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Language complexity during read-alouds and kindergartners' vocabulary and symbolic understanding☆

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ABSTRACT

We explored links between complexity of teacher–child verbal interaction and child language and literacy outcomes in fifteen whole-class read-aloud sessions in Chilean kindergarten classrooms serving children from low socioeconomic backgrounds. We coded teacher and child turns for function (initiation, response, and follow-up), type (e.g., open vs. closed questions), and complexity (literal vs. inferential initiations/responses; evaluative vs. elaborative follow-ups). Almost half of the teacher–child talk was inferential, and elaborative follow-ups occurred only occasionally. Repeated patterns of verbal interaction were detected, typically with a teacher initiation/child response/teacher follow-up format; these could be either consistently literal, consistently inferential, or mixed (containing a shift up/down in complexity). The proportion of inferential teacher–child talk and the occurrence of mixed patterns was positively related to child vocabulary and symbolic understanding. Results highlight the relevance of inferential talk during read-alouds, and of the adjustment of language complexity to the child's level of understanding.

The practice of reading aloud or shared reading may be one of the most widely used instructional activities in early childhood education classrooms. Extensive research suggests that the success of read-alouds on promoting children's language and literacy skills does not rest on the act of reading itself but on *how* the teacher conducts the activity and engages children in a productive interaction (e.g., Teale, 2003). Verbal interaction during read-alouds has salient characteristics that make it particularly relevant for language and literacy development. As compared to other routine early childhood classroom activities, read-alouds are more likely to host information that poses high cognitive demands to children (Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006; Massey, Pence, Justice, & Bowles, 2008) due to the integration of unusual words and content departing from the here-and-now in the book-related conversations (De Temple & Snow, 2003). These conversations are usually triggered by the teacher's questions and patterned around teacher initiations, child responses, and teacher follow-ups (IRF, Sinclair & Coulthard, 1975). While the cognitive complexity of verbal interaction in reading sessions has been more frequently explored at the utterance level, less is known about what the typical teacher–child transactions in these conversations are and how these 'patterns' of verbal interaction may be related to child language and literacy outcomes.

In this study, we took a micro-analytic approach to examine the complexity of verbal interaction during whole-class reading sessions in Chilean kindergarten classrooms serving children from low socioeconomic backgrounds. We take two approaches to explore the verbal interaction, both with an emphasis on IRF cycles. First, we explored whether utterances representing teacher initiations, child responses, and teacher follow-ups were more or less cognitively complex. At a higher level of analysis, we explored the existence of recurrent IRF patterns, which could embody different levels of complexity depending on their components. By extending our exploration to recurrent patterns as units of analysis—rather than counts of its isolated components—we attempt to capture more information about the regularities in teacher–child verbal interaction throughout the sessions. Drawing on the explorations at these two levels, we examine the relation between language complexity and patterns of verbal interaction of diverse complexity, and child language and literacy scores at the end of kindergarten.

Throughout the study, we draw mainly on read-aloud research in educational settings, both in pre-kindergarten and kindergarten classrooms. Although the focus of the study is on kindergarten children, there are substantial and empirical reasons to expect that the mechanisms of read-alouds documented—much more profusely—in preschool settings would extend to the kindergarten year. Just as it occurs with preschool children, the role of read-alouds is key for kindergarteners, as the main way to be exposed to new words and meaning is through

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oral activities (Coyne, Simmons, Kame'enui, & Stoolmiller, 2004; Justice, Meier, & Walpole, 2005). Moreover, a recent meta-analytic review has concluded that the effects of read-aloud interventions are similar in pre-kindergarten and kindergarten years, although relatively smaller in the latter (Lonigan, Schatschneider, Westberg, & Literacy, 2009).

Read-alouds: language complexity and child outcomes

Although the magnitude of the contribution of reading aloud to language and literacy development in pre-literate children has not been conclusively established (Teale, 2003), there is consensus that this practice has the potential to be an effective instructional activity. Meta-analytic evidence indicates that read-aloud interventions in early childhood classrooms have positive effects on children's vocabulary and oral language, both for pre-kindergarten and kindergarten children (Lonigan, Shanahan, & National Institute for Literacy, 2009). Studies of naturalistic storybook reading with preschool children have reported positive associations between reading practices and the development of vocabulary (e.g., Dickinson & Smith, 1994; Hindman, Wasik, & Erhart, 2012; Zucker, Cabell, Justice, Pentimonti, & Kaderavek, 2013) and comprehension skills (e.g., Dickinson & Smith, 1994; van Kleeck, 2008). Something that is salient in the read-aloud literature is the conclusion that overall exposure to books is not enough to produce the desired effects (Teale, 2003). Just as it has been suggested by analysis of parent–child read-alouds (e.g., De Temple & Snow, 2003), research on whole-class reading in early childhood classrooms indicates that quality talk is at the core of the short- and long-term effects of read-alouds on child developmental outcomes (Dickinson & Smith, 1994; Hindman et al., 2012; Zucker et al., 2013).

As previously stated, the characteristics of shared book readings offer the possibility to engage in verbal exchanges that require the child to think beyond the limits of the information that is perceptually available (De Temple & Snow, 2003). The information exchanged in these conversations has been variously labeled as inferential language (van Kleeck, Vander Woude, & Hammett, 2006), decontextualized language (Snow, 1983), non-immediate talk (De Temple & Snow, 2003), representational talk (Sigel, 2002), and abstract language (van Kleeck, 2003). When teachers prompt children to make predictions, distinguish fact and fiction content, identify cause–effect relationships, infer the moral of the story, or explain the characters' points of view, they are initiating inferential exchanges. These exchanges are more cognitively challenging than literal ones (van Kleeck et al., 2006)—such as labeling objects, describing their perceptual qualities, or immediate information recall—because they demand not only acknowledging perceptual information, but also reflecting upon it. In order to meet this demand, the child has to take psychological distance from the available literal information and use his/her representational competence to construct an answer (Sigel, 2002).

There is no complete agreement about the relative effects and prevalence of inferential and literal language in read-alouds with young children. As for the relative effects of each type of language, research has revealed stronger links between inferential language and child outcomes. Inferential conversations with preschoolers have shown effects on their vocabulary development (De Temple & Snow, 2003; Dickinson & Porche, 2011; Gonzalez et al., 2014; Hindman et al., 2012), language production (de Rivera, Girolametto, Greenberg, & Weitzman, 2005), and story comprehension (Gonzalez et al., 2014; Strasser, Larraín, & Lissi, 2013). Literal-level elicitations trigger more contrasting opinions. They have been regarded as "counterproductive to the development of cognitive growth in general" (Sigel, 2002, p. 204); however, research in preschool settings shows that this type of exchange may be necessary to facilitate the acquisition of new words (Sénéchal, 1997), to enable more complex verbal interaction (Hindman et al., 2012; van Kleeck, 2008), and to promote young children's classroom participation and engagement (Blewitt, Rump, Shealy, & Cook, 2009; van Kleeck, 2008).

As for their prevalence, studies with preschoolers in whole-class settings (Zucker, Justice, Piasta, & Kaderavek, 2010) and in parent–child reading (Danis, Bernard, & Leproux, 2000) indicate that children can participate in book-related inferential conversations provided that they are prompted. Some pieces of evidence from studies on preschool read-alouds have found that teacher inferential talk and prompts are more prevalent than literal ones (Hindman, Connor, Jewkes, & Morrison, 2008; Zucker et al., 2010); however, more evidence seems to be indicating the contrary. Research in kindergarten (McKeown & Beck, 2003) and preschool read-alouds points to a lower prevalence of inferential language, ranging from 21% (Wasik, Bond, & Hindman, 2006) to 26% of the exchanges (Dickinson, McCabe, & Anastasopoulos, 2003). This is also supported by research on general classroom quality, which repeatedly indicates that interaction in kindergarten lacks opportunities to develop higher-order thinking skills, and advanced language modeling (La Paro et al., 2009; Yoshikawa et al., 2015).

In sum, both literal and inferential exchanges seem to have complementary functions in the interaction. While effects on child outcomes seem to stem more directly from the less frequent and more complex inferential exchanges, the more prevalent literal content might facilitate the occurrence of more complex interaction.

Sequencing of interaction

It seems that beyond the sheer presence or absence of more and less complex talk during read-alouds, the way it is prompted and sequenced during the conversation may make a difference on its effects on child outcomes. To our knowledge, there are no studies that tackle this issue directly and in the context of whole-class read-alouds in kindergarten. However, empirical and theoretical pieces of evidence suggest that sequencing may be a relevant issue to take into account when analyzing read-aloud interactions. An experimental study by Blewitt, Rump, Shealy and Cook (2009) touches upon the issue of sequencing in a one-to-one shared-reading experiment with 3-year olds. Experimenters read books to children in three different conditions: only low-demand (literal) questions, only high-demand (inferential) questions, and a progressive condition from low to high demand—scaffolded-like condition, as defined by the authors. Children who were exposed to demands of gradually increasing difficulty acquired more words than children exposed to only low or high cognitive demands. In this case, the progression of the cognitive demand during the reading session facilitated assuring basic grounds for more complex understanding, and contributed to maintaining child engagement.

Outside the context of an experimental design, sequencing of verbal interaction may also expose the natural, micro-time transactions between the child and his/her immediate learning environment, which are crucial for child development (Bronfenbrenner & Morris, 2006). Successful learning episodes—or teachable moments—are sometimes described as a set of exchanges with an optimal timing in the interaction that properly matches content and readiness to learn (Glasswell & Parr, 2009). A proper timing requires adjustments in the micro-time reflected in notions such as fine-tuning, which describes the dynamic regulation of complexity of the adult's elicitation to the child's comprehension level (Snow, 1989). Such adjustment affords an optimal discrepancy between the level of understanding of the child and the complexity of the conversation, generating opportunities for learning (Bruner, 1983; Snow, 1989). Sequential analyses of read-aloud conversations reveal that adults tend to adjust the complexity of the conversation to the level of understanding of the child, and eventually to increase the level of complexity from literal to inferential (Danis et al., 2000).

Although evidence of fine-tuning and of sequential adjustments in conversation complexity is drawn from studies of one-to-one verbal interaction between a parent and a preschool child, some elements of this mechanism could potentially be identified in whole-class read-alouds. One main element is the teacher's proper assessment of the moment-to-moment level of understanding of children; another one is to act