Research Article

Teachers' Use of Scaffolds Within Conversations During Shared Book Reading

Richa S. Deshmukh,[a] iD **Jill M. Pentimonti,**[b] **Tricia A. Zucker,**[c] **and Bridget Curry**[b]

[a] Katy Speech and Language Inc., Fulshear, TX [b] University of Notre Dame, IN [c] Children's Learning Institute, Department of Pediatrics, The University of Texas Health Science Center at Houston

ARTICLE INFO

ABSTRACT

Purpose: We studied conversations initiated through teacher questions during shared book reading in prekindergarten and kindergarten classrooms as these conversations provide opportunities for the teacher to scaffold emerging language skills. This study provides detailed analysis of scaffolding strategies used by teachers after children answered teachers' questions.
Method: Participants included 93 prekindergarten and kindergarten teachers who read aloud a standard narrative text to their class of students. All the sessions were video-recorded, transcribed, and then coded for conversational turns and teacher scaffolding strategies.
Results: Descriptive findings showed great variability in the length of conversations and the extent to which teachers used scaffolding strategies. Most teacher scaffolds matched children's accuracy of response such that they provided support after incorrect responses and provided additional challenge after correct responses. Significant sequential associations were observed between the level of children's response and multiple types of scaffolds (e.g., corrective feedback scaffold after incorrect response; discussing factual questions after a correct response).
Conclusions: Findings indicate that during shared reading, teachers are responsive to children's answers and are able to provide challenge or support as needed. However, teachers infrequently used scaffolding strategies like *causal effects, predictions,* and *recasts.* Given evidence that strategies such as recasts support early language skills, professional development experiences could encourage early childhood teachers to incorporate this and other key scaffolding strategies.

In order to support early language development, a linguistically rich environment where teachers engage children in frequent and meaningful conversations plays an important role (National association for the Education of Young Children, 2009). A *conversation* can be defined as a back-and-forth exchange on a particular topic between the teacher and the children, with a minimum of two turns, with a turn defined as a change in the speaker (Cabell et al. 2015). This back-and-forth verbal exchange between an adult and children has been shown to be critical in children's language development (e.g., Zimmerman et al., 2009). There are multiple opportunities in early childhood classrooms, for example, shared book reading, snack time, free playtime, stations time, and reading time, where teachers can engage children in verbal exchanges and provide the necessary language supports for them to be successful at these conversations. Within the U.S. cultural context, the verbal support or scaffolds provided by the adult partners is an important part of these conversations. *Scaffolding* refers to an instructional strategy that systematically builds on children's current level of understanding to provide support or challenge; supportive scaffolds are designed to provide temporary support that is gradually withdrawn as students demonstrate higher levels of understanding (Pentimonti & Justice, 2010; Wood et al., 1976).

Correspondence to Richa S. Deshmukh: richdeshpande@gmail.com.
Disclosure: *The authors have declared that no competing financial or nonfinancial interests existed at the time of publication.*

This study aimed to examine the scaffolding strategies that early childhood teachers used immediately following a child's response to a teacher question during shared book reading. In particular, we examined the number of conversational turns that followed accurate and inaccurate responses to teacher questions. We also examined whether the teachers' follow-ups to children's responses matched the children's level of response. Then, we described the types of teacher scaffolding strategies used when children responded inaccurately versus when students responded accurately.

Importance of Conversations

The extent to which a child is expected to participate in a conversation with an adult is directed by their culture (Hoff, 2006). Different cultures have varying expectations regarding the nature of interactions between the adult and the child during shared book reading (e.g., Bus, 2001; Rogoff, 2003). Studies have shown that some cultures, like the Latino community, mold the shared-book-reading experience based on the rich oral traditions, characteristic to the culture (Caspe, 2009; Melzi, 2000; Rogoff, 2003). Similarly, literature suggests that many African American families use oral language and rich story-telling instead of structured shared-book-reading practices (Craig & Washington, 2006). These cultural variations, integral to the shared-book-reading experiences, have been shown to contribute to children's oral language development (Caspe, 2009; Fivush et al., 2006). This study is relevant to the U.S. cultural context, where back-and-forth verbal exchange between the teacher and students is typically expected in classrooms. In these cultural settings, it has been shown that back-and-forth conversations between the teacher and children can help foster comprehension (e.g., Gygax & Gillioz, 2015) and improved language skills (e.g., Che et al., 2018). Yet, studies show that conversational opportunities to build and support emerging language skills are often underused in early childhood classrooms. For example, Chen and de Groot Kim (2014) found that teachers rarely engaged children in conversations beyond three turns "initiation, response, evaluation" across three different contexts of circle time, breakfast time, and playtime in two Head Start preschool classrooms. They did not engage in scaffolding strategies to elicit complex language and ideas from the children during these brief conversations. Similarly, Cabell et al. (2015) found that only about half of all the conversations coded were multiturn conversations that lasted for four turns or more.

Conversations During Shared Book Reading

Shared book reading is one of the most common activities used in preschool and kindergarten classrooms, making it an ideal context to understand how teachers facilitate classroom conversations. A wide array of literature suggests that shared book reading can positively impact children's literacy and language skills, especially vocabulary knowledge (Dickinson & Smith, 1994; Justice et al., 2010; Zucker et al., 2013), where children learn new words and use them in novel contexts in conversations with their peers and teachers (e.g., Hargrave & Sénéchal, 2000; Piasta et al., 2012). This learning primarily happens through the *extratextual* conversations between teachers and children, meaning the conversations beyond the reading of the text itself. These extratextual conversations, similar to other classroom interactions, are often initiated by teacher questions, continued further by children's responses and teacher follow-ups to those responses. The complexity and length of these conversations influence children's ability to acquire and use the aforementioned linguistic and vocabulary skills. Longer conversations explore a certain topic in depth and are positively correlated with children's language outcome measures (Zimmerman et al., 2009). Also, longer conversations provide more opportunities to the teachers to repair or extend children's utterances by additional semantic and/or syntactic content that is just beyond the child's current level but not very advanced that it cannot be learned (Danis et al., 2000; Vygotsky, 1978). However, literature reports that few preschoolers get these opportunities to engage in multiturn conversations with their teacher (e.g., Cabell et al., 2015; Chen & de Groot Kim, 2014). For example, Milburn et al. (2014) found that prior to professional development training, their sample of 20 teachers engaged in conversations with 3.5- to 5.5-year-olds, for only up to six or seven turns during shared book reading.

In addition to length, other qualities of the conversations during shared read-alouds are important. Mascareño et al. (2016) investigated the quality of conversations during shared book reading in 15 Chilean kindergarten classrooms. They found that higher level teacher–child conversations (e.g., causal explanations, judgments, and predictions) related to children's language and literacy outcomes at the end of kindergarten, whereas the proportion of elaborative teacher follow-ups was not related to children's outcomes. Specifically, causal questions have been shown to be effective in helping children identify semantic relations between various parts of the story being read to them, thus improving reading comprehension (van den Broek et al., 2009, 2017). Extensions, vocabulary instruction, and recasts are a few of the other qualities of conversations that are known to influence receptive and expressive language and grammatical skills significantly (e.g., Cleave et al. 2015; Marulis & Neuman, 2010). Use of emotion terms during shared book reading has been shown to improve children's narrative comprehension (Gygax & Gillioz, 2015; Mouw et al., 2019), as well as their ability to define social problems and generate solutions (e.g., Deitcher et al., 2021). However, most of these studies have not examined teacher follow-ups in the light of the accuracy or the length of children's responses.

Scaffolds That Match Children's Level of Expertise

As stated, *scaffolding* refers to an instructional strategy of providing appropriate support to guide learning (Pentimonti & Justice, 2010; Wood et al., 1976). In this study, we focus on the more specific form of scaffolding, that is, *verbal scaffolding*, which refers to the adult being responsive to what the child says and does in a way that keeps the child engaged and elicits cohesive language and behavior in response to the book and the adult's language (Kaderavek & Sulzby, 1998). Adults can offer *verbal scaffolding* in the form of comments (e.g., Barnes et al., 2017) or questions (e.g., de Rivera et al., 2005; Yoder et al., 1994). For the purpose of this study, we use the term *verbal scaffolding* to include both language production and cognition in the form of questions and comments. One of the inherent characteristics of scaffolding is contingency or the ability of the adult to adapt their support in a way that is most beneficial to their students (van de Pol et al., 2010). We examine the contingency of scaffolds by considering if a child's response to a question is broadly accurate or inaccurate: (a) *Upward scaffolds* that add challenge are contingently matched to an accurate response, whereas (b) *downward scaffolds* that simplify the question are contingently matched to an inaccurate response. For example, when the child answers the initial teacher question "What did she do?" accurately, the teacher may challenge him/her with an *upward,* more demanding question or comment (e.g., "Why do you think she did that?" or "Tell me why you think she did it"). It has been found that inferential questions and comments improve children's language and literacy skills (e.g., Hindman et al., 2008; Zucker et al., 2013). Predictions and making connections between the happenings in the book and the various classroom centers are positively related to children's language development (Wasik et al., 2006). Causal questions encourage children to identify semantic relations between various parts of stories being read to them (e.g., Kendeou et al., 2005). For example, when asked causal questions (e.g., *Why did she knock the castle down?*), readers recall more causally connected events in narrative texts than they recall when asked general questions, thus improving overall text comprehension (McMaster et al., 2011).

Similarly, when children answer an initial teacher question inaccurately, the teacher may use a *downward scaffold* to provide more support. A variety of *downward scaffolds* used by teachers have been reported in the literature, for example, *eliciting, co-participating,* and *reframing the question* to reduce choices (Pentimonti & Justice, 2010). These strategies are particularly helpful when children are only beginning to display a certain skill and therefore need a lot of support to use it successfully (Norris & Hoffman, 1990). *Recasting* is another *downward scaffold* that has been shown to be helpful in supporting language development among children with poor vocabulary skills (e.g., Cleave et al., 2015; Hindman et al., 2019; Nelson et al., 1996).

The use of a variety of supports or scaffolds is only effective when it is flexible and responsive to the child's needs (e.g., Berk & Winsler, 1999). However, use of supports that match the children's needs is not always evident in early childhood classrooms. For example, in a large study, Pentimonti et al. (2017) examined scaffolding strategies used by 37 preschool teachers during language intervention sessions and found that teachers used both *upward* and *downward* scaffolds over the course of the school year. They found that, overall, teachers used more *upward scaffolds* (e.g., generalizing, reasoning, and predicting) than *downward scaffolds* (e.g., eliciting, reducing choices, and co-participating), a promising finding given that *upward scaffolds* encourage higher level thinking in young children. However, Pentimonti et al. (2017) also found that the use of these scaffolds was not matched with the children's overall language abilities. That is, children in the classrooms demonstrating lower language skills did not receive the larger amount of support that they required. Girolametto and Weitzman (2002) also reported a similar finding where the caregivers' responsive interaction strategies were more dependent upon the context of the interaction and less on the language abilities of the children.

Thus, adapting to children's level of linguistic abilities is critical to effective scaffolding. Both prekindergartners and kindergarteners can benefit from instructional support in problem solving, causal reasoning, emotional conceptualization, inferencing, and so forth (e.g., Deitcher et al., 2021; McMahon-Morin et al., 2020). However, most previous research so far has only examined teachers' scaffolds without taking into account children's responses and teachers' feedback. One exception is the work of Hindman et al. (2019), wherein teacher scaffolds along with child responses and teacher follow-ups in 27 Head Start classrooms were examined. They found that teachers mostly asked closed questions, generally accepted one answer per question, and children's answers were nearly always correct. They also found that the teachers' prompts were not uniquely predictive of children's learning but the child talk was linked to higher vocabulary over the year.

This study provides an in-depth analysis of conversations that begin with a teacher question and include all semantically related and subsequent children's responses to those questions and the teachers' follow-ups to those responses to include whether the teachers provided additional appropriate scaffolding support when children responded inaccurately.

Teacher Questions During Shared Book Reading

In many cultures, conversations during read-alouds in early childhood classrooms are frequently initiated by teacher questions (e.g., Deunk, 2009; Dickinson et al., 2008; Mascareno et al., 2017; Sun et al., 2020). These

questions help teachers assess children's understanding about the material being read and also give a chance for children to use newly learned words and concepts in context (Lonigan et al., 1999). Research has shown that teachers frequently ask predominantly closed questions that require one- or two-word answers (e.g., Hargrave & Sénéchal, 2000; Hindman et al., 2019). Children's responses to these questions are relatively understudied (Hindman et al., 2019). Hindman et al. (2019) found that children's responses to teacher questions during shared book reading were predominantly accurate.

This Study

This study builds on the work of an earlier study (Deshmukh et al., 2019) in which we examined the types of questions asked by teachers during shared book reading in prekindergarten and kindergarten classrooms. This study analyzes this same sample of conversations, building on our earlier coding for accuracy and length of child responses to those questions. In our first study, we found that of all the extratextual teacher utterances, only about 25% were questions. Teachers most frequently asked yes/ no style questions that were so easy that children responded to these questions mostly accurately, and primarily using single words, indicating that the questions that teachers asked may not be offering sufficient linguistic challenge (Deshmukh et al., 2019). This study will add nuance to these conclusions as we dig deeper in the interaction that followed the child responses to initial teacher questions to examine whether teachers provided more challenge through follow-up questions/comments in a complex multiturn conversation. Thus, we particularly focused on examining children's responses to teacher questions because these responses can determine the length and the direction of the conversation that follows. For example, if a child responds to a question accurately, then the teacher might follow up with a question or a comment that is higher in complexity, whereas if the child's response is inaccurate, the teacher might help them reach the accurate answer by breaking down the concept using simpler questions and/or comments. Specifically, we address the following research questions. (a) How many conversational turns follow after an initial teacher question? Does the length of conversations differ for accurate versus inaccurate child responses to teacher questions? (b) What scaffolding strategies do teachers use to support child responses? To answer this question, we use several steps. (a) Within a conversation, we evaluate the strength of the sequential relation between the level of accuracy of child response and the direction of scaffolding. In other words, is an accurate response followed by a more challenging question/comment and an inaccurate response followed by an additional supportive question/comment? (b) We

describe the frequency of observed scaffolds after accurate and inaccurate child responses. (c) We examine the strength of the sequential relation between the level of child response and the different types of scaffolds.

Method

Participants in this study were enrolled in a larger study of shared-book-reading practices in early childhood classrooms. The data in this study were collected across two academic school years and are a subset of a larger study (Pentimonti et al., 2021).

Participants

Teachers

Participants included 82 prekindergarten and 11 kindergarten teachers from South Central and Midwest states in the United States. We included both the prekindergarten and kindergarten classrooms in this study because both these age groups benefit from instruction in the language constructs we examined and utilize shared-book-reading practices. To be eligible for participation, teachers had to meet the following criteria: (a) More than 50% of their students were between the ages of 3;0 and 5;6 (years; months) at study onset, and (b) teachers predominantly communicated in English in the classroom. This second criterion was used because the text read-aloud in the study was in English. Approximately 85% of the teachers reported their demographic data. Among these, 21% of the teachers ($n = 88$) had a master's degree and 65% had earned a bachelor's degree or lower, with 7% having an associate's degree, 14% having some college education but no degree, and 14% having a high school diploma or equivalent. More kindergarten than prekindergarten teachers had earned a bachelor's degree or higher.

Of the 82 prekindergarten teachers, just over one-half ($n = 45$) had 5 or more years of experience. Similarly, most of the kindergarten teachers ($n = 11$) had over 5 years of kindergarten teaching experience. Of the entire sample of teachers, 21% reported their ethnicity as Hispanic/ Latino and 57% reported their race as White/Caucasian, 25% as Black/African American, 3% as "Other," 2% as Native American, and 1% as Asian. Less than one third of teachers ($n = 27$) taught in classrooms that included at least one dual language learner (DLL), and 20 teachers taught in classrooms that included at least one child with an individualized education program.

Children

On average, classrooms included 17 children ($SD = 5.28$, range: 7–28) who participated in the book-reading sessions examined in this study. Full demographic

information is presented in Table 1. A majority of the children's parents reported that English was the primary language spoken at home (90.2%), 4.7% reported Spanish as the primary language, and 5.1% did not report primary home language. After obtaining consent from the teachers, consent for the children in their classes was obtained from the parents. Eligibility criteria for children include those (a) between the ages of 3;0 and 5;6; (b) who exhibit generally typical development (i.e., have no known diagnosis of severe cognitive impairment, autism, sensorineural hearing loss, vision difficulties, or traumatic brain injury); and (c) who speak English adequately to participate in the study assessments. This last criterion was determined by information from the parents, as well as scoring above -2 SD of the age-based mean on the Expressive Vocabulary subtest of the Clinical Evaluation of Language Fundamentals–Preschool (CELF-P; Wiig et al., 2004). Children who scored below a predetermined criterion of -2 SD below their age-based mean on the Clinical Evaluation of Language Fundamentals Preschool–Second Edition and parents who reported that the child spoke Spanish at home were administered the Vocabulario Expresivo subtest from the CELF Preschool–Second Edition–Spanish Edition (Wiig et al., 2009). The criterion of assessing "adequate ability to speak English" was used by information from the parents, as well as scoring above -2 SD of the age-based mean on the Expressive Vocabulary subtest of the CELF-P (Wiig et al., 2004). This somewhat liberal criterion was used to allow inclusion of children whose expressive skills in English may have lagged behind their receptive skills.

Table 1. Child subsample demographics.

Demographics	N	%
Ethnicity		
African American/Black	100	33.00
Caucasian	75	25.00
Native Hawaiian/Pacific Islander	64	21.00
Asian	15	5.00
Native American Indian	2	0.50
Other	2	0.50
Not reported	43	15.00
Race		
Hispanic/Latino	71	23.00
Non-Hispanic/Latino	187	62.00
Not reported	43	15.00
Primary home language		
English	277	92.00
Spanish	16	5.00
Not reported	8	3.00
Level of maternal education		
High school or less	50	16.00
Some college, no degree	61	20.00
Associate's degree	26	9.00
Bachelor's degree	68	23.00
Master's degree	44	15.00
PhD or terminal degree	21	7.00
Not reported	31	10.00

General Procedures

Teachers were provided with an unfamiliar book that was designed specifically for use with this study for the shared-book-reading session. All teachers were asked to read to their class as they normally would and read the same book; *Kingdom of Friends* (Pentimonti & Zucker, 2015) is a 25-page narrative text about two friends who argue at playtime but learn how to resolve their problems and become friends again. To gain familiarity with the story, teachers received a short synopsis in advance. They were given the actual book to review 5 min before the reading was scheduled. We chose to use an unfamiliar text in order to ensure that the text used was not a familiar text to some students and teachers but unfamiliar to others. In addition, this text was designed to provide ample opportunities for teachers to discuss inferential questions and comments pertaining to emotions, causal effects, predictions, and so forth, which was important for this study.

Video Transcription and Coding Procedures

All video-recorded book-reading sessions were fully transcribed using a digital media player and Microsoft Excel software. All the conversational turns were coded from these transcripts. Each utterance spoken by teachers or children was transcribed on a separate row within the Excel spreadsheet and marked according to the speaker: (R) for all reading lines, (T) for all teacher conversational turns, (C) for individual child conversational turns, and (Cs) for conversational turns by multiple children. For the purpose of this study, conversational turns were used as the units of analysis.

Transcription started when the teacher began talking about the book and concluded when discussion turned to activities that were not related to the story. The average duration of reading sessions was 14.14 min ($SD = 4.09$, range: 6.47–25.23). All talk during the book-reading session was transcribed, even if not directly relevant to the book and story. Any unintelligible utterances were marked as "X." Training of transcriptionists entailed a review of a transcription manual and attendance at a 1-hr training that included practice opportunities. Following the training sessions, transcribers transcribed two practice book-reading videos independently. These transcriptions were checked against a master transcript for any disagreements. All transcribers met at least 85% agreement for accurate transcribing of teacher words ($M = 94.48\%$), with a slightly lower agreement rate for child talk ($M = 84.09\%$). However, because child talk was much more difficult to hear, as the camera was not directly focused on them, this level of agreement was considered acceptable. Agreement was also calculated to measure accuracy of separating talk into individual utterances. Following transcription procedures, each transcript was coded in the same Excel software using an adapted version of the Systematic Assessment of Book Reading 2.1 (Zucker et al., 2017). After demonstrating

reliability, transcribers worked independently to code different transcripts, consulted each other if they had a question about any confusing utterances, and resolved any difficult utterances via consensus. To ensure that reliability remained high, drift checks were performed, where, for every 10 videos submitted by each coder, supervisors checked agreement of a sample of two coded shared reading sessions. Agreement was high across drift checks with an average agreement of 98.83%; the lowest score received by a single coder was 97.26%.

Coding Scheme

Questions and Responses

This initial aspect of our question-and-response coding was derived from our earlier work with this sample (Deshmukh et al., 2019). Children's responses to teacher questions were coded for accuracy/appropriateness. The first child response that immediately followed the teacher question was coded, whether the question was directed to a particular child or the whole group. The responses were categorized in the following two ways. The code of Accurate was given to responses that were either fully correct or less precise but still acceptable (e.g., Teacher: What is this? [Points to airplane] Child: A flying thing). The code of Inaccurate was given to responses that were either completely inaccurate or too ambiguous or illogical to be considered an acceptable answer (e.g., Teacher: What is this? [Points to airplane] Child: A dog. or Teacher: What do you see? Child: See). Only child utterances that directly followed a teacher question were coded for accuracy (see the Appendix).

Conversational Turns

A *conversational turn* was defined as what one speaker says about a particular topic and it could include several consecutive utterances, following the procedures of Cabell et al. (2015). Coding conversational turns began when a teacher posed a question to children and continued until the end of the conversation, signaled by a transition in topic, behavior-related comments, a transition back to reading, or by repeating a child's response to end the turn. Each child response was coded as a separate conversational turn. A trained second coder coded 10% of the transcripts ($n = 10$) for conversational turns. Good interrater reliability was achieved with an average agreement of 85.12%. Any disagreements between the coders were resolved through review, discussion, and mutual agreement.

Scaffolding Codes

Based on an extensive literature review, a total of 16 scaffolding codes were derived and used for the teachers' utterances after children responded to a teacher question. They were classified as either an *upward scaffold* or a *downward scaffold,* depending upon whether the teacher used them to present more challenge following an accurate response or to provide more support following an inaccurate response. Each utterance received only one scaffold. The scaffolding codes, along with their frequency of occurrence, are listed in Table 2.

Two coders were trained to apply these codes in a 4-hr session by the first and second authors. With the exception of two codes, each code could only be categorized as either upward or downward scaffolds. The two exceptions, *defining vocabulary* and *factual questions,* were categorized as either upward or downward scaffolds based on the accuracy of the child response preceding it, and the coders' judgment of the context. Training included provision of a detailed codebook, group coding practice, and independent coding practice over a 2-week period. Good interrater reliability was achieved on coding 10% of the transcripts ($n = 10$) with an average agreement of 85.79%. Any disagreements between the coders were resolved through review, discussion, and mutual agreement.

Analytic Strategy

Our first aim was to examine how many conversational turns follow after an initial teacher question and whether the length of conversations differ for accurate versus inaccurate child responses to teacher questions. Descriptive statistics were calculated, and independent-samples t test was used in order to address our first research question and to provide context to the results of subsequent sequential analyses, which were used to answer the second research question.

Our second aim was to investigate the strength of sequential relation between the level of accuracy of child response and the direction of scaffolding and that between the level of child response and the different types of scaffolds used. To address this aim, we first used descriptive statistics to determine the frequency of types of scaffolds occurring after accurate and inaccurate responses. Then, we used sequential analysis, which is a methodology used to examine potential dependencies between behaviors that unfold sequentially over time (see Bakeman & Gottman, 1997; Bakeman & Quera, 2011; McComas et al., 2009). We decided to use sequential analyses because this approach is designed to understand the sequential relationship between a sequence of observed behaviors—in this case, how adult utterances and child responses unfold sequentially during a classroom conversation. This was more appropriate than other approaches such as regression analysis that can only explain the relationships between the aggregated independent and dependent variables, rather than considering relations between individual components in a sequence. Importantly, sequential analysis could describe the strength of the relationship between the accuracy of children's responses and teacher scaffolds that immediately followed in a series of conversational turns during shared book reading. To conduct

Table 2. Coded variables in the order of frequency of occurrence.

Code	Raw frequency	Definition	Example
Upward scaffolds			
Upward factual questions	493	What, where, when, and how questions that follow accurate responses and ask about facts in the story aimed to present further challenge.	T: What did they do together? C: Read and play and draw. T: Then what happened?
Extensions	250	Teacher adds an idea or complexity to a child's utterance.	C: He got one. T: He got one crayon and she got three over there.
Judgments	246	Questions/comments/assertions upon opinions or attitudes about the quality of something that express character/self/other's judgments about the quality of something, traits/identity of someone, or other attitudes about stimulus/state.	"Is it nice to fight with your friends?"
Making connections	135	Question or comment about implicit link or explicit comparison between text and personal experiences. This code trumps feelings in cases of overlap.	"He looks mad. Do you get mad when somebody knocks over your castle that you just built?"
Causal effects	113	Asks for/comments upon antecedents or consequences; effects of text events; or physical states/objects; inferences on a causal chain between the current, explicit action/event/state and previous text information.	"Why do you think she is crying?"
Feelings	96	Question/comment on feeling/emotions such as sad, happy, angry, or other variations.	"Was she feeling mad?"
Predictions	68	Asks the child/comments upon what might happen next or hypothesizes the outcome of an event.	"What do you think she is going to do?"
Desires	23	Question or comment on self/others' desires or preferences. Involves wishing or wanting something or expressing a greater liking for one alternative over another.	"Does Diego want Petunia to tell him what to do?"
Defining vocabulary upward	9	Question or comment about a word's definition or elaborating on a word's meaning in order to present more challenge.	T: Who is this? C: A knight T: Yes, a knight wears an armor and has a sword.

(*table continues*)

Table 2. *(Continued).*

Code	Raw frequency	Definition	Example
Downward scaffolds			
Reframe question	162	Teacher reframes the question and/or provides two or more closed choices.	T: What is happening/. C: She. . . T: Is she sharing?
Prompting/repeating questions	106	Teacher repeats the question. Encourages the students to answer without giving any additional information.	T: What do they like to do? C: Yeah. T: What do they like to do?
Corrective feedback	78	Teacher disagrees with the child's response explicitly.	T: Did Diego like being called a scaredy cat? C: Yeah. T: No, he didn't!
Eliciting/modeling	74	Teacher provides an exact model to elicit the correct response.	C: They messing up the building T: Castle. Can you say that? C: Yeah, castle
Recast	60	Teacher recasts child utterance with corrected information.	C: He is mad because she got the bestest part T: He is mad because she got the better part?
Co-participating	53	Teacher encourages the child to produce a correct response by doing it together with a peer or teacher. Implicit prompt for children to complete a sentence with a word or phrase.	T: She decided to let him. . . C: Pick T: Yes!
Downward factual questions	32	What, where, when, and how questions that follow inaccurate responses and ask about facts in the story aimed to provide more cues to elicit accurate response.	T: What is going to happen in the story? C: I don't know T: What can you guess from the picture?
Defining vocabulary downward	9	Question or comment about a word's definition or elaborating on a word's meaning in order to provide cues to help answer the original question.	T: What does pout mean? C: A book? T: Look at her face. Pouting is when you go "hmm hmm" until you get your way

Note. T = teacher conversational turns; C = individual child conversational turns.

Deshmukh et al.: Scaffolding During Shared Book Reading **157**

sequential analyses, data were analyzed with the Generalized Sequential Querier (Bakeman & Quera, 1995) software using a lag 1 sequential method. Lag 1 sequential analysis asks whether the presence of one code increases the probability of the "target" code occurring immediately after. Data from all 93 classrooms were pooled to calculate the probability of observing contingent event sequences.

To determine whether the sequential patterns observed among children's responses and teacher scaffolds were beyond the chance occurrence, we first examined chi-square tests for the overall contingency tables when all observations were pooled across classrooms. When the overall chi-square differed from chance, we went on to explore the specific joint contingencies or behaviors that were most likely to unfold during the conversation. We examined probabilities of these joint contingencies using two test statistics: adjusted residuals and Yule's Q (Bakeman & Gottman, 1997). That is, we examined the relationship between a given child response (accuracy) and the target behavior of a teacher scaffold (the direction and types of teacher scaffolds). Adjusted residuals indicate the extent to which a specific joint frequency differs from chance by calculating the difference between the observed counts and expected counts, divided by an estimate of the standard error. However, social conversation behaviors cannot be assumed to be independent; hence, significant finding for an adjusted residual (i.e., $p < .05$) must be interpreted in light of the strength of the association. Therefore, we used

Yule's Q as a measure of effect size. Yule's Q is an index of effect size that, like a correlation coefficient, varies from +1 to −1, with 0 indicating no effect and positive values indicating that the target event occurs after the given event more often than chance (and the inverse for a negative value). The strength of a Yule's Q can be interpreted as follows: Q from 0 to ±.29 is negligible; ±.30 to ±.49 is moderate; ±.50 to ±.69 is substantial; and ± .70 is very strong (Bernard, 2000).

Results

We analyzed conversations during shared book reading in 93 prekindergarten and kindergarten classrooms. After the children responded to initial teacher questions, we coded the teachers' scaffolds to those responses, and used descriptive and sequential analysis to examine the relationship between the accuracy of children's responses and the teacher scaffolds that followed them.

Length of Conversation

The first research question determined the length of conversations during shared book reading and whether the length differed with accuracy of child responses. Overall, the length of conversations varied widely, from two conversational turns to 84 turns, with a mean of 8.89 turns ($SD = 8.49$).

Table 3. Sample conversations.

Speaker	Utterances	Conversational turns	Accuracy of response	Scaffolding direction	Type of scaffold
Conversational Sample 1					
T	How do you think Diego feels now?	1			
Cs	Sad.	2	Inaccurate		
T	Look at his face.	3			
T	Does he look sad?	3		Down	Reframe question
Cs	Yeah.	4	Inaccurate		
T	He does?	5		Down	Prompting/repeat question
Cs	Yeah.	6	Inaccurate		
T	I think he looks really really furious and mad.	7		Down	Eliciting/modeling
T	What do you think?	7			
Cs	Yeah.	8	Accurate		
T	Do you get when somebody knocks over your castle that you just built?	9		Up	Making connections
Cs	Yeah.	10	Accurate		
				End	End
Conversational Sample 2					
T	What are they doing?	1			
C	Fighting.	2	Accurate		
T	Fighting.	3			
T	Is it nice to fight <with your friends?>	3		Up	Judgment
Cs	<No.>	4	Accurate		
				End	

Note. T = teacher conversational turns; Cs = conversational turns by multiple children.

The mean length of conversations after an initial accurate response was 8.71 turns (SD = 8.66), and after an initial inaccurate response, it was 9.91 turns (SD = 7.41). The two sample conversations in Table 3 illustrate the coding process for conversational turns, as well as the direction and types of scaffolds. Overall, 23.83% of conversations consisted of two to three turns, 29.20% of the conversations consisted of four to six turns, 21% of conversations consisted of seven to 10 turns, and 25.93% conversations consisted of more than 10 turns.

A total of 3,503 child responses to teacher questions were coded for accuracy. Out of these, 1,458 responses did not receive a scaffold because the teachers shifted or ended the conversation thereafter. The remaining 2,045 child responses were scaffolded by teachers in the follow-up conversations. As reported in our earlier analysis of these data (Deshmukh et al., 2019), we found that children's responses to initial teacher questions were predominantly accurate (85.55%), with only 14.45% answers inaccurate. The accurate responses were followed by a mean of 8.71 conversational turns (SD = 8.66), and inaccurate responses were followed by a mean of 9.91 turns (SD = 7.41). Although the conversations after inaccurate responses were slightly longer, this difference was not statistically significant, $t(1282) = -1.78$, $p = .07$.

Accuracy of Child Responses and Direction of Teacher Scaffolds

The next research question examined whether the direction of the teacher scaffolds mirrored the child responses (i.e., was an accurate response followed by a more challenging scaffold and was an inaccurate response followed by additionally supportive comment/question). Sequential analysis was conducted with accuracy of child responses as the given and upward/downward direction of scaffolds as the target. The adjusted residuals and Yule's Q from the sequential analysis of child responses and direction of teacher scaffolds are summarized in Table 4, with a significant deviation from chance for the overall contingency table, $\chi^2(1, 92) = 910.14$, $p < .01$. Adjusted residuals indicate that the associations between the accuracy of child response and the upward/downward direction of teacher scaffolds were different from chance for all of the event sequences of interest.

Given an accurate response, teachers were significantly more likely to scaffold in the upward direction with a large effect size (Yule's Q = 0.97), and given an inaccurate response, they were significantly more likely to scaffold in the downward direction. Please refer to Table 4 for details.

Frequency of Different Types of Scaffolds Used

Overall, the most frequently used scaffolds were *upward factual questions, extensions,* and *judgment.* The most frequently used *upward scaffolds* were *upward factual questions, extensions,* and *judgments.* The most frequently used downward scaffolds were *reframing questions, prompting/repeating,* and *corrective feedback.* The least used downward scaffolds were *defining vocabulary* and *downward factual questions,* and the least used upward scaffolds were *desires* and *defining vocabulary.*

Accuracy of Child Response and Types of Scaffolds

To examine the specific types of scaffolds following each level of accuracy, we used sequential analysis with accuracy of child responses as a given and the scaffold used by the teacher as the target. The adjusted residuals and Yule's Q from the sequential analysis of child responses and teacher scaffolds are summarized in Table 5, with a significant deviation from chance for the overall contingency table, $\chi^2(16, 92) = 1034.39$, $p < .01$. Adjusted residuals showed that the associations between the accuracy of child response and the teacher scaffold were different from chance for all of the event sequences of interest, except *recast* and *defining vocabulary upward* (see Table 5).

Given an accurate response, the teachers were significantly more likely to use the *upward factual questions* scaffold with a large effect size (Yule's Q = 0.88). They were also more likely to use *extensions* with a large effect size (Yule's Q = 0.87), *judgments* scaffold with a large effect size (Yule's Q = 0.78), *causal effects* with a large effect size (Yule's Q = 0.76), *making connections* with a substantial effect size (Yule's Q = 0.69), *feelings* with a large effect size (Yule's Q = 0.77), *predictions* with a substantial

Table 4. Sequential analysis: direction of scaffolds following accurate and inaccurate responses.

Direction of scaffolds	Adjusted residuals				Yule's Q	
	Accurate	p values	Inaccurate	p values	Accurate	Inaccurate
Upward	30.17**	< .01	−30.17**	< .01	0.97	−0.97
Downward	−30.17**	< .01	30.17**	< .01	−0.97	0.97

**p < .01.

Table 5. Sequential analysis: types of scaffolds after accurate and inaccurate responses.

Scaffold types	Raw frequency	Adjusted residuals				Yule's Q	
		Accurate	p values	Inaccurate	p values	Accurate	Inaccurate
Reframe question	162	−15.14	< .01	15.14	< .01	−0.84	0.84
Corrective feedback	78	−15.85	< .01	15.85	< .01	−0.98	0.98
Prompting/repetition	106	−11.67	< .01	11.67	< .01	−0.81	0.81
Eliciting/modeling	74	−10.45	< .01	10.45	< .01	−0.85	0.85
Co-participating	53	−6.93	< .01	6.93	< .01	−0.73	0.73
Downward factual questions	32	−5.28	< .01	5.28	< .01	−0.71	0.71
Downward defining vocabulary	9	−3.76	< .01	3.76	< .01	−0.84	0.84
Recast	60	0.45		−0.45		0.08	−0.08
Upward factual questions	493	11.04	< .01	−11.04	< .01	0.88	−0.88
Upward defining vocabulary	47	1.91	.06	1.91	.06	0.45	−0.45
Judgments	246	6.93	< .01	6.93	< .01	0.78	−0.78
Making connections	135	4.48	< .01	−4.48	< .01	0.69	−0.69
Extensions	250	7.80	< .01	−7.80	< .01	0.87	−0.87
Causal effects	113	4.52	< .01	−4.52	< .01	0.76	−0.76
Feelings	96	4.02	< .01	−4.02	< .01	0.77	−0.77
Predictions	68	3.10	< .01	−3.10	< .01	0.68	−0.68
Desires	23	2.32	.02	−2.32	.02	1.00	−1.00

effect size (Yule's Q = 0.68), and *desires* with a large effect size (Yule's Q = 1.00). Please refer to Table 5 for details.

Given an inaccurate response, teachers were significantly more likely to follow it up with a *corrective feedback* with a large effect size (Yule's Q = 0.98). They were also significantly more likely to use *reframe question* with a large effect size (Yule's Q = 0.84), *repeat questions* with a large effect size (Yule's Q = 0.81), *eliciting/modeling* with a large effect size (Yule's Q = 0.85), *co-participating* with a large effect size (Yule's Q = 0.79), *downward factual questions* with a large effect size (Yule's Q = 0.71), and *defining vocabulary down* with a large effect size (Yule's Q = 0.84).

Discussion

We analyzed conversations initiated by teacher questions during shared book reading in order to examine the length of conversations and the relationship between the response accuracy and the scaffolds used by teachers to support those responses. We found high variability in the length of conversations, with a mean of 8.89 turns, and the length of conversations did not differ significantly between accurate and inaccurate responses. Teachers most frequently used *upward factual questions, extensions,* and *judgments* to scaffold child responses. There was a strong association between the accuracy of child response and the direction of teacher scaffolds. That is, accurate responses were typically followed by upward scaffolds and inaccurate answers were followed by downward scaffolds. Thus, given that adults being responsive to what the children say, providing appropriate support to guide learning in order to elicit cohesive language from them, is the essence of verbal scaffolding (Kaderavek & Sulzby, 1998; Pentimonti & Justice, 2010), we found that the teachers in our sample were indeed being responsive to their students. The associations between the accuracy of child responses and types of teacher scaffolds were different from chance for all events of interest, except two (i.e., *recasts* and *upward defining vocabulary*). Specifically, the largest associations following accurate responses were found to be with *upward factual questions, desires,* and *extensions.* The largest associations following inaccurate responses were found to be with *corrective feedback, eliciting/modeling, reframe questions,* and *defining vocabulary.* We discuss the findings in detail in the following sections.

Length of Conversations

Overall, large variability was observed in conversational length, with an average of about nine turns. Similar variability in conversations was reported by Cabell et al. (2015), although their average length of conversations was lower (i.e., five turns). This difference could be due to the difference in activities during which the conversations were recorded. Cabell et al. analyzed conversations during a play activity, whereas our data were recorded during shared book reading. The inherent expectation of focused attention in the context of shared book reading may allow for longer conversations, as compared with play activities in early childhood classrooms (Gest et al., 2006). Our data are consistent with past research suggesting that conversations around shared book reading are important: They provide children with the opportunities to use language to make judgments, take others' perspectives, and make connections between the text and their own personal lives (Van Kleeck, 2003). These conversations also give teachers the opportunity to identify areas where children need additional challenge or support in using language during verbal interaction and to provide that support or challenge in a manner appropriate for children's current level of performance.

Contrary to our expectations, there was no significant difference between conversational length following initial accurate and inaccurate responses indicating that teachers treated both these responses in a similar way. Perhaps this is an indication that the inaccurate responses did not get as much support as they needed. On the other hand, the similar length of conversations could indicate that teachers felt that due to children's attentional capacities they needed to keep the conversation moving under both response scenarios. It is also important to note here that adult–child conversations are driven by the culture they participate in (Hoff, 2006) and that embracing students' cultural, social, and linguistic resources is necessary to build an inclusive learning environment (Wynter-Hoyte et al., 2017). We did not study the cultural aspect of conversations around shared book reading because it was beyond the scope of this article; however, future research should investigate how teacher use scaffolds in dual language instruction during classroom read-alouds.

Accuracy of Child Responses and Subsequent Scaffolding

In our previous study, we reported that over 85% of child responses to teacher questions were accurate, and the majority of them consisted of single words (Deshmukh et al., 2019). The unique contribution this study makes is that it takes into account children's responses while examining the subsequent scaffolds used by teachers, an aspect of scaffolding that has been neglected heretofore (e.g., Milburn et al., 2014; Pentimonti et al., 2017) and thus is a step forward in understanding interactions during shared book reading. Previous studies have reported that teachers use relatively more upward scaffolding strategies; however, these studies have not taken into account the accuracy of child responses. This study found that teacher scaffolds were in synchrony with child responses so that they followed up accurate responses with upward scaffolds and inaccurate responses with downward scaffolds. This finding is important because it indicates that teachers are merely responding to the overwhelmingly accurate child responses in their extensive use of upward scaffolds.

Our unique approach to examining scaffolding use may explain why our finding that teacher scaffolds were synchronous with child responses is divergent with previous work investigating teacher and parent responsiveness. For instance, with regard to reading intervention teachers, Rodgers et al. (2016) found that the amount of scaffolds used was responsive to children's needs only about 61% of the time. Responsiveness of teachers to children's utterances with the aim of supporting language skills has also been reported to be low in the literature (e.g., Justice et al., 2008). Studies of parental responsiveness have reported low overall verbal scaffolding during parent–child interactions

(e.g., Dieterich et al., 2006; Guttentag et al., 2006). Further research is needed to replicate our findings by examining the relation between child response accuracy and the scaffolds used by teachers in order to further illuminate the contingency and nature of typical scaffolds in early childhood classrooms.

Frequency of Different Types of Scaffolds

The most frequent types of scaffolds teachers used after accurate child responses were *upward factual questions, judgments, extensions,* and *making connections.* This finding is promising because encouraging children's higher order thinking with challenging strategies like making connections, judgments, and extensions is beneficial to children's vocabulary, overall language, and literacy development (e.g., Hindman et al., 2008; Nelson, 1989; Tomasello, 1988; Zucker et al., 2013). Teachers in our sample did not use some other *upward scaffolds* like *causal effects, predictions,* and *desires* as frequently. These types of inferential questions and causal questions, along with predictions and making connections, have been shown to have beneficial effects on children's language and literacy skills (Hindman et al., 2008; Kendeou et al., 2005; Van Kleeck et al., 2006; Wasik et al., 2006; Zucker et al., 2013). Therefore, it is concerning that teachers are not following up accurate child responses with scaffolds that employ reasoning and predicting skills. It might be that these prompts/questions are slightly difficult to formulate during an ongoing conversation, and hence, they were not used as frequently by the teachers in our sample, especially given that they used an unfamiliar text for the read-aloud.

We found that teachers most frequently *reframed questions,* prompted */repeated questions,* or *defined key vocabulary* to provide additional support when the response was inaccurate. *Eliciting/modeling, co-participating,* and *downward factual questions* were not used very often, and *recasts* was the least used strategy following inaccurate responses. Similar findings have been reported by Pentimonti et al. (2017) where they found that their sample of teachers did not use downward scaffolds very frequently. *Eliciting/modeling* and *recasts* are the most frequently used grammatical intervention strategies by speech-language pathologists (SLPs) for children with language impairment (Finestack & Satterlund, 2018), and the frequency of *recasts* used by the adults influences the targeted language outcomes for children (e.g., Hassink & Leonard, 2010). Especially for children with language impairments, modeling has been reported to help acquire and generalize the use of novel words beyond the teaching context (Kouri, 2005).

There may be several reasons why teachers are not using scaffolds like *recasts* and *co-participating* more frequently in conversations. One of those reasons may be that co-participating prompts (e.g., *Let's say this together*)

can sound unnatural in a conversation and teachers may perceive them as breaking the flow of the conversation. Another reason could be that teachers may think of these scaffolds as more developmentally appropriate for toddlers and, therefore, do not find them suitable for use with pre-kindergarteners and kindergarteners. This is, however, concerning because a substantial amount of evidence in the literature indicates that downward scaffolds, specifically *recasts,* are effective in supporting language development, especially for children with low vocabulary skills (Cleave et al., 2015; Hindman et al., 2019; Nelson et al. 1996). Overall, the most frequently used types of scaffolds were *upward factual questions, judgments,* and *extensions,* all of them *upward scaffolds,* a finding similar to the one reported by Pentimonti et al. (2017), where they found that the teachers in their sample overwhelmingly used upward scaffolds. This overall finding could be misleading, however, because it gives the impression that the teachers are not using enough downward scaffolds. However, our sequential analyses reveal that teachers' scaffolds are in fact in congruence with child responses, and the direction of their scaffolds is directed by the accuracy of child response. Thus, the higher use of upward scaffolds simply reflects the higher frequency of accurate child responses.

Relationship Between Accuracy of Response and Types of Scaffolds

We also investigated the specific types of scaffolds used by teachers to follow up accurate and inaccurate child responses. The largest association of accurate responses was found to be with *desires, upward factual questions,* and *extensions,* and that of inaccurate responses was with *corrective feedback, eliciting/modeling, reframing questions,* and *downward defining vocabulary.* In other words, these specific upward and downward scaffolds occurred significantly more following accurate and inaccurate child responses, respectively. It is reassuring to find that teachers used scaffolds like *reframing questions,* or *corrective feedback* after an inaccurate response, or that *desires,* or *extensions* would occur after an accurate response, indicating that teachers are in synchrony with the child's responses. However, some other scaffolds like *eliciting/modeling* and *recasts,* which have been shown to be effective in targeting syntactic skills in young children, did not have a significant association with inaccurate responses. This, considered along with the frequency of scaffolds discussed above, appears to indicate that, although the teachers are indeed being responsive to children's utterances in their use of scaffolds, they are using only a limited set of scaffolds, therefore missing valuable opportunities to target specific narrow skills such as syntax and reasoning. One explanation for the use of a limited set of scaffolds might be that the text used was new to the

teachers. Future research should look into the effects of text familiarity on the types and variety of scaffolds used by early childhood teachers during shared book reading.

Implications for SLPs

Our findings have important implications for SLPs, especially when considering their collaborative work with early childhood teachers. Specifically, our work has relevance for SLPs' support for teachers' use of scaffolding during shared reading sessions, in that our findings suggest that SLPs could provide coaching to teachers in using a variety of scaffolds during shared reading, for example, how to use questions to elicit predictions and causal reasoning, for example, encouraging the use of eliciting/modeling and recasts for those children who need additional support. SLPs could have conversations with teachers that highlight the importance of these types of scaffolds for targeting specific narrow skills, such as syntactic skills, in young children. In addition, our findings show that teachers are predominantly using questions to scaffold without incorporating actual language input in the form of eliciting/modeling and recasts. When children respond inaccurately, scaffolds that provide direct language input in the form of modeling or recasts might be more effective than questions. Thus, SLPs might observe teachers while conducting shared reading sessions and provide feedback on their use of scaffolding strategies to match children's accurate and inaccurate responses. SLPs may also provide support to teachers in their choice of books for shared reading, guiding them to choose books that encourage rich conversation.

Limitations and Future Directions

One limitation of this study is that we did not study how the length of conversations during shared book reading affected children's acquisition of new language skills. Future research could investigate whether children's language gains were influenced by the quantity of conversation, its quality, or both. Also, we did not investigate the effects of teacher scaffolds on children's overall language skills. Future research should investigate whether selective use of *upward* and *downward* scaffolds improves language outcomes for children, especially those with lower language skills. This study also did not examine the relationship between children's language skills and teachers' use of scaffolds. It would be illuminating to understand whether teachers' choice of initial questions and subsequent scaffolds is driven by their awareness of the amount of support required by the students to carry out the conversation successfully or if scaffolding patterns relate to children's language growth. It is also important to note that this a correlational study that cannot make causal claims; moreover, our approach did not allow us to dive into which

specific strategies were most helpful to children's language production. Furthermore, other observational studies show that teachers may struggle to implement some scaffolding strategies effectively, such as predictive prompts that can sometimes be weak and superficial (Wolf et al., 2005). Another limitation of this study is that we did not study the influence of culture on the adult–child conversations. Future research should examine how the conversational length during shared book reading varies in dual language instruction and whether teachers use scaffolds in the first language to support the learning of the second language.

Conclusions

We analyzed conversations initiated by teacher questions during shared-book-reading sessions in prekindergarten and kindergarten classrooms to understand how teachers used scaffolds with reference to accuracy of child responses. We found great variability in the length of these conversations. Teachers' scaffolds were in synchrony with child responses, such that they followed up accurate responses with upward scaffolds and inaccurate responses with downward scaffolds. These findings indicate that in the conversations around shared reading, teachers are responsive to children's answers and are able to challenge or support them as needed. However, teachers did not frequently use some of the key scaffolding strategies, for example, *predictions, modeling, causal effects,* and *recasts.* These scaffolds have been reported to be effective in supporting children's language development in the extant literature. While SLPs are trained to employ these scaffolds frequently during the course of intervention, teachers may not have had enough training to use these language-supporting techniques. Thus, professional development experiences could train early childhood teachers to incorporate a variety of scaffolds more frequently, likely eliciting more verbal responses from children during shared book reading. Increasing use of scaffolding strategies can provide teachers with opportunities to support not only emerging verbal description and reasoning skills but also emerging conversational skills.

Acknowledgments

References

Bakeman, R., & Gottman, J. M. (1997). *Observing interaction: An introduction to sequential analysis* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511527685

Bakeman, R., & Quera, V. (1995). *Analyzing interaction: Sequential analysis with SDIS and GSEQ.* Cambridge University Press.

Bakeman, R., & Quera, V. (2011). *Sequential analysis and observational methods for the behavioral sciences.* Cambridge University Press. https://doi.org/10.1017/CBO9781139017343

Barnes, E. M., Dickinson, D. K., & Grifenhagen, J. F. (2017). The role of teachers' comments during book reading in children's vocabulary growth. *The Journal of Educational Research, 110*(5), 515–527. https://doi.org/10.1080/00220671.2015.1134422

Berk, L. E., & Winsler, A. (1999). *Scaffolding children's learning: Vygotsky and early childhood education.* National Association for the Education of Young Children.

Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches.* SAGE. https://us.sagepub.com/en-us/nam/social-research-methods/book233436

Bus, A. G. (2001). Joint caregiver–child storybook reading: A route to literacy development. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 1, pp. 179–191). Guilford Press.

Cabell, S. Q., Justice, L. M., McGinty, A. S., DeCoster, J., & Forston, L. D. (2015). Teacher–child conversations in preschool classrooms: Contributions to children's vocabulary development. *Early Childhood Research Quarterly, 30,* 80–92. https://doi.org/10.1016/j.ecresq.2014.09.004

Caspe, M. (2009). Low-income Latino mothers' booksharing styles and children's emergent literacy development. *Early Childhood Research Quarterly, 24*(3), 306–324. https://doi.org/10.1016/j.ecresq.2009.03.006

Che, E. S., Brooks, P. J., Alarcon, M. F., Yannaco, F. D., & Donnelly, S. (2018). Assessing the impact of conversational overlap in content on child language growth. *Journal of Child Language, 45*(1), 72–96. https://doi.org/10.1017/S0305000917000083

Chen, J. J., & de Groot Kim, S. (2014). The quality of teachers' interactive conversations with preschool children from low-income families during small-group and large-group activities. *Early Years, 34*(3), 271–288. https://doi.org/10.1080/09575146.2014.912203

Cleave, P. L., Becker, S. D., Curran, M. K., Van Horne, A. J. O., & Fey, M. E. (2015). The efficacy of recasts in language intervention: A systematic review and meta-analysis. *American Journal of Speech-Language Pathology, 24*(2), 237–255. https://doi.org/10.1044/2015_AJSLP-14-0105

Craig, H. K., & Washington, J. A. (2006). *Malik goes to school: Examining the language skills of African American students from preschool-5th grade.* Psychology Press. https://doi.org/10.4324/9781410615602

Danis, A., Bernard, J. M., & Leproux, C. (2000). Shared picture-book reading: A sequential analysis of adult–child verbal interactions. *British Journal of Developmental Psychology, 18*(3), 369–388. https://doi.org/10.1348/026151000165751

de Rivera, C., Girolametto, L., Grenburg, J., & Weitzman, E. (2005). Children's responses to educators' questions in day care play groups. *American Journal of Speech-Language Pathology, 14*(1), 14–26. https://doi.org/10.1044/1058-0360(2005/004)

Deitcher, D. B., Aram, D., Khalaily-Shahadi, M., & Dwairy, M. (2021). Promoting preschoolers' mental–emotional conceptualization and social understanding: A shared book-reading study. *Early Education and Development, 32*(4), 501–515. https://doi.org/10.1080/10409289.2020.1772662

Deshmukh, R. S., Zucker, T. A., Tambyraja, S. R., Pentimonti, J. M., Bowles, R. P., & Justice, L. M. (2019). Teachers' use of questions during shared book reading: Relations to child responses. *Early Childhood Research Quarterly, 49,* 59–68. https://doi.org/10.1016/j.ecresq.2019.05.006

Deunk, M. (2009). *Discourse practices in preschool: Young children's participation in everyday classroom activities* [Unpublished doctoral dissertation]. University of Groningen.

Dickinson, D. K., Darrow, C. L., & Tinubu, T. A. (2008). Patterns of teacher–child conversations in head start classrooms: Implications for an empirically grounded approach to professional development. *Early Education & Development, 19*(3), 396–429. https://doi.org/10.1080/10409280802065403

Dickinson, D. K., & Smith, M. W. (1994). Long-term effects of preschool teachers' book readings on low-income children's vocabulary and story comprehension. *Reading Research Quarterly, 29*(2), 104–122. https://doi.org/10.2307/747807

Dieterich, S. E., Assel, M. A., Swank, P., Smith, K. E., & Landry, S. H. (2006). The impact of early maternal verbal scaffolding and child language abilities on later decoding and reading comprehension skills. *Journal of School Psychology, 43*(6), 481–494. https://doi.org/10.1016/j.jsp.2005.10.003

Finestack, L. H., & Satterlund, K. E. (2018). Current practice of child grammar intervention: A survey of speech language pathologists. *American Journal of Speech-Language Pathology, 27*(4), 1329–1351. https://doi.org/10.1044/2018_AJSLP-17-0168

Fivush, R., Haden, C. A., & Reese, E. (2006). Elaborating on elaborations: Maternal reminiscing style and children's socioemotional outcome. *Child Development, 77*(15681588), 80002–80004.

Gest, S. D., Holland-Coviello, R., Welsh, J. A., Eicher-Catt, D. L., & Gill, S. (2006). Language development subcontexts in Head Start classrooms: Distinctive patterns of teacher talk during free play, mealtime, and book reading. *Early Education and Development, 17*(2), 293–315. https://doi.org/10.1207/s15566935eed1702_5

Girolametto, L., & Weitzman, E. (2002). Responsiveness of child care providers in interactions with toddlers and preschoolers. *Language, Speech, and Hearing Services in Schools, 33*(4), 268–281. https://doi.org/10.1044/0161-1461(2002/022)

Guttentag, C. L., Pedrosa-Josic, C., Landry, S. H., Smith, K. E., & Swank, P. R. (2006). Individual variability in parenting profiles and predictors of change: Effects of an intervention with disadvantaged mothers. *Journal of Applied Developmental Psychology, 27*(4), 349–369. https://doi.org/10.1016/j.appdev.2006.04.005

Gygax, P., & Gillioz, C. (2015). Emotion inferences during reading: Going beyond the tip of the iceberg. In E. J. O'Brien, A. E. Cook, & R. F. Lorch Jr. (Eds.), *Inferences during reading* (pp. 122–139). Cambridge University Press.

Hargrave, A. C., & Sénéchal, M. (2000). A book reading intervention with preschool children who have limited vocabularies: The benefits of regular reading and dialogic reading. *Early Childhood Research Quarterly, 15*(1), 75–90. https://doi.org/10.1016/S0885-2006(99)00038-1

Hassink, J. M., & Leonard, L. B. (2010). Within treatment factors as predictors of outcomes following conversational recasting. *American Journal of Speech-Language Pathology, 19*(3), 213–224. https://doi.org/10.1044/1058-0360(2010/09-0083)

Hindman, A. H., Connor, C. M., Jewkes, A. M., & Morrison, F. J. (2008). Untangling the effects of shared book reading: Multiple factors and their associations with preschool literacy outcomes. *Early Childhood Research Quarterly, 23*(3), 330–350. https://doi.org/10.1016/j.ecresq.2008.01.005

Hindman, A. H., Wasik, B. A., & Bradley, D. E. (2019). How classroom conversations unfold: Exploring teacher–child exchanges during shared book reading. *Early Education and Development, 30*(4), 478–495. https://doi.org/10.1080/10409289.2018.1556009

Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review, 26*(1), 55–88. https://doi.org/10.1016/j.dr.2005.11.002

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly, 23*(1), 51–68. https://doi.org/10.1016/j.ecresq.2007.09.004

Justice, L. M., McGinty, A. S., Piasta, S. B., Kaderavek, J. N., & Fan, X. (2010). Print-focused read-alouds in preschool classrooms: Intervention effectiveness and moderators of child outcomes. *Language, Speech, and Hearing Services in Schools, 41*(4), 504–520. https://doi.org/10.1044/0161-1461(2010/09-0056)

Kaderavek, J. N., & Sulzby, E. (1998). Parent–child joint book reading: An observational protocol for young children. *American Journal of Speech-Language Pathology, 7*(1), 33–47. https://doi.org/10.1044/1058-0360.0701.33

Kendeou, P., Lynch, J. S., van den Broek, P., Espin, C. A., White, M. J., & Kremer, K. E. (2005). Developing successful readers: Building early narrative comprehension skills through television viewing and listening. *Early Childhood Education Journal, 33,* 91–98. http://doi.org/10.1007/s10643-005-0030-6

Kouri, T. A. (2005). Lexical training through modeling and elicitation procedures with late talkers who have specific language impairment and developmental delays. *Journal of Speech, Language, and Hearing Research, 48*(1), 157–171. https://doi.org/10.1044/1092-4388(2005/012)

Lonigan, C. J., Anthony, J. L., Bloomfield, B. G., Dyer, S. M., & Samwel, C. S. (1999). Effects of two shared-reading interventions on emergent literacy skills of at-risk preschoolers. *Journal of Early Intervention, 22*(4), 306–322. https://doi.org/10.1177/105381519902200406

Marulis, L. M., & Neuman, S. B. (2010). The effects of vocabulary intervention on young children's word learning: A meta analysis. *Review of Educational Research, 80*(3), 300–335. https://doi.org/10.3102/0034654310377087

Mascareño, M., Deunk, M. I., Snow, C. E., & Bosker, R. J. (2017). Read-alouds in kindergarten classrooms: A moment-by-moment approach to analyzing teacher–child interactions. *European Early Childhood Education Research Journal, 25*(1), 136–152. https://doi.org/10.1080/1350293X.2016.1266226

Mascareño, M., Snow, C. E., Deunk, M. I., & Bosker, R. J. (2016). Language complexity during read-alouds and kindergartners' vocabulary and symbolic understanding. *Journal of Applied Developmental Psychology, 44,* 39–51. https://doi.org/10.1016/j.appdev.2016.02.001

McComas, J. J., Moore, T., Dahl, N., Hartman, E., Hoch, J., & Symons, F. (2009). Calculating contingencies in natural environments: Issues in the application of sequential analysis. *Journal of Applied Behavior Analysis, 42*(2), 413–423. https://doi.org/10.1901/jaba.2009.42-413

McMahon-Morin, P., Rezzonico, S., Trudeau, N., & Croteau, C. (2020). Interactive book-reading to improve inferencing abilities in kindergarten classrooms: A clinical project. *Child Language Teaching and Therapy, 37*(1), 63–84. https://doi.org/10.1177/0265659020974430

McMaster, K. L., van de Broek, P., Espin, C. A., White, M. J., Rapp, D. N., Kendeou, P., Bohn-Gettler, C. M., & Carlson, S. (2011). Making the right connections: Differential effects of reading intervention for subgroups of comprehenders. *Learning and Individual Differences, 22*(1), 100–111. https://doi.org/10.1016/j.lindif.2011.11.017

Melzi, G. (2000). Cultural variations in the construction of personal narratives: Central American and European American mothers' elicitation styles. *Discourse Processes, 30*(2), 153–177. https://doi.org/10.1207/S15326950DP3002_04

Milburn, T. F., Girolametto, L., Weitzman, E., & Greenberg, J. (2014). Enhancing preschool educators' ability to facilitate conversations during shared book reading. *Journal of Early Childhood Literacy, 14*(1), 105–140. https://doi.org/10.1177/1468798413478261

Mouw, J. M., Leijenhorst, L. V., Saab, N., Danel, M. S., & van den Broek, P. (2019). Contributions of emotion understanding to narrative comprehension in children and adults. *European Journal of Developmental Psychology, 16*(1), 66–81. https://doi.org/10.1080/17405629.2017.1334548

National Association for the Education of Young Children. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth to age 8.* http://www.naeyc.org/files/naeyc/file/positions/PSDAP.pdf

Nelson, K. E. (1989). *Narratives from the crib.* Harvard University Press.

Nelson, K. E., Camarata, S. M., Welsh, J., Butkovsky, L., & Camarata, M. (1996). Effects of imitative and conversational recasting treatment on the acquisition of grammar in children with specific language impairment and younger language-normal children. *Journal of Speech and Hearing Research, 39*(4), 850–859. https://doi.org/10.1044/jshr.3904.850

Norris, J. A., & Hoffman, P. R. (1990). Language intervention withing naturalistic environments. *Language, Speech, and Hearing Services in Schools, 21*(2), 72–84. https://doi.org/10.1044/0161-1461.2102.72

Pentimonti, J. M., Bowles, R. P., Zucker, T. A., Tambyraja, S. R., & Justice, L. M. (2021). Development and validation of the Systematic Assessment of Book Reading (SABR-2.2). *Early Childhood Research Quarterly, 55,* 201–213. https://doi.org/10.1016/j.ecresq.2020.11.007

Pentimonti, J. M., & Justice, L. M. (2010). Teachers' use of scaffolding strategies during read alouds in the preschool classroom. *Early Childhood Education Journal, 37*(4), 241–248. https://doi.org/10.1007/s10643-009-0348-6

Pentimonti, J. M., Justice, L. M., Yeomans-Maldonado, G., McGinty, A. S., Slocum, L., & O'Connell, A. (2017). Teachers' use of high- and low-support scaffolding strategies to differentiate language instruction in high-risk/economically disadvantaged settings. *Journal of Early Intervention, 39*(2), 125–146. https://doi.org/10.1177/1053815117700865

Pentimonti, J. M., & Zucker, T. A. (2015). *Kingdom of friends* [Unpublished shared book reading instrument]. University of Texas Health Science Center at Houston.

Piasta, S. B., Justice, L. M., McGinty, A. S., & Kaderavek, J. N. (2012). Increasing young children's contact with print during shared reading: Longitudinal effects on literacy achievement. *Child Development, 83*(3), 810–820. https://doi.org/10.1111/j.1467-8624.2012.01754.x

Rodgers, E., D'Agostino, J. V., Harmey, S. J., Kelly, R. H., & Brownfield, K. (2016). Examining the nature of scaffolding in an early literacy intervention. *Reading Research Quarterly, 51*(3), 345–360. https://doi.org/10.1002/rrq.142

Rogoff, B. (2003). *The cultural nature of human development.* Oxford University Press.

Sun, H., Toh, W., & Steinkrauss, R. (2020). Instructional strategies and linguistic features of kindergarten teachers' shared book reading: The case of Singapore. *Applied Psycholinguistics, 41*(2), 427–456. https://doi.org/10.1017/S0142716420000053

Tomasello, M. (1988). The role of joint attentional processes in early language development. *Language Sciences, 10*(1), 69–88. https://doi.org/10.1016/0388-0001(88)90006-X

Van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in teacher–student interaction: A decade of research. *Educational Psychology Review, 22*(3), 271–296. https://doi.org/10.1007/s10648-010-9127-6

van den Broek, P., Kendeou, P., Lousberg, S., & Visser, G. (2017). Preparing for reading comprehension: Fostering text comprehension skills in preschool and early elementary school children. *International Electronic Journal of Elementary Education, 4*(1), 259–268.

van den Broek, P., Kendeou, P., & White, M. J. (2009). Cognitive processes during reading: Implications for the use of multimedia to foster reading comprehension. In A. G. Bus & S. B. Neuman (Eds.), *Multimedia and literacy development: Improving achievement for young learners* (pp. 57–73). Taylor & Francis.

Van Kleeck, A. (2003). Research on book sharing: Another critical look. In A. Van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On reading books to children: Parents and teachers* (pp. 271–320). Earlbaum. https://doi.org/10.4324/9781410607355-21

Van Kleeck, A., Vander Woude, J., & Hammett, L. (2006). Fostering literal and inferential language skills in Head Start preschoolers with language impairment using scripted book-sharing discussions. *American Journal of Speech-Language Pathology, 15*(1), 85–95. https://doi.org/10.1044/1058-0360(2006/009)

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press.

Wasik, B. A., Bond, M. A., & Hindman, A. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology, 98*(1), 63–74. https://doi.org/10.1037/0022-0663.98.1.63

Wiig, E. H., Secord, W. A., & Semel, E. (2004). *Clinical Evaluation of Language Fundamentals Preschool–Second Edition (CELF Preschool-2).* The Psychological Corporation/A Harcourt Assessment Company.

Wiig, E. H., Secord, W. A., & Semel, E. (2009). Clinical Evaluation of Language Fundamentals–Preschool, *Spanish edition (*2nd ed.). Pearson.

Wolf, M. K., Crosson, A. C., & Resnick, L. B. (2005). Classroom talk for rigorous reading comprehension instruction. *Reading Psychology, 26*(1), 27–53. https://doi.org/10.1080/02702710490897518

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *The Journal of Child Psychology and Psychiatry, 17*(2), 89–100. https://doi.org/10.1111/j.1469-7610.1976.tb00381.x

Wynter-Hoyte, K., Braden, E. G., Rodriguez, S., & Thornton, N. (2017). Disrupting the status quo: Exploring culturally relevant and sustaining pedagogies for young diverse learners. *Race Ethnicity and Education, 22*(3), 428–447. https://doi.org/10.1080/13613324.2017.1382465

Yoder, P. J., Davies, B., Bishop, K., & Munson, L. (1994). Effect of adult continuing wh-questions on conversational participation in children with developmental disabilities. *Journal of Speech and Hearing Research, 37*(1), 193–204. https://doi.org/10.1044/jshr.3701.193

Zimmerman, F. J., Gilkerson, J., Richards, J. A., Christakis, D. A., Xu, D., Gray, S., & Yapanel, U. (2009). Teaching by listening: The importance of adult–child conversations to language development. *Pediatrics, 124*(1), 342–349. https://doi.org/10.1542/peds.2008-2267

Zucker, T. A., Cabell, S. Q., Justice, L. M., Pentimonti, J. M., & Kaderavek, J. N. (2013). The role of frequent, interactive prekindergarten shared reading in the longitudinal development of language and literacy skills. *Developmental Psychology, 49*(8), 1425–1439. https://doi.org/10.1037/a0030347

Zucker, T. A., Pentimonti, J. M., Tambyraja, S., & Justice, L. M. (2017). *Systematic Assessment of Book Reading-Transcript Coding Version 2.1* [Unpublished instrument]. University of Texas Health Science Center at Houston.

Appendix

Examples of Scaffolds Coded in Conversations

Code	Text example
Upward scaffolds	
Causal effects/problem solving	T: Why do you think he's sad? C: Because she was being too mean and there should be a director in their school.
Predictions/forecasts	T: What do you think he's going to do? Do you think he's going to be brave, or what's he going to do? C: Be brave!
Judgments/perspectives	T: Was that a nice way to say it? Cs: No. T: Could she have said it better? C: Yeah.
Feelings	T: And how are they feeling in this picture? C: Happy!
Making connections	T: Do you get [mad] when somebody knocks over your castle that you just built? C: Yeah.
Defining vocabulary upwards	T: What's a knight? C: Um, ride horsies. T: They ride horsies, right?
Defining vocabulary downwards	T: What does bossy mean? C: When you keep telling him what to do. T: It means you're telling people what to do all the time.
Upwards factual questions	T: What do we have right here? C: A dragon.
Extensions	T: What did they do? C: They solved it. T: They did solve their problem!
Downward scaffolds	
Eliciting/modeling	T: What are they going to build? Cs: A queen! T: They are going to build another castle.
Co-participating	T: But, Petunia was always telling him what to…. Cs: Do!
Reframe question	T: What does Petunia have for Diego? C: Ummmmm. T: Look at the picture. What does she have in her hand? C: A paper.
Prompting/repeating questions	T: What does pout mean? C: a book. T: What does pout mean?
Corrective feedback	T: So, was that a dinosaur? C: Yeah. T: No, that's a dragon.
Recast	C: She break the castle. T: She broke the castle.
Downwards factual questions	T: They did get mad at each other. Why did they get mad at each other? C: Cause they were so sad. T: But why? What did Petunia do?