verbal participation. *Practice or Policy:* The findings highlight the benefits of children's active participation in discussions and talk-intensive reading aloud for their story comprehension.

Introduction

The dialogical approach to shared book reading has been deemed important in supporting children's language and interest in literature for a long time (Hadley et al., 2020; Lenhart et al., 2020). According to Whitehurst et al. (1994, p. 687), "The principles underlying dialogic reading suggest that children benefit from active responding to picture books in a setting in which an adult gently pushes the child, through questions, expansions, and sensitivity to the child's interests and abilities." These principles are in line with Vygotsky's (1978) theory of the development of higher mental functions through social mediation, that is, supporting children's learning through a dialogue with more knowledgeable companions. These views overlap with optimal scaffolding (Kajamies, 2017; Kajamies et al., 2019), referring to the transfer of responsibility, sensitivity, and flexibility on the part of the adult and active participation on the part of the children, both of which are necessary, propelling children to grasp the meanings of a story. However, the unique role of children's active engagement in terms of narrative listening comprehension is less studied. Also the role of teachers' behavior in providing children with more opportunities to talk and

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reason is an important feature in the context of supporting children's story comprehension. Thus, we follow the notions of the Transactional Model of Development (Sameroff, 2009) and theorize that the interplay of child- and story group-related factors may underpin the development of preschoolers' listening comprehension.

According to the multicomponent model of text comprehension (Kendeou et al., 2009; Kim, 2016; Kim & Phillips, 2014), a number of language skills and (meta)cognitive resources are required for successful narrative listening comprehension. At the word and sentence levels, children need vocabulary, grammatical knowledge, and verbal working memory to derive the meanings of words and combinations of words to understand sentences (Florit et al., 2009; Kim, 2016). At the text level, higher-order cognitive skills, such as inference-making, comprehension monitoring, theory of mind, and understanding the narrative text structure, are needed to understand explicit and implicit information (Florit et al., 2011; Kim & Phillips, 2014; Oakhill et al., 2015). Text-level skills allow the child to identify characters' motives, feelings, and actions, infer causal and referential relations among the story events, and understand the plot and the situation of the story by integrating the meanings of the story events with their background knowledge (Tompkins et al., 2013; Van den Broek et al., 2005).

Apart from foundational language and text-level skills, individual differences in sustained attention and related motivational dispositions are found to have at least a facilitative role in narrative listening (Kim, 2016) and picture book comprehension (Strasser & Del Rio, 2013). In fact, studies have shown that preschoolers' narrative comprehension skills do not develop at the same rate (Florit et al., 2014), and children's engagement in teacher-guided interaction is important (Lepola et al., 2020). For instance, the development of children's story comprehension is found to be predicted not only by (meta)cognitive and language skills but also by motivational factors, such as the child's on-task behavior (Lepola et al., 2016, 2020; Strasser & Del Rio, 2013). Thus, children's engagement and verbal participation in shared reading may contribute to variability in subsequent narrative listening comprehension even in addition to an autoregressor, that is the direct impact of previous listening comprehension.

The results of recent experimental studies on shared reading have shed light on the effects of interactivity on children's engagement and learning. For instance, an intervention study by Vaahtoranta et al. (2019) showed how the development of children's engagement was related to different shared-reading methods (e.g., interactive elaborative storytelling, elaborative storytelling, and reading aloud). Moreover, an experimental study by Lenhart et al. (2020) showed that different story-delivery methods, carried out by the experimenter, were related to children's engagement and story comprehension. Namely, children's attentiveness was positively and significantly associated with story comprehension in live read-aloud and oral storytelling conditions. Suggate et al. (2021) pointed out that children participated more actively in interactive elaborative storytelling conditions than in repeated story reading sessions administered by experimenters. Therefore, it is important to examine possible variability in the opportunities provided by teachers and its relationship with children's verbal participation at story group and individual level. What is more, few studies have evaluated how children's story comprehension is related to their engagement in listening and verbal participation during shared reading (Lepola et al., 2022) and the mediating role of these factors in the development of narrative listening comprehension (Xu et al., 2022). There is also gap in our knowledge about the interplay of these child- and story-group factors among experienced early education teachers showing differences in dialogic reading practices in the context of professional development.

The purpose of the study was to examine the extent to which children's behavioral engagement, cognitive engagement, and the amount and the level of verbal participation in conversation work as mediators for the development of narrative listening comprehension in addition to the direct pathway from fall to spring narrative listening comprehension. What is more, we were interested in story group-level dynamics between teachers' questioning and the amount and level of children's verbal participation, and the role of story group factors in subsequent narrative listening comprehension (hereafter referred to as listening comprehension).

Engagement and Listening Comprehension in Dialogic Reading

This study draws on the multidimensional construct of engagement, which consists of behavioral, emotional, and cognitive components (Fredricks et al., 2004; Guthrie & Klauda, 2014). In shared reading, behavioral engagement refers to children's sustained attention, characterized by active listening and focusing on the learning materials in view. Emotional engagement refers to enthusiasm and positive attitude and feelings toward reading aloud and reading tasks, whereas cognitive engagement refers to children's thinking and reflections about the content of the story and active participation in the discussion of the story's meanings (Xu et al., 2022).

Research among older students has shown that these three components of school engagement are important predictors of students' academic achievement (Fredricks et al., 2004). Similar to their motivation (Salonen et al., 1998), engagement among young children tends to vary from lesson to lesson (subject to subject) rather than remain a stable disposition (Vasalampi et al., 2021). Intervention and longitudinal studies have revealed how reading engagement (Wigfield et al., 2008) and behavioral engagement (Guo et al., 2011) mediate the effects of not only the quality of instruction but also students' previous reading skills on the later comprehension outcomes. In addition, Lepola et al. (2016) found that age 6 task orientation was not only predicted by age 4 task orientation but also by age 4 story comprehension, thus delineating how behavioral engagement, such as task orientation, mediates the effects of prior language comprehension skills on later comprehension outcomes. To achieve a more detailed understanding of the predictive roles of children's behavior and talk in shared book reading, we examined the developmental associations between listening comprehension, teachers' perceptions of children's cognitive and behavioral engagement, and the amount and the level of children's verbal participation.

Dialogic Practices and Children's Verbal Participation (Opportunities and Consequences)

Successful dialogic practices are found to facilitate children's learning by supporting the amount and level of conversations. The study by van der Veen et al. (2021) on the implementation of dialogic talk practices in day care showed that both children's participation (proportional to the child and teacher turns) and the mean length of their turns increased significantly during the four-month-long intervention. In addition to the changes in classroom discourse, children's communicative skills increased. Moreover, a coaching study by Lepola et al. (2022) on increasing teacher – child interactivity showed a statistically significant increase in the amount of five-year-old children's verbal participation from fall to spring. The results also suggested that the child's ability to contribute to the conversation was related to both the child's story comprehension and the teacher's questioning. However, whether children's participation and teachers' questions contributed to children's later story comprehension beyond their initial story comprehension was not examined.

The content of children's talk (Mascareño, 2014), that is, for instance, their literal (e.g., describing perceptually available information) and inferential (e.g., reasoning/inferring about perception) responses in shared reading is found to facilitate listening comprehension. With respect to meaning-related responses, Silva and Cain (2015) showed among 5–6-year-olds how literal and inferential comprehension of a story mediated the effect of prior vocabulary to later reading comprehension. In addition, inference skills have been found to facilitate the development of children's memory for the narrative text (Lepola et al., 2012). Also, studies both among older and younger students, have shown that the amount and level of children's verbal participation affects their literacy skills. For instance, Sedova et al. (2019) showed that the ninth graders who talked more (measured in seconds) in the classroom or displayed more reasoning utterances at language and arts lessons scored higher on reading comprehension. Hindman et al. (2019) analyzed the role of child talk (i.e., correct and incorrect answers relative to extratextual talk) among three- and four-year-old Head Start children. Although their findings pointed to rare opportunities for extended conversation due to a limited number of open-ended prompts, a higher proportion of child talk was linked to better vocabulary

learning. Furthermore, studies related to children with impaired language and joint attention (i.e., developmental language and/or autism spectrum disorders) have noted that children's focused attention, engagement, and verbal participation are related to gains in their reading precursors and story comprehension (Bean et al., 2020; Kim et al., 2018).

Cognitively challenging discussions, characterized by a flexible use of closed- and open-ended questions before, during, and after reading aloud, are essential because they give all children opportunities to participate in conversations and practice reasoning (Collins, 2016; McGinty et al., 2012; van der Veen et al., 2021). Research has shown that teachers' use of open-ended questions is linked to a more sustained dialogue and better story comprehension (Mascareño, 2014; Massey et al., 2008). Open-ended questions have less constrained answering possibilities and support the child's multiword and inferential responses (de Rivera et al., 2005; Zucker et al., 2010). However, this positive link between open questions and the child's level of responses is not supported by other studies. For instance, Hindman et al. (2019) showed that teacher's open- and closed-questions did not contribute to children' vocabulary learning. Hadley and Dickinson (2019) found that open-ended questions were negatively related to children's vocabulary growth, possibly because they were conceptually too challenging and beyond children's proximal zone of meaning-making.

This review suggests that dialogic reading and talk practices are related to increases in children's engagement and participation in learning (van der Veen et al., 2021). In addition, studies show that dialogic practices can vary substantially (Lepola et al., 2022), and an increase in children's off-task behavior has been observed in some studies (e.g., Vaahtoranta et al., 2019). Thus, it is important to provide children with more opportunities to talk, but this alone is not sufficient. Children's previous comprehension resources and engagement in shared reading may contribute to the amount and level of verbal participation in conversations, which in turn may facilitate their ability to understand narratives later on.

Present Study

This study utilized data from two consecutive cohorts of five-year-old children, participating during the second and third years of a three-year professional development experience for early education teachers. Both cohorts participated in enhanced story reading based on the model of 7-Minutes-to-Stories, which included 29 stories read aloud by teachers. The 7-Minutes-to-Stories model was developed iteratively and collaboratively with the participating teachers across three years to increase teacher – child conversation and to support children's story comprehension. Based on the literature above, we constructed a conceptual model (Figure 1) with a direct link between children's fall and spring listening comprehension and an indirect pathway via children's engagement and the amount/level of verbal participation to their later listening comprehension. We used path modeling to test these direct and indirect pathways.

Apart from children's progress in listening comprehension and variability among the story groups, we also hypothesized substantial stability in individual differences during the preschool year (Florit et al., 2014). We assumed that listening comprehension at time 1 contributes to the differences in the teachers' perceptions of children's engagement in shared reading at time 2 (Lepola et al., 2016). Furthermore, we assumed that engagement at time 2, and in particular cognitive engagement as a proxy for joint attention (i.e., attention shared by the child, teacher, and narrative), contributes to children's verbal participation at time 3. We also hypothesized that not only listening comprehension at time 1 but also the amount of children's verbal participation and the level of their responses in shared reading contribute to listening comprehension at time 4 (Hindman et al., 2019; Xu et al., 2022).

Regarding the indirect pathway (Figure 1), we hypothesized that children's engagement at time 2 and verbal participation at time 3 would mediate the contribution of listening comprehension at time 1 to listening comprehension at time 4. Finally, we assumed that the variability in the length of conversations (extratextual talk) and the frequency of teacher's open- and closed-questions support

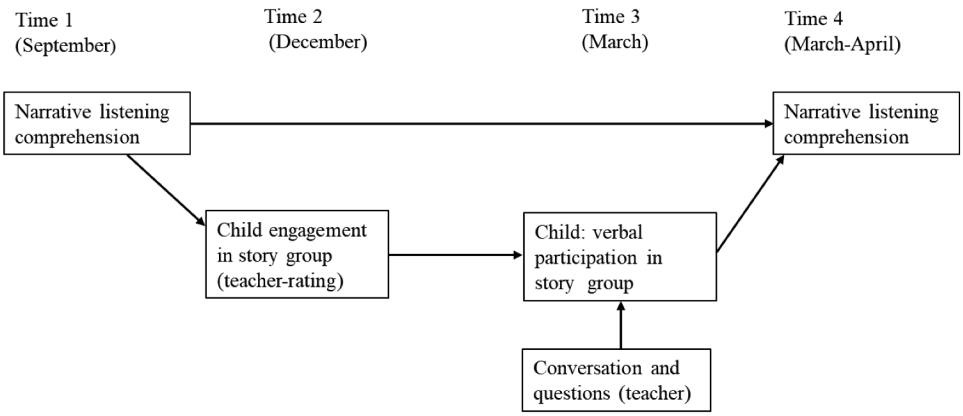

Figure 1. Conceptual model: The direct and indirect pathways in the development of individual differences in narrative listening comprehension among preschoolers.

children's later listening comprehension via the amount of verbal participation and the level of responses (Van der Wilt et al., 2022).

Method

Children and Teachers

Initially a total of 84 children took part in 7-Minutes-to-Story groups. Their listening comprehension skills were evaluated in September 2015 and 2016 and March – April 2016 and 2017. Also teachers rated these children's engagement in December 2015 and 2016. Data were missing for four story groups (24 children), whose teachers did not give permission to be video-recorded. Thus, the final study sample consisted of 60 Finnish-speaking children (28 girls, 32 boys). The children's listening comprehension was assessed only during the second and third years of professional development, so the first year story groups were not included. Of the two consecutive cohorts, 30 children were assessed in year 2, and 30 children were assessed in year 3. At the beginning of study, the mean age of the children was 63.5 months (ranging between 57 and 69 months). Each shared reading group consisted of three to six children. Language of instruction was Finnish and teachers guided the story groups during the second and third years in a three-year-long professional development project.

Altogether, 15 story groups were included in the study. The second year story groups were led by eight teachers and the third year by seven teachers. The teachers had worked in day care from four to 38 years. In addition to the diverse experience and educational background, teachers' status and working positions also slightly differed. Two story groups were led by an assistant teacher with vocational qualification; eight story groups were guided by five teachers with bachelor's degrees in early education; and five story groups were led by three special teachers with bachelor's or master's degrees in early education. The teachers were from six daycare centers located in a small town in south-western Finland. Written consent was obtained from the head of the city's early education administration to implement the 7-Minutes-to-Story model in those centers. All participating teachers gave permission to video-record their story group. Additionally, a written consent was granted by the parents of all participating children.

Design of the Study

Our design in terms of children's listening comprehension followed pretest-postest. Our primary interest was to promote teacher-child conversation in these 15 story groups through scripted stories

and teacher coaching. An important, practical reason not to include control or business-as-usual story groups was that the first author of this study was invited by one special teacher to develop with early education professionals the model of 7-Minutes-to-Stories among five-year-old children for all classrooms. However, the three-year-long professional development and analysis of the behaviors of the two cohorts of children enabled us to observe variability in teachers' approaches to dialogic reading and link it to children's verbal participation, which in turn was assumed to play a role in children's listening comprehension. Although we were interested in teacher variability and examined links to children's verbal participation and made assumptions about the talk in relation to listening comprehension, no causal assertions can be drawn about the impact of the 7-Minutes-to-Stories on children's story comprehension.

Pedagogical Context (7-Minutes-to-Stories)

The present study was conducted in the context of 7-Minutes-to-Stories (Orvasto & Levola, 2010), a pedagogical model used to increase the time to reading and discussing stories with children. The model was originally developed to supplement the limited materials available for early educators and parents to collaborate and support children's active listening and narrative comprehension. The 7-Minutes-to-Stories features 29 stories read and discussed once a week (see Lepola et al., 2022).

The teachers were instructed to read aloud each story once. The stories depict the three main characters (Pyry, Pouta, and Marionette) and their life from autumn to spring. The present analysis of the children's and teachers' behavior is based on three phases implemented sequentially in each reading session. First, based on scripted examples (see Appendix; Lepola et al., 2022), the teachers were instructed to discuss the previous story with the children to help them recall the events of the story they had read and to help them transition to a new one. Second, the teachers were asked to read a new story to the children and scaffold the children's story comprehension using embedded questions. Third, after reading the story aloud, the teachers were asked to discuss the story events with the children.

Professional Development (Teacher Coaching)

The first author worked as a coach and met with teachers four times each year: in October, January, February, and April. The coaching was based on a reciprocal cooperation between the researcher and teachers, which means that the coach acted as a "critical friend" to support the teachers' reflection and develop their approaches to supporting children's story comprehension (Fenstermacher & Richardson, 1993). The first author had prior experience in studying the implementation of 7-Minutes-to-Stories among kindergartners and had been working with early education professionals for 15 years.

The main goal of the coaching was to support all children's active participation by providing them with opportunities to talk before, during, and after reading aloud. Talking before reading was important to practice recalling what had happened to the characters in previous narratives and predict what may happen next (e.g., Please, discuss the events of the previous story and how the story ended: Mario Netti didn't get any sleep in the city, but *Pyry* came up with . . . What did Pyry come up with? Yes, the idea that they should make a ski trip to the isle). These discussions stressed the role of children's prior experiences as the key to their participation and involved linking picture to the story content. Even if the children's responses did not seem to make sense or relate to the story, the teachers were instructed to view children's talk as an opportunity to engage in communication. The teachers were also asked to read the stories expressively to facilitate children's interest in the characters' position. The scripted examples aimed to promote the teachers' use of open-ended questions and elicit more child talk (e.g., STOP reading here to give the children time, as you ask, "So as you look at the picture, what is not true?"). The teachers' videos were used as examples of how to encourage and elaborate upon the children's answers. The coaching focused on the importance of talking with the children about the sequence of the story events as well as the relationship between the characters' thoughts, feelings and actions (e.g., Scripted example: "Someone has skied here, Pyry thought." Please ask children how Pyry inferred this?). Scripted

examples also helped the teachers to discuss the meaning of one or two words in each story (e.g., Grandpa had tied the string of the sled on his waist. Please ask children, "What does "on his waist"" mean?" Show the children what on his waist means).

Coaching visits included various themes on the roles of children's output, vocabulary, and inference-making in their story comprehension. The first author fostered teachers' awareness of the story structure (the beginning, middle and end, as well as the causal and temporal sequences of the story events), pedagogical structure (how the teacher can link the story's events by using dialogic reading), and what the child is able to remember through listening and participation (mental representation). The concept of two landscapes of a story (Feldman et al., 1990) was introduced to the teachers during the spring term to help children to grasp the link between the story events and characters' thoughts and feelings.

Procedure for Data Collection

Data were collected directly (video) and indirectly (teachers' ratings) from the story groups as well as from the children's narrative listening comprehension assessments (Table 1). The teachers video-recorded their story groups in March, i.e., reading the 24th story about a ski trip to an isle (Appendix; Lepola et al., 2022). Videos captured children's and teachers' behaviors.

Narrative Listening Comprehension. Children's narrative listening comprehension skills were assessed in the fall (September) and spring (April) by a listening comprehension test (Vauras et al., 1995) (for more detail, see Lepola et al., 2016). Two trained student teachers and the first author evaluated the participating children in a one-to-one setting in the child's day care. We used a 91 word-long narrative "Misi Cat Goes Hunting" (Vauras & Friedrich, 1994) in the fall and spring assessments. The narrative consisted of the following events: character introduction, setting, initiating event, reaction, attempt 1, problem, attempt 2, solution, and outcome reaction. In the testing, each experimenter introduced the narrative by saying, "I will read you a story about a cat called Misi. The story tells about a time when Misi was hunting." Then, the child was instructed to listen carefully to be able to talk about the story afterward. The experimenter read the text aloud twice without stressing any elements in the story.

Narrative listening comprehension was evaluated by a recalling task and six prompt questions. In the recalling task, the child was asked to tell as much of the story as possible. If the child did not recall anything, the experimenter encouraged them with a prompt: "Can you tell us a little about the things that happened in the story?" Every child was also asked, "Does anything else come to your mind?" The phrases in the recalling task were categorized according to the story grammar framework (Mandler & Johnson, 1977). The recall scores ranged from 0 to 9. The inter-rater reliability was assessed by the percentage agreement and Kappa coefficient. The mean agreement of two independent raters was 92% ($\kappa = .83$). The answers to the six prompt questions (e.g., "Why did the cat jump?," "How did the story end?") were scored on a scale of 0–2, yielding the maximum score of 12. The mean agreement of two independent raters across the prompt questions was 91% ($\kappa = .85$). The recalling and prompt questions scores were summed to get a narrative listening comprehension composite.

Table 1. Time points and measures used in data collection for year 2 and year 3 cohorts.

	Fall		Spring	
	Time 1 September	Time 2 December	Time 3 March	Time 4 April
Child	LC	*Teacher ratings* of child engagement	*Video coding*: –verbal participation –literal and inferential responses	LC
Teacher/Story group			–open and closed questions –conversation	

LC = narrative listening comprehension.

Teacher Ratings of Child Engagement. The teachers who took care of the story groups were asked to rate each child's behavior in the story group using a 7-point Likert-type scale, which ranged from "the behavior does not occur at all" to "the behavior occurs most of the time or always." The evaluation was done in December for both cohorts. The teachers were asked to reflect on the story sessions as a whole and then rate children's behaviors in a 12-item questionnaire. Some of the items were derived from the Child Behavior and Motivation questionnaire (Lepola et al., 2013, 2016), such as "ponders on different alternatives during the conversation or in coloring a picture." New items, such as tapping cognitive engagement (e.g., attempts to participate in the story-related discussion) and emotional or behavioral engagement (e.g., "is absorbed by the story"), were also added. The exploratory factor analysis was computed for the 12 items to analyze the structural validity of the questionnaire. Based on a sample of 84 children, the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy was 0.89. Based on the maximum likelihood, two factors were found with eigenvalues above 1. The total variance explained by the two-factor solution was 74%. Furthermore, a non-orthogonal Oblimin rotation was used since the factors based on the children's on-task behaviors were expected to correlate. We removed two items which loaded>0.30 onto both factors and one item with low loading (.46) in neither of the factors. The two remaining factors were labeled as cognitive engagement and behavioral engagement. Five items addressed cognitive engagement (Cronbach's $\alpha = .93$), such as the child's initiation, participation in conversation, and reflection (e.g., "shows initiative during the story session," "ponders the story events"). Four items measured behavioral engagement ($\alpha = .91$), such as the child's on-task motivation and positive emotion (e.g., "enjoys listening," "is motivated in the tasks during the story session"). Summed mean scores of the items for cognitive and behavioral engagement were then used in the path analysis.

Video Coding. The first author used the ELAN-annotation program (ELAN, v. 5.9, 2020) to code the following variables related to the story group and the teachers' and children's behavior:

Conversation. Conversation in the story group was the proportion of time the teachers spend on questioning and conversing about the story. Conversation episodes began when the teacher started the session and asked what had happened in the previous story or when the teacher paused their reading aloud and made a question and ended when the teacher returned to reading the narrative or dealt with management issues (e.g., directing children's attention to listening). This variable included both the teachers' utterances and the children's verbal contributions.

Open and Closed Questions. The frequency and type of questions the teachers made were coded using closed and open categories (Collins, 2016; Hindman et al., 2019). Open questions were the questions for which the answer was not constrained by the teacher, required multiple-word responses, or permitted more than one correct answer (e.g., "What happened in the last story?"). All questions about the meaning of words and why-questions asking about reasoning or causal connections were coded as open. Additionally, questions requiring inference of a character's feelings (e.g., "How did he [the uncle] feel now?") were also coded as open. *Closed questions* were the questions for which answers were predetermined by the teacher, such as in relation to the story content or a picture in view, requesting to name an object or label a character or place (e.g., "Which character said, 'Please come in'?," "Where did they get the treasure map?," "Who else is there besides Marionette?"). Closed questions also included questions which required one or a few words in response (e.g., yes/no). Emotion-focused questions, for which the answers were constrained by the teacher, were also coded as closed (e.g., "Was Marionette happy or sad?"). From all questions, 268 teachers' questions (32%) during eight story sessions were double-coded. The reliability was coded directly to ELAN transcriptions, with agreement of 90.3% ($\kappa = 81$).

Children's Verbal Participation. ELAN software was used to code the frequency and total durations (i.e., seconds) of each child's verbal participation during shared reading. Every utterance the child

made in response to a teacher's question about the story as well as the child's spontaneous initiatives or comments related to the narrative were counted as verbal participation and started a new verbal participation turn. Four child-level variables were used in the analysis: frequency, total duration, the proportion of the child's verbal participation, and the mean length of the child's verbal participation turns.

The Level of Children's Verbal Responses. We analyzed also the level of each child's verbal responses to teacher's questions and in participating conversation. For this purpose, we first transcribed each child's and teacher's verbal utterances (i.e. turns). The first author and one research assistant segmented the talk/verbal interaction into utterances. Second, utterances were coded by using the literal-inferential categories (see Appendix). Two additional categories were also used to code child's responses: talk irrelevant to the story and incorrect or unclear responses. The child's utterance was coded literal when it referred to story character, the event in story, naming of perceptually available information in picture or text, recalling some aspect of the information of the previous story but not referring to connections among the story events or reason why something happened. The child's inferential response (turn) referred to the reflection of a story event, linking information in the picture and text or using their own perspective about the story or picture and linking their own experience to the story. Predictions or explanations about why something happened were scored as inferential. Defining word meanings nonverbally (e.g., pointing to the shape of a snow bank [kinos] was also scored as inferential. Child's responses that correctly implied characters' thinking or feelings were scored as inferential.

To evaluate inter-rater agreement the first and the second author coded 22% of all children's scored turns ($f = 880$). The Cohen's Kappa coefficient for the four meaning-focused categories (literal, inferential, irrelevant and incorrect) was .76. Two rounds of coding followed by an analysis of the disagreement and potential change of coding criteria were run to achieve this level of agreement. Children's irrelevant and incorrect responses were not used in further analysis because of low mean frequencies, 1.15 and 0.88, respectively. These responses were also weakly related to children's fall or spring listening comprehension ($r < .19$). The frequencies of children's literal and inferential responses were used in the analyses.

Data Analysis Plan

First, we provided descriptive statistics both for the individual and story group level variables and employed a paired *t*-test to evaluate the children's progress in listening comprehension from time 1 to time 4. The intraclass correlations (ICCs) were given to estimate the story group level variance in listening comprehension, engagement, verbal participation, and the level of response variables. To descriptively illustrate story group-level dynamics across 15 story groups of different sizes, rank order correlations were computed for the conversation, teachers' questions, and children's verbal participation variables.

To test the conceptual model, we first computed correlations among the child-level variables, and then computed longitudinal path analyses (Mplus 8.4, Muthen & Muthen, 1998–2019). Thus, we examined the extent to which later listening comprehension is predicted by previous listening comprehension and whether data support the indirect pathway from listening comprehension through engagement and verbal participation to later listening comprehension. The indirect pathway from teachers' behaviors via children's verbal participation was also modeled. Two path models were constructed to examine the mediating role of the amount (frequency and total time) and the level (literal and inferential) of children's responses. The parameters of the model were estimated using the full information maximum likelihood robustness. We used the TYPE = COMPLEX option in Mplus to correct standard errors for clustering because the participating children were nested within story groups. Two-tailed testing along with 95% bootstrap confidence intervals were used to evaluate the significance of the direct and indirect paths. If zero did not appear within the lower and upper 2.5% limits of the confidence interval, there was 95% likelihood that the estimate fell within the confidence

interval and the path was statistically significant. The fit of the estimated models was evaluated by four indicators: the chi-square test, the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). According to Hu and Bentler (1999) and Little (2013), the CFI should be above 0.95, whereas the RMSEA and the SRMR should be less than 0.05 to indicate a good model fit.

Results

Descriptive statistics for the child (engagement, listening comprehension, verbal participation and the level of verbal responses) and story group level (conversation and teachers' questions) variables are shown in Table 2. The Kolmogorov – Smirnov test showed that the scores for listening comprehension, cognitive engagement, the frequency and proportion of verbal participation as well as literal responses were normally distributed. As Table 2 shows the distribution of other verbal participation variables did not substantially differ from normality (skewness below 2, kurtosis below 5).

To examine the children's gains in listening comprehension from fall to spring, we computed a paired samples *t*-test. The test revealed a statistically significant change in the children's scores: $t(59) = 4.87$, $p < .001$, and Cohen's $d = .63$, representing a medium effect size. A clear progression was observed in the children's listening comprehension scores, and on average, the children talked 57 sec in their story groups at Time 3. However, substantial individual differences were also observed. For instance, the children in the lowest quartile of verbal participation contributed verbally less than seven times and the average duration of their verbal participation was 15 sec. The verbal participation frequency of the children in the highest quartile was above 21, and their mean duration exceeded 78 sec. The analysis for the level of children's verbal responses showed that children expressed more literal than inferential utterances, $t(59) = 6.22$, $p < .001$. Clear individual differences were observed in both types of utterances.

Analyzing the story group level variables, Table 2 shows that, on average, more than two-thirds of the session time was used in conversation with the children and the means for the number of closed and open questions were above 15. The variability among the story groups was substantial not only in terms of the length of shared reading, ranging from 6 min 38 sec to 20 min 20 sec, but also in terms of the time the teachers and children spent talking and the number

Table 2. Descriptive statistics for child-, story group and teacher-related variables.

Child variables ($N = 60$)	M	SD	Range	Skewness	ICC[3]
Age (months)	63.53	3.01	57–69	−.23	
Time 1, (Fall, September)					
Listening comprehension (21)[1]	7.37	3.7	0–15	−.11	13%
Time 2, fall, December					
Cognitive engagement (7)[1]	4.75	1.35	1.6–7.0	−.23	32%
Behavioral engagement (7)	5.58	1.03	3.50–7.0	−.37	26%
Time 3 (Spring, March-April)					
Verbal participation[2] (frequency)	16.57	10.86	1–49	.53	12%
Verbal participation[2] (tot. duration, sec)	56.93	47.58	1.90–188.24	1.18	13%
Verbal participation[2] (MLT, sec)	3.27	1.30	1.58–8.56	1.65	26%
Verbal participation[2] (%)	6.23	4.60	0.13–17.91	−.67	11%
Literal responses (*f*)	9.03	5.97	1–26	.64	17%
Inferential responses (*f*)	5.63	4.72	0–19	.82	21%
Time 4, (Spring, April)					
Listening comprehension (21)	9.38	4.11	0–16	−.40	16%
Story group ($N = 15$) and teacher variables[2]					
Shared reading time (min) (Spring)	14.36	4.06	6.63–20.33	−.21	
Conversation in group (%), (Spring)	61.56	13.17	27.63–76.33	−1.39	
Closed questions (*f*), (Spring)	17.33	8.44	9–42	1.93	
Open questions (*f*), (Spring)	15.91	7.01	3–26	−.12	

[1]The maximum score for the test. [2] Spring, time 2: March; MLT = mean length of turns (=total duration/frequency). [3] Between-story group intraclass correlation coefficient.

of questions the teachers asked. For instance, the number of open questions ranged from 3 to 26 (Table 2). The estimates of the between-story group variance (the ICCs) were substantial in the teachers' ratings of the children's engagement and the mean length of their participation turns. Moreover, variability in listening comprehension was found among 15 story groups, although it was less extensive.

Teachers' Questions and Children's Verbal Participation (Story Group Level)

To examine the relationship between provided opportunities and the mean levels of verbal participation in story group, correlations among the group-level variables are displayed in Table 3. Strong links were found between shared reading time, teacher's questions, the total durations of the children's verbal participation, and literal responses. Unsurprisingly, these links show that the opportunities to talk were limited during shorter sessions, whereas more conversation and teacher's questions were associated with longer shared reading. Teacher's closed and open-ended questions were positively related to the amount of children's verbal participation and literal as well as inferential responses. Thus, these correlations suggest that the higher the number of closed and open-ended questions, the more conversation, the longer the shared reading, and the higher level of the children's verbal participation as characterized by literal and inferential responses.

Table 3 shows that the higher number of questions, especially the open ones, was associated with more conversations. The frequency of teachers' open questions was closely related to the total durations of the children's verbal participation ($r_s = .54$, $p = .036$). However, this association was qualified by the shared reading time ($r_{ab.c} = .25$, ns). Teachers' open questions were significantly associated with the children's literal responses, and were marginally significantly associated with inferential responses ($p = .08$). The more the closed questions teachers asked the more literal responses were observed at the story group level ($r_s = .54$).

Because the number of the children varied from three to six, it is tempting to think that the group size would be related to these question-participation patterns. In three story groups with four children, a pattern of frequent open questions and high verbal participation was observed, whereas in two story groups with four and three children few open questions and low verbal participation was observed. The mean level of the children's verbal participation durations was lower in one story group with six children despite the total of 26 open-ended questions. Other than that, the number of the children did not differentiate these question-participation patterns.

Children's Engagement, Verbal Participation and Listening Comprehension (Path Modeling)

Table 4 shows correlations between listening comprehension, cognitive and behavioral engagement, the amount and level of verbal participation, and the scores for the story group variables assigned to each participating child. As Table 4 shows, the children's ages did not correlate

Table 3. Between-story group correlations[1] among conversation, teacher questions and the amount as well as the level of children's verbal participation ($N = 15$).

Variable	1	2	3	4	5	6	7	8	9
1. Shared reading time (min)	—								
2. Conversations in group (%)	.65**	—							
3. T – Closed questions, (*f*)	.79**	.57*	—						
4. T – Open questions, (*f*)	.94**	.76**	.78**	—					
5. C – Verbal participation (*f*)	.45	.51*	.33	.49	—				
6. C – Verbal particip. (dur, sec)	.55**	.57*	24	.54*	.79**	—			
7. C – Verbal particip. (MLT)	.21	.21	−28	.15	.48	.64**	—		
8. C – Verbal participation (%)	.10	.35	−.10	.11	68**	.86**	.62**	—	
9. C – Literal responses (*f*)	.63*	.48	.54*	.62*	.89**	.68**	.11	.45	—
10. C – Inferential responses (*f*)	.38	.48	.24	.46	.87**	.84**	.34	.74**	.73**

T = Teacher; C = Children; [1]Spearman's rho, ($N = 15$ story groups). * $p < .05$, ** $p < .01$.

Table 4. Correlations among children's listening comprehension, the amount and the quality of verbal participation, conversation in story group and teacher questions variables (N = 60).

Child and story group variables[a]	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	—												
2. Cognitive engagement, Fall	.12	—											
3. Behavioral engagement, Fall	.08	.60***	—										
4. LC, Fall	.10	.51***	.19	—									
5. LC, Spring	.21	.46***	.30*	.67***	—								
6. Verbal participation (*f*)	.05	.51***	.31*	.33**	.41**	—							
7. V. participation (tot. duration)	.18	.41**	.28*	.36**	.47***	.86***	—						
8. V. participation (av. contribution)	.19	.12	.23	.20	.33*	.24	.64***	—					
9. V. participation %	.19	.45***	.27*	.39**	.45***	.83***	.92***	.58***	—				
10. Literal responses (*f*)	.07	.43***	.26*	.31*	.37**	.87***	.73***	.21	.66***	—			
11. Inferential responses (*f*)	.10	.49***	.28*	.29*	.37**	.81***	.76***	.35**	.77***	.71***	—		
12. Conversations in story group	.02	-.08	.09	-.06	.09	.33*	.36**	.21	.20	.38**	.34**	—	
13. Closed questions, *f* [b]	-.21	-.15	-.10	-.17	-.13	.06	.01	-.18	-20	.15	.02	.56***	—
14. Open questions, *f* [b]	-.03	-.06	.11	-.03	.07	.25	.34**	.23	.12	.34**	.29	.89***	.67**

LC = listening comprehension; V. participation = verbal participation; *p <.05, p<.01, p < .001. [a]Correlation coefficients are computed from story group values assigned to each participating child. [b]Frequency of teacher's closed/open-ended questions

significantly with any of the other variables and were therefore not included in further analysis. The shared reading times were not related to the children's listening comprehension at time 1 ($r = -.02$) or at time 4 ($r = .07$). However, as Table 3 showed shared reading times were significantly associated with teachers' questions, children's verbal participation and literal responses. Therefore, shared reading times were included in the path model. The stability of individual differences in listening comprehension scores was substantial ($r = .67$). Cognitive engagement was strongly associated with both fall and spring listening comprehension measures and was also related significantly and positively to the amount of verbal participation and to literal and inferential responses. The role of behavioral engagement was not modeled because it was only moderately related to later listening comprehension, and was weakly, albeit significantly, related to the amount of verbal participation and to the level of responses.

Of the four verbal participation variables, all except the mean length of contribution, correlated significantly with previous and later listening comprehension. Children's literal and inferential responses were strongly related to each other and those were also significantly associated with previous and later listening comprehension. The frequencies of open-ended questions were significantly associated with the amount of verbal participation (frequencies $r = .25$, total durations, $r = .34$) and with the level of responses (literal, $r = .34$, inferential, $r = .29$). This suggests that more children's literal and inferential responses were observed in those story groups with higher numbers of teacher open-ended questions.

The longitudinal path models were constructed to evaluate the extent to which the development of the children's listening comprehension can be predicted directly from their previous listening comprehension and whether the children's behaviors and observed amount and level of verbal participation, and the teachers' questions in story group played a role in later listening comprehension.

Two separate path models were estimated to test the unique roles of the amount of children's verbal participation and the summed literal and inferential responses in later listening comprehension. This somewhat ad hoc decision to use the summed score for the level of responses was based on their strong correlation with each other (.71) and equal strength of association to later listening comprehension. The amount of participation was the mean of the standardized scores for the verbal participation frequency and total time.

Both models included an autoregressive path of listening comprehension. We regressed time 4 listening comprehension on time 3 verbal participation or level of responses. Verbal participation or level of responses were predicted by the cognitive engagement at time 2, which was predicted by the listening comprehension at time 1. Regarding the role of story group factors, verbal participation or level of responses were regressed on the shared reading times, which was predicted by open-ended questions at time 3.

The fit of model 1 with verbal participation amount to the data was good: $\chi 2(df = 8, N = 60) = 4.34$, $p = .83$, CFI = 1.00, RMSEA, 90% CI = [0.0, 0.091], and SRMR = 0.034. Based on 95% bootstrap confidence intervals, all estimated direct paths were statistically significant (for the standardized path coefficients and squared multiple correlations, see Figure 2). Model 1 showed that in addition to the direct contribution of time 1 listening comprehension, the amount of children's verbal participation also contributed uniquely to time 4 listening comprehension. The children's cognitive engagement at time 2 and the shared reading time at time 3 were significant predictors of children's amount of verbal participation at time 3. Of note is the pathway from teachers' open-ended questions through shared reading times to verbal participation. These predictors accounted for 34% of the variance in the children's verbal participation. Model 1 accounted for 49% of the total variance in listening comprehension at time 4.

Analyzing the mediated effects of time 2 cognitive engagement and time 3 verbal participation on time 4 listening comprehension, we conducted bootstrapped tests based on 5,000 bootstrap samples. A standardized point estimate for the indirect path was 0.065, with 95% bias-corrected CI [0.004, 0.151]. Thus, the findings of Model 1 showed that time 2 cognitive engagement and time 3 amount of verbal participation were significant mediators of the relationship between listening comprehension at

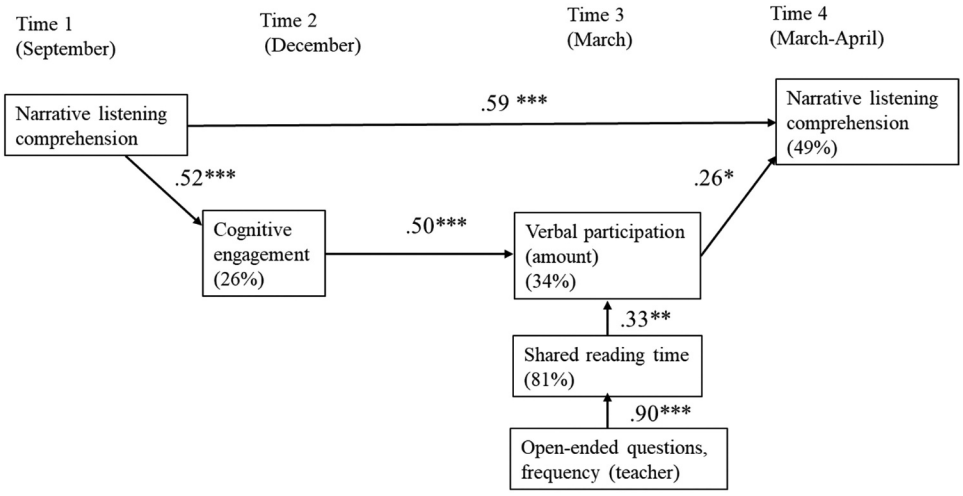

Figure 2. Model 1: cognitive engagement and the amount of verbal participation (frequencies and durations) as mediators for the development of children's narrative listening comprehension (*$p < .05$. ** $p < .01$, *** $p < .001$, two-tailed; the amount of variance explained in parenthesis).

time 1 and at time 4. We also examined whether the children's amount of verbal participation and shared reading times mediate the contribution of teachers' open questions at time 3 to children's listening comprehension at time 4. A standardized point estimate for the indirect path was 0.077, with 95% bias-corrected CI [0.002, 0.156], which suggests that the children's verbal participation enabled by shared reading time and the number of open-ended questions in story group were significantly associated with later listening comprehension.

The fit of the model 2, with individual differences in the level of children's literal and inferential responses, to the data was good: $\chi 2(df = 8, N = 60) = 3.870$, $p = .86$, CFI = 1.00, RMSEA, 90% CI = [0.00–0.078], and SRMR = 0.026. Model 2 with the standardized path coefficients and squared multiple correlations is shown in Figure 3. Of the estimated five predictive paths, the literal and inferential

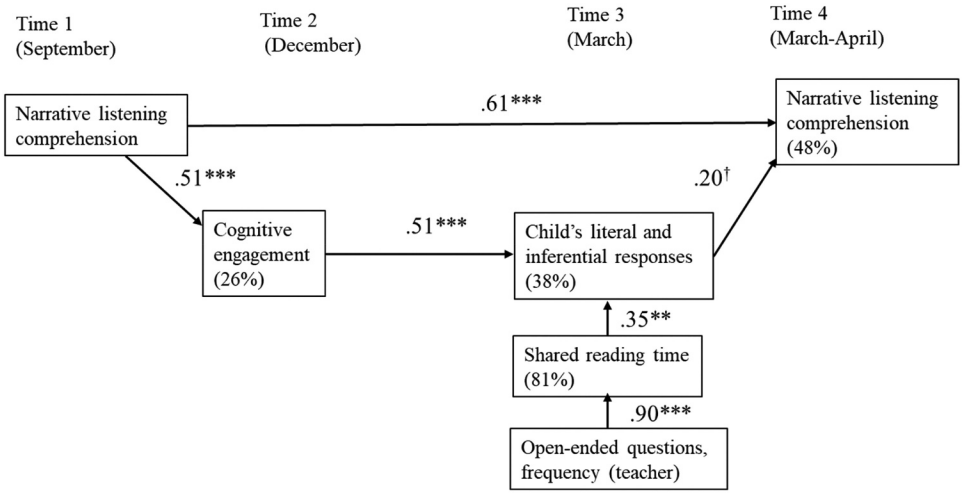

Figure 3. Model 2: cognitive engagement and the level of a child's responses (literal and inferential) as mediators for the development of children's narrative listening comprehension (†$p < .10$, ** $p < .01$, *** $p < .001$, two-tailed; the amount of variance explained in parenthesis).

responses did not contribute significantly ($t = 1.80$, $p = .071$) to later listening comprehension, (95% CI [−0.029, 0.428]). Time 2 cognitive engagement and the shared reading time at time 3 yielded a significant effect on the level of children's responses at time 3 accounting for 40% of the variance. Teachers' open-ended questions were indirectly associated with children's literal and inferential responses via shared reading times (95% CI [0.052, 0.531]). Individual differences in the children's literal and inferential responses did not mediate the effects of prior listening comprehension or teacher open-ended questions to later listening comprehension.

Discussion

The study explored the development of five-year-old children's narrative listening comprehension in the context of coaching early education teachers to employ dialogic reading in story groups. The goal was to examine children's responsiveness, that is, whether the development of individual differences in listening comprehension was predicted by children's initial levels of listening comprehension and whether children's behavioral and cognitive engagement and verbal participation in shared reading mediated the contribution of the fall listening comprehension to the spring listening comprehension. It was also sought to understand the extent to which story-group- and teacher-related factors supported children's conversation and listening comprehension. Thus, story group level analyses were carried out to describe the variability in the provided opportunities and children's participation. Path analyses were used to evaluate the hypothesized direct and indirect pathways in the development of listening comprehension at an individual level.

The first path modeling with the amount of children's verbal participation, that is, total durations and frequencies, in combination with the frequency of teachers' open-ended questions supported the hypothesis of partial mediation. Despite a substantial stability of listening comprehension between fall and spring, the results showed that the children's cognitive engagement and the amount of verbal participation were significant mediators for the development of their listening comprehension. The second path modeling included the level of children's responses and showed that the summed literal and inferential responses fell short of statistical significance as a unique predictor of later listening comprehension. This does not mean that the level of responses is not involved in later listening comprehension. Rather, the positive and statistically significant correlations of literal and inferential responses with later listening comprehension (Table 3) suggest that the association is just not strong enough to have predictive significance when prior listening comprehension is taken into account.

Our finding regarding the role of children's cognitive engagement with later verbal participation accords with the previous studies, showing how child talk and narrative-related vocalization contributes to children's vocabulary learning (Hindman et al., 2019) and story comprehension (Xu et al., 2022). The indirect pathway through the amount of verbal participation was also in line with the studies, showing a concurrent and longitudinal relationship between on-task behaviors and oral language comprehension (Kim, 2016; Lepola et al., 2016) and a positive role of children's attentiveness in story comprehension (Lenhart et al., 2020).

In line with the prediction, the path modeling suggests that later listening comprehension is associated with both the time children talk during shared reading and the scope of the opportunities and the amount of time the teacher manages to give children, allowing them to participate in shared reading. In fact, the frequency of the teachers' open-ended questions was significantly related to the shared reading times and indirectly to the length and the level of children's verbal participation. In addition, the teachers' open-ended questions contributed indirectly to the children's listening comprehension via the amount of children's verbal participation. The latter finding is important and contributes to research, showing the beneficial role of talk-intensive pedagogy (van der Veen et al., 2021) on children's story comprehension. This finding corroborates the results suggested by Xu et al. (2022) on how dialogical reading practices are linked to better story comprehension through

children's verbal participation and supports the role of child-mediated factors, which were not observed, for instance, by Paris and Paris (2007, p. 29).

Although only descriptively, the story group level analysis showed that the more the teachers' made open-ended questions, the more the children contributed to the discussion. Teachers' closed and open-ended question correlated significantly with the number of children's literal responses. This finding adds to the research by Lepola et al. (2022), showing how both closed and open questions from the teachers can trigger children's ability to participate in question-answer interactions despite differences in their listening comprehension.

The patterns of associations among the teachers' closed and open questions and the children's literal and inferential responses suggest that the more teachers made open-ended questions the more talkative children were and the more inferential responses they tended to display. Importantly, our results were not based on sequential analysis of question-answering interaction. But it is conceivable that teacher's open-ended, and cognitively demanding questions (e.g., Why/How) trigger multi-turn dialogue, and thus more space for children's literal and inferential contributions (Deshmukh et al., 2019). It has also shown that the teacher's question per se without contingent scaffolding, such as focusing on eliciting and extending a topic, is not enough to promote children's language skills (Cabell et al., 2015; Zucker et al., 2020). However, our story group level correlations align with Mascareño et al. (2017), showing that teacher inferential initiations tend to be followed by child inferential responses. It is also possible that some other thought-provoking features, such as the teacher's motivation, inspired the children in story group to grasp literal and inferential information of the story. Overall, the present study adds to the previous research by showing that the higher the children's initial listening comprehension, the more the children were perceived by the teachers to show initiative and attempts to ponder the story ideas at time 2 and the more the children verbally participated in conversation at time 3, which in turn contributed to a better narrative listening comprehension at time 4, even though time 1 narrative listening comprehension was controlled for. Model 1, which included the amount of the children's participation and the frequency of the teachers' open-ended questions accounted for 49% of the variance in the children's listening comprehension, whereas Model 2, which included children's literal and inferential responses explained 48% of the variance in children's listening comprehension.

Children's Listening Comprehension, Engagement, and Verbal Participation

A significant increase with a medium effect size was found in the children's listening comprehension scores from September to March. van der Veen et al. (2021) analyzed children's responsiveness to dialogic classroom talk using a similar one-group pretest-posttest design and showed not only a large effect on children's oral communication skills during 4.5 months but also an increase of children's verbal participation, a finding that is analogous to the results of this study. However, a direct comparison of the children's gains against the gains observed in other story comprehension interventions, such as by DeBruin-Parecki and Pribesh (2015), with a small to medium effect, Paris and Paris (2007), with a medium to large effect, and Collins (2016), with a large effect, is not warranted because we did not include a control group. Our results, based on a somewhat distal narrative listening comprehension measure with a recall task and prompted questions, suggest that the two semesters of shared reading with a low amount of teachers' coaching supported children's verbal participation and their ability to construct a meaning-based representation of a narrative. Consequently, this relatively small-scale and easy-to-implement shared reading intervention has potential to scale up to support both teachers' and children's dialogical orientation in early education and school as well. Further research with an active control group, including an analysis of how the amount and the quality of talk relates to the development of their inferential comprehension, is needed.

Although the teachers' perceptions of the children's behaviors, such as focusing on the task and positive emotions toward listening, were significantly related to the children's verbal participation and listening comprehension, cognitive engagement was a more potent predictor of the amount and

abstractness of their participation and listening comprehension. This finding is conceivable because inferential talk, such as the contribution to conversation about the story ideas and characters' thoughts and feelings, requires attention to reading aloud (peripheral participation; Lave & Wenger, 1991) and, more importantly, active reflection (central participation; Sedova et al., 2019). These socio-cognitive aspects of narrative comprehension were stressed during the teacher coaching and in the scripted stories during the second semester. Our findings resemble those of Xu et al. (2022), showing that the overall engagement, tapping the children's attention and verbal and nonverbal comments, were significantly related to the story-related vocalization. However, somewhat in contrast to Xu et al. (2022) cognitive engagement was significantly related to later story comprehension in this study. Because this study involved dialogic reading in day care group readings, caution should be exercised when comparing the findings of this study to the innovative study by Xu et al. (2022) which examined the benefits of dialogic reading with either a conversational agent or a human partner. The mediating role of children's cognitive engagement in terms of their later verbal participation points to the predictive validity of teachers' perceptions. Moreover, a substantial story group variability was found in the teachers' perceptions of the children's cognitive and behavioral engagement. This may reflect that some early education teachers faced more challenges than others in scaffolding children's engagement in small, but yet heterogeneous story groups. The implication is that in addition to the diagnostic assessment of children's strengths, teachers' sensitivity, flexibility and other scaffolding strategies (e.g., Deshmukh et al., 2022) are important to support less and more involved children's participation in shared reading. A systematic training of dialogic reading principles in inclusive settings can benefit student teachers and experienced teachers as well.

The unique role of the amount of children's verbal participation in their later listening comprehension is practically and theoretically important. In practice, children's talk in shared reading affects their foundational language skills (Hindman et al., 2019) and can contribute to their early listening comprehension, which is a central precursor of their later reading comprehension in school. In this study, the children's amount and level of verbal participation were linked to their prior listening comprehension and the teachers' open-ended questions. Theoretically, neither the type or complexity of the teachers' prompts nor the prerequisites of the children's comprehension alone can determine the children's region of sensitivity for participation; however, the shared amount of time spent on the interaction between the teacher, narrative, and all the children in the story group is significant for the deliberate practice of meaning making. This fits well with the triadic model of shared reading, in which oral language learning is supported by the long-term interplay between the adult, child, and book (Grolig, 2020).

Variability in Teachers' Questions

Substantial variability was observed in both the conversations with the children and the teachers' closed and open-questions. The variability in the fidelity ratings for book reading and teacher change have also been observed in the interventions where children's language development was supported by teachers (Dickinson et al., 2011; Zevenbergen & Whitehurst, 2003). Cluster-randomized interventions administered by researchers (Grolig et al., 2020) and teachers who received more intensive one-to-one coaching (Wasik & Hindman, 2020) are found to be implemented with high fidelity. In the present study, relatively light group-based coaching and scripted nature of the reading alouds were used across the two cohorts of preschoolers to elicit more conversation from children.

The variability in teachers and children's behaviors cannot be explained by different materials because the same 29 scripted stories were read aloud in story groups. The story we analyzed included eight hints, starting from a general prompt (e.g., "Please discuss the events of the previous story") and moving to the reasons for a character's action (e.g., "Why did Pyry have to ski carefully?"). Video coaching for teachers was minimal during each year (only four sessions). It is important to note that six out of nine teachers implemented the 7-Minutes-to-Stories model and received coaching across three consecutive years. However, the present data showed that the average to high number of questions was observed in four

story groups, in which the teacher had one to two years of coaching. It can be speculated that the increase in dialogical practices is driven not only by the scripted stories and teacher coaching but also by the success the teachers experience in scaffolding children's participation. Further research may uncover the role of teacher-related factors, such as the teacher's efficacy (e.g., Muhonen et al., 2021) and responsive strategies (e.g., Cabell et al., 2015), aimed to support all children's participation.

Limitations

The first limitation of the study relates to the sample size used to examine the development of individual differences in listening comprehension. A larger sample of children, teachers, and story groups would allow us to understand variation both at the individual and story-group level and the impact they have on children's participation and listening comprehension. Due to the small number of story groups, the variability in shared reading time and the children in each group, the associations found among the story-group level variables such as verbal participation should be interpreted with caution. The second limitation is that we measured the children's narrative comprehension through a recall task and main-idea questions. Thus, the listening comprehension test did not include inference-making and other important text-level skills, such as the theory of mind or comprehension monitoring that can be enhanced through storybook reading among prereaders (Aram et al., 2013; Kim & Phillips, 2016; Tompkins, 2015). Third, we analyzed only one shared reading for each story group. Although this allowed us to model how the variability in the teachers' questions related to the children's verbal participation when reading an informational narrative, the changes in dialogic practices or differences in the quantity and quality of talk due to the genre or the topic of the book was not examined (see, e.g., Price et al., 2012). Finally, our direct observation did not capture children's attentive listening or peripheral participation, that is, for instance, when they were listening to the teacher or to peer's talk.

Conclusions

The results of the present study suggest that both child- and teacher-related factors are involved in the development of preschoolers' listening comprehension. Thus, it is important to acknowledge the role of child-mediated factors to support early listening comprehension in day care. In particular, individual differences in preschoolers' responsiveness to two semesters of dialogic reading were related not only to their story comprehension resources but also to their engagement and verbal participation. Importantly, the amount of verbal participation was propelled by teachers' open-ended questions and played a unique role in children's later narrative listening comprehension. Admittedly, story comprehension is more than length of talking. Although children's literal and inferential talk were not unique predictors of listening comprehension, teacher's success in support of children's verbal participation improves the milieu of children to think about literal and inferential topics, both of which are important for narrative listening comprehension. Our findings on the variability in conversation and open-questions in the story groups shed light on the success teachers had in providing the children with opportunities to engage in conversation and the challenges some teachers faced striving to retain the children's verbal participation in their story group. Children's verbal participation in shared reading is important for the development of their narrative comprehension skills and the teacher's open-ended prompts support children's participation. These findings highlight the multiple interactive factors that underpin the development of narrative comprehension.

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Appendix

Coding instructions and examples of the level of children's responses

Unclear, incorrect or 'I don't know' responses

Coding instructions: Coded here if the child's response contradicts the content of a story, or doesn't match the story picture. Child's utterance is coded literal if the child's response could be possible in relation to the story/stories even if the picture and text don't match the child's interpretation ("skating" instead of skiing). Code for this category if the child defines a word but the meaning is clearly incorrect: *I wonder what Mom meant by Indian summer? That Indians come there?* What does it mean when someone's jaw drops? *That it cries.*

Examples: *"I don't know, I don't remember" response. What did they come up with? Then they came up with. (shakes head) uhh no ('I don't know' responses).*

Irrelevant to the story

Coding instructions: The child's response is irrelevant to the story/narrative/picture.

Examples: *Very cute puppy (irrelevant to the story). There's a nice face there/that has a nice face! (irrelevant to the situation in the story). Then it takes at least two thousand years.* So do you find the picture? *(one child babbles once upon once upon . . . , I find it) take a look at it.*

How will they get to the island? When you look at the picture what did it look like? *Nothing*

Literal response level

Coding instructions: Child response refers to a character or an event in the story, naming something in the text/picture (pointing at the picture), repeating a word or a short sentence/phrase.

The response refers to events in the story (what happened?), the child describes an event, or recalls what they've already heard in the story but more concisely – doesn't elaborate, doesn't connect the events temporally or causally.

Examples: What do we know about that Pyry, Pouta and? *They put them into the wardrobe*. When did they stuff the marionette into a plastic bag? *In the summer or sometime 20 years. Well they took it to school*. What did they go to search?/What had the marionette said, what was supposed to be in the field? A treasure/A treasure – a bull. What could Child2 be? (teacher notices) *They're in a forest*. So what's not true according to the picture? *There are ice cubes there (describes the picture)*. When did they stuff the marionette into a plastic bag? *When they went to meet it in the marionette*

Inferential response level

Coding instructions: Interpreting an event or the child's own point of view of an event in the story, connecting things, telling the story in their own words, recognizing main information, adding their own experiences relevant to the story, noticing differences or similarities (comparison), empathizing with the situation by telling what could happen or justifying right/wrong.

Reasoning about the events of the story, such as predicting (what could happen). Trying to understand why something happened (recognizing, explaining, evaluating causal connections), defining the meaning of a word, describing the meaning of a word with gestures, talking about the moral of the story. Responses include references to the characters' thinking, feelings or behavior.

Examples: Well, why did they put it in the plastic bag? *They, it wanted [to take] it to the city. Then this didn't know that and then it had riled the classmates up*. Why could you think that someone else had been skiing on the ice too? . pause – what might have there *been in the snow*?

Probably tracks/Pouta didn't sit in that sled (evaluating the content of a picture and text).

When Pyry said that someone had already gone there, how did he come to that conclusion? *There was already– (shows skiing motions with their arms)*.

Why would Pyry come to that conclusion (that someone had already gone .. repeats question)? *Because the ice has cracked (the story didn't explicitly say this, but based on the picture this interpretation is plausible)*. What was their thought behind going on a ski trip? *They will take the marionette to the cabin*. What do we know about that Pyry, Pouta and? *They put it to sleep there and they had forgotten it there and when they came to check on it, it was all like the the [there]*.

Why didn't they take it back to preschool or school? *Because it would run away again or rile the classmates up*. Then they had kind of forgotten about the marionette but then how did the marionette? *It was feeling blue/- It was kind of like a grinch*

What does it mean if someone looks grumpy? (Child 1) *looks at the picture, stands up and points at the picture saying ANGRY! – snappy*. Why had Grampa visited the island a day earlier? *Because the ice was uhh that the ice would be thick if they wanted to go there*