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# Conversations in early childhood classrooms: review of literature, preliminary findings from a professional development intervention, and policy suggestions

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## Chapter 7

### **Conversations in Early Childhood Classrooms: Preliminary Findings From a Professional Development Intervention**

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#### **<h1> Abstract**

This chapter describes how classroom conversations contribute to young children's early literacy and language skills. Empirical research on conversation-based professional development interventions is summarized and preliminary findings from a new approach designed for use with culturally and linguistically diverse children are described. Implications for educational practice with young children and for education policy related to curricula and education standards are discussed.

Key words: oral language, conversations, culturally and linguistically diverse, professional development

Seminal research studies using large longitudinal data have consistently shown that oral language skills during early childhood are important predictors of reading skills in elementary school (Kendeou, Van den Broek, White, & Lynch, 2009; NICHD Early Child Care Research Network, 2005). Recent work continues to demonstrate the important role that oral language skills play in later reading (see Lervåg, Hulme, & Melby-Lervåg, 2018). These studies have focused primarily on vocabulary and listening comprehension. However, comparatively, few studies in early childhood development and early schooling have examined children's conversational discourse skills. In this chapter, we focus on young children's oral language discourse skills (i.e., classroom conversations) and their importance both for preschoolers' concomitant language development and for their future educational success.

We begin by examining why and how conversations within classrooms contribute to children's early literacy. Then, we review empirical research related to conversation-based professional development (PD) interventions for teachers. Findings from this body of work (see Cabell et al., 2011; Girolametto, Weitzman, & Greenberg, 2003; Pence, Justice, & Wiggins, 2008; Piasta, Justice, Cabell, Wiggins, Turnbull, & Curenton, 2012) show that targeted conversation-based PD has a positive influence on teachers' conversational practice and children's language outcomes. We discuss two limitations of the research to date: low uptake of empirically-tested strategies from past work, and the lack of attention in existing approaches to the unique needs of culturally and linguistically diverse learners. We then offer the Conversation Compass approach (Curenton, 2016) as a supplement or alternative to existing conversation-based PD interventions. Conversation Compass is aimed at addressing the language diversity of

ethnic and racial minority children and improving teacher uptake of empirically-tested strategies. We provide preliminary findings from classroom case studies comparing teachers who were trained in the Conversation Compass approach with their co-teachers who were not. Last, we summarize the implications of conversation-based strategies for educational practice with young children and for education policy on curricula and education standards.

## **<h1>Early Childhood Classrooms and Young Children’s Language Development:**

### **The Importance of Classroom Conversations**

During the prekindergarten period (birth to age 4), environmental input explains 60%–70% of the variance in typically developing children’s oral language abilities, specifically their vocabulary and grammar abilities (Spinath, Price, Dale, & Plomin, 2004). Environmental inputs come from interactions in the home and also in early childhood education programs. Nearly 70% of all 4-year-olds are enrolled in a preprimary program before Grade 1 (McFarland et al., 2017), making the classroom environments of early childhood programs a major source of environmental language input for young children.

Early education classrooms are particularly important to the language development of children from low-income homes. National research shows low-income preschoolers enter early childhood programs with less developed oral language skills than their higher-income peers (National Center for Education Statistics, 2012). Hart and Risley (1995) found that home environments of children whose parents received public assistance during the 1980s were relatively lower in terms of quality and quantity of language input (i.e., number of vocabulary words) compared to the home environments of highly educated higher-income families.

However, other researchers, drawing primarily on ethnographic methods, do not report lower

quality language interactions in lower-income homes. For example, Sperry, Sperry, and Miller (2018) report that children living in low-income and working-class families from five geographic regions, spanning the 1970s through the 1990s, had home language environments that were comparable to those of their middle-income peers. Furthermore, Heath's (1983) seminal work from the 1980s found that, at home, working-class African American parents engaged in complex patterns of conversational discourse, though different from those their children encountered in school. She explained that the African American parents asked their children "real questions," meaning open-ended questions to which there was no predetermined answer, and that parents and children as young as toddlers were engaged in sophisticated oral storytelling. This body of work examining socioeconomic differences in young children's home language environments points to the complexity and diversity of those environments. The findings also highlight the potential value of classroom environments for supplementing language input from the home and capitalizing on the skills that low-income children bring to the classroom.

The question that remains is *how* the classroom environment can facilitate such important language input. Justice, Jiang, and Strasser (2018) identify three dimensions of what they call the "language-learning" environment of the classroom. One dimension is linguistic responsiveness (e.g., how the teacher engages children in conversations). A second is "data-providing" features of teachers' talk (e.g., mean length of utterance [MLU], syntax, vocabulary). A third is system-level general environment (e.g., global ratings of classroom quality related to language practices). The authors found that the systems-level dimension was only moderately correlated with the other two dimensions and was unrelated to children's language outcomes. They suggest that in order to understand the language-learning environment of early childhood classrooms, it

is best to examine the specific linguistic features of teachers' talk (Dimension 2) and their linguistic responsivity (Dimension 1). More specifically, they found that it was only teachers' linguistic responsivity (i.e., how well teachers facilitated children's conversation skills) that predicted children's vocabulary growth throughout the school year. The authors' factor analysis led them to conclude that linguistic responsivity is comprised of several communication-facilitation strategies, all of which loaded onto a significant factor called Communication-Facilitation Strategies. The strategies are

- looking expectantly and being warm and receptive to encourage children's interaction,
- using a slow pace of conversation to allow children to participate,
- using open-ended questions to stimulate conversation, and
- facilitating peer-to-peer communication.

Having prior empirical support for the association between children's outcomes and how teachers facilitate classroom conversations is particularly compelling during this time, given the Common Core Standards focused on speaking and listening skills. The Common Core Standards require that, by the end of kindergarten, children be able to respond audibly to express thoughts, feelings, and ideas (National Governors Association & Council of Chief State School Officers, 2010).<sup>1</sup> Children are also expected to engage in collaborative discussion around instructional topics/texts, and such discussions should have multiple turn-taking exchanges and follow the pragmatic rules for turn-taking during conversation. As it relates to questioning, students are expected to be able to ask and/or answer questions and, if need be, clarify what they have said. The mastery of all these skills occurs in the context of classroom conversations, with both peers and teachers. Given these standards, coupled with what we know about the importance of

communication-facilitation strategies, there may be rich opportunities to build children's communication skills in the years before formal schooling.

Research that investigates classroom conversations during the early childhood years prior to kindergarten entry shows that many early education teachers seldom expose children to high-level classroom conversations (Dickinson, 2001; Foorman, Anthony, Seals, & Mouzaki, 2002; Girolametto & Weitzman, 2002). Goh, Yamauchi, and Ratliffe (2012) found that all preschool children have limited opportunities to practice their conversational skills due to restrictions on teachers' time. Unfortunately, many low-income children bear the brunt of these workforce constraints at greater rates than their higher income peers. Research suggests that classrooms vary dramatically in the quality of their language-learning environments, particularly classrooms where the majority of children are living in poverty (Connor, Morrison, & Slominski, 2006; Farran, Aydogan, Kang, & Lipsey, 2006; Pianta et al., 2005; Sylva et al., 2006). Observational studies that examine the language-learning environment of low-income classrooms report that teachers' classroom talk relies too heavily on behavioral directives, closed-ended questions, and talk that is not cognitively challenging (Durden & Dangel, 2008; Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006; Massey, Pence, Justice, & Bowles, 2008). These descriptions of talk are a stark contrast to the communication-facilitation strategies reported to have positive outcomes for children's vocabulary.

Not only is the quality of conversations problematic for classrooms serving children living in poverty, but some evidence also indicates that conversations are constrained when children are culturally and linguistically diverse (CALD).<sup>2</sup> Teachers report being uncertain about the strategies needed to support CALD learners' language and literacy skills (Diamond & Powell, 2011) because many teachers lack knowledge about the cultural traditions and communication

styles of these children (Buysse, Castro, West, & Skinner, 2005; Curenton, 2006; Gándara, Maxwell-Jolly, & Driscoll, 2005; Zepeda, Castro, & Cronin, 2011). Goldberg (2013) explains that, for all children, high-quality conversations around academic texts and topics are important for facilitating language skills. However, CALD learners need additional support during classroom conversations because they face the challenge of learning both the social and the academic language of English concurrently during preschool (Aukerman, 2007) and later elementary grades (Goldenberg, 1992; Zhang & Stahl, 2011). Fortunately, there is a compelling body of evidence demonstrating the effectiveness of high-quality conversations in fostering children's language skills and successful teacher PD efforts.

### **<h1>Empirical Research Related to Professional Development for Classroom Conversations**

There is a wide body of rigorous evidence that PD trainings that focus on oral language (i.e., conversations) during children's early school years provide the foundation for later school success because they enable teachers to build young students' language abilities. Girolametto et al. (2003) found that when daycare professionals in Canada were trained to enhance the quality of their language input by asking children more open-ended questions and using follow-up comments, toddlers improved in their expressive language skills (namely, their number of utterances and MLU). Wasik and colleagues also demonstrated positive effects for children's vocabulary following professional development that taught Head Start teachers how to ask open-ended questions during storybook reading and dramatic play (Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006). Other studies found that when teachers received training to increase their communication-facilitation strategies, there were positive effects on children's vocabulary,



MLU, and early literacy skills (Cabell et al., 2011; Piasta et al., 2012). Furthermore, when teachers received training to use communication-facilitation strategies, they engaged their students in more multi-turn conversations (e.g., four or more back-and-forth turn-taking exchanges) and more spontaneous child-initiated conversations, which can have a positive impact on children's vocabulary growth throughout the year.

Despite the benefits of these oral language professional development trainings, implementation fidelity is consistently low (e.g., Cabell et al., 2011; Pence et al., 2008; Piasta et al., 2012). Justice, Mashburn, Hamre, and Pianta (2008) suggested that implementation, or the extent to which teachers incorporate strategies into their practice, may be low because classroom conversation training requires teachers to learn how to engage in dynamic spoken exchanges in which they follow the child's lead (often child initiated). Such exchanges cannot be scripted. Bond and Wasik's (2009) work incorporated the "conversation station" into the classroom, a designated place in the classroom facilitated by one of the teachers and designed to engage children in one-on-one teacher-child conversation. However, even though their approach provided a routine time and place for conversations throughout the day, it did not involve training teachers specifically on any of the communication-facilitating strategies that Justice and her colleagues found to be related to positive language outcomes.

A limitation of professional development approaches related to classroom conversations is that they did not explicitly address the cultural and linguistic diversity of the students who participated in these interventions even though the children in the interventions were ethnically and racially diverse. Bilingual children whose home language is English need additional language support in the classroom, above and beyond what is generally provided to children who are monolingual English speakers. Another limitation is that nearly all of these professional

development interventions around conversations comprised samples of teachers who were mostly White. In addition, questions remain as to whether conversation interactions in classrooms might be different if the workforce were racially, ethnically, and linguistically diverse. Some research has found that CALD children have more active voices in the classroom when teachers value bilingualism and/or children's home language (Baker, 2018; Phillips Galloway & Lesaux, 2017; Strickland & Marinak, 2016). A third limitation is that the model for classroom conversation interventions rely heavily on the modality of one-on-one teacher-child interactions, even though as Goh and colleagues (2012) explained, there is little time for such conversations throughout the day. Early and colleagues' (2010) breakdown of the early childhood day shows that children actually spend most of their day interacting with each other and talking in groups (e.g., circle time, small groups). These limitations in implementing and addressing classroom conversations suggest a need for a classroom conversation approach that explicitly applies principles of communication facilitation where both the teachers and children are culturally, racially, and linguistically diverse.

### **<h1>Extending Communication-Facilitation Strategies:**

#### **The Conversation Compass Approach**

Developed by Curenton (2016), Conversation Compass is a conversation-based professional development approach in which teachers learn how to routinely and systematically use three strategies. First, they learn the importance of organizing peer groups of young children around age-appropriate learning activities to generate *instructional conversations*. Research on instructional conversations focuses both on elementary school students (Goldenberg, 1992; Zhang & Stahl, 2011) and early childhood students (Goh et al., 2012). Goh and her colleagues (2012) describe instructional conversations not as spontaneous casual conversations but, rather,

intentional conversations that facilitate children's learning around a topic or theme. The authors implemented their instructional conversation intervention in preschool settings where small-group discussions between teachers and children took place. These discussions allowed the young learners to share their previous experiences and knowledge and integrate it with new information to broaden their understanding of different concepts. One of the many results of this intervention indicated that teachers had already been teaching through dialogue in their classrooms, but they gained a sense of value and appreciation for meaningful conversations around academic content after focusing on instructional conversations.

Conversation Compass expands Goh and her colleagues' (2012) research on instructional conversations by focusing on *instructional peer conversations* that revolve around planned thematic discussions with small groups of children. The teacher's role during these discussions is to facilitate students' collaborative reasoning with peers by using challenging open-ended questions. Research shows students learn better when group size is small and when students are collaborating with their peers (e.g., Blumenfeld, Marx, Soloway, & Krajcik, 1996; Cohen, 1994).

Second, in Conversation Compass, teachers learn how to engage in feedback loops and how to ask a range of open-ended questions that vary in their level of cognitive challenge. The ideas for this feedback loop are based on the communication-facilitating strategies and language-modeling strategies that undergird the prior body of work in this area (Cabell et al., 2011; Girolametto et al., 2003; Pence, Justice, & Wiggins, 2008; Piasta et al., 2012). These strategies are broken down in a simplified circular mnemonic with the anchors of "Ask Open-Ended Questions," "Actively Listen," and "Mirror to Expand or Clarify." Consistent with Justice, Jiang, and Strasser's work (2018), such anchors in this feedback loop would mainly correspond to

Dimension 1 (linguistic responsiveness that fosters children's communication, such as asking open-ended questions and actively listening), but aspects of Dimension 2 (data-driven features of teachers talk) would be represented in the "Mirror to Expand or Clarify" anchor that focuses specifically on the grammar and vocabulary of teachers' talk. There is empirical justification for including these anchors in the feedback loop. Justice and her colleagues (2018) found of a positive relationship between the complexity of teachers' talk and teacher responsiveness during a conversational exchange. Thus, the feedback loop is a parsimonious and simplified way to train teachers in linguistic responsiveness and "data-driven" language modeling, as described by Justice, Jiang, and Strasser.

Conversation Compass's feedback loop also presents teachers with a mnemonic for how to scaffold between less challenging and more challenging open-ended questions. A "Question Trail" is another visual mnemonic that attempts to simplify and expand prior empirical work related to open-ended questions (Peterson & McCabe, 1994; Wasik & Bond, 2001). It provides a visual guide for moving from *wh*- questions (who, what, when, where) to *how* and *why* questions and on to hypothesis-generating questions, such as *what if*. The cognitive challenge of these questions spans widely as they fall along different points of Blank, Rose, and Berlin's (1978) continuum of *literal* (concrete) to *inferential* (abstract) reasoning. For instance, to answer *wh*- questions, children can rely on their knowledge of concrete, observable information, but to answer *how*, *why*, or *what if* questions requires children to make inferences about their knowledge and to speculate about possibilities. Massey, Pence, Justice, and Bowles (2008) detail how *wh*- questions predominate in teachers' talk. However, the hope is that visually presenting this range of questions in a sequence that goes from less challenging to more challenging will remind teachers' to use a range of questions.

Third, in the Conversation Compass approach, teachers learn the importance of systematically observing children's conversations skills. To observe children's conversations with their peers, teachers can use the Tracking Conversations sheet, specifically designed to facilitate naturalistic observations of children's conversations. The Tracking Conversations sheet can be used as a progress-monitoring tool; teachers can modify their interactions with children or better facilitate peer conversations based on the results. To assess children's overall classroom conversation skills, teachers can complete the Conversation Compass Communication Screener (CCCS), which has proved to be highly correlated with other teacher-reported child outcome measures used in preschool classrooms (Curenton, Sims, Rochester, & Gardner, 2019; Gardner & Curenton, 2017). The CCCS is used to assess individual children's communication abilities, and it provides a benchmark for how children are using conversational discourse in the classroom. A revised version, the CCCS-R, comprises four subscales ("Decontextualized Language/Pre-Academic Talk," "Social Communication," "Negative Communication Behaviors," and "Narrative and Vocabulary Knowledge"). It has both concurrent and predictive validity with standardized assessments of children's language and literacy skills (Curenton et al., 2019).

Fourth, the Conversation Compass explicitly focuses on the importance of building children's academic language skills (Snow, 2010). Academic language is the type of discourse valued at school because it supports children's ability to read, comprehend, and write academic texts. Academic language skills include skills such as abstract reasoning, comprehension of technical vocabulary (e.g., words used in math, science, or literary analysis), and discussions and composition of written texts (O'Connor & Michaels, 2019). In the preschool years, children are developing academic language skills through read alouds and classroom conversations that allow

them to ask and answer questions and describe their inquiry process (Michael Luna, 2017). In the Conversation Compass approach, teachers are guided in how to foster academic language skills by using conversations to facilitate children's abstract reasoning, vocabulary, and discussions about stories.

Finally, the Conversation Compass approach focuses explicitly on how culture and home language traditions may influence children's classroom conversation skills. A literature review by Vernon-Feagans, Hammer, Miccio, and Manlove (2001) details how the language and literacy development of African American and Latinx children is distinct from that of their White peers and suggests how they may face unique challenges given the quantity and quality of language input in their homes. Nevertheless, research has shown that Latinx (Melzi, Schick, & Kennedy, 2011), as well as Head Start children from a variety of ethnic backgrounds, responded positively to a conversation-based home language intervention focused on reminiscing about past experiences (Reese, Leyva, Sparks, & Grolnick, 2010). Evidence from prior work demonstrates that Black and Latinx children are also responsive to conversation-based interactions at school. The majority of child participants in prior studies were Black and Latinx children,<sup>3</sup> and those studies demonstrated positive changes in children's language and early literacy outcomes after teachers were trained in conversation-based PD (Cabell et al., 2011; Justice, Jiang, & Strasser, 2018; Piasta et al., 2012).

Overall, the Conversation Compass approach builds on the empirical findings from the literature on conversation-based PD in three ways: (a) by adding aspects of real-world classroom practice, such as a focus on academic language; (b) by explicitly focusing on diversity (i.e., both the challenges and strengths of Black and Latinx home language traditions); and (c) by

simplifying the body of literature in a teacher-friendly manner by means of a workbook for early childhood educators.

### **<h1>Conversation Compass in Action: PD Training With a Head Start Program**

In October 2011, Curenton was approached by the education supervisor of the Head Start program for the northeastern United States and was asked to conduct an in-service workshop on oral language skills. All of the teachers working at the program were required to participate in the program-wide training, which was designed to enhance classroom conversations. This was a six-hour on-site training developed and led solely by Curenton. The training consisted of (a) a PowerPoint presentation explaining key concepts of the instructional strategy (e.g., back-and-forth exchanges, questioning, and engaging in decontextualized discourse); (b) video examples of teachers from the program engaging in small-group conversations; (c) small-group breakout discussions and planning sessions around using the lesson planning tools; and (d) instructions on how to conduct classroom assessments about children's conversational skills. At the end of this training, each teacher received a printed manual that explained the strategy and contained copies of the lesson planning tools. The education supervisor encouraged teachers to use the lesson planning tools in their daily activities, but there was no formal requirement to do so. Also, at the end of the training workshop, teachers were asked to complete an evaluation (written survey) of the in-service. The mean response rate for completion was 79%, and the response was overwhelmingly positive, with the majority of participants indicating that they highly valued the in-service. The specific responses for the three teachers (Rachel, Stacey, and Eileen)<sup>4</sup> who were selected for follow-up are presented in Table 1. Also, during an interview follow-up with Rachel and Eileen in May 2011, both teachers indicated that they were applying the strategies they had

learned in the training to their classroom practices. Rachel noted that she regularly reread the training manual.

[Insert Table 1 About Here]

## <h2>Follow-Up Observations

The following year, beginning in October 2012, both the program staff and Curenton were interested in observing whether the teachers were using the Conversation Compass approach.

The education supervisor selected three classrooms in the same center to participate in follow-up observations.<sup>5</sup> Each classroom contained a teacher who had received the PD in the prior year (the “PD teachers” were Rachel, Stacey, and Eileen) and a teacher who had not (the “non-PD teachers” were Madge, Miriam, and Mary). The teachers worked in pairs in the classrooms, and the PD teachers had been intentionally paired with co-teachers who had not received the Conversation Compass PD in the prior year. All teachers had received training in the HighScope Curriculum before the start of the school year.

Our goal was to observe how language was used in the classrooms and to discover how teachers who had received the PD compared to their co-teachers who had not. Specifically, we were interested in (a) whether PD teachers engaged in more linguistic responsive strategies (i.e., turn-taking, questioning) than the comparison teachers; (b) whether PD teachers used more complex language (i.e., MLU and mean length of turn-taking exchange [MLT]); and (c) whether the children’s talk was different when they were engaged in conversations with PD teachers versus non-PD teachers (i.e., did they use more casual language or “internal state talk” such as talk about thoughts and feelings)?



## <h2>Participants

After selection, teachers and families were introduced to the study in a welcome letter explaining the purpose of the observation study. Informed consent was obtained from teachers and children. Teachers and families received gift cards as incentives for their participation.

The teachers were racially and ethnically diverse female preschool teachers, half of whom were born outside of the United States (from Jamaica, Philippines, and Central America [country unspecified]). These six teachers taught a total of 54 preschoolers. The children came from a variety of ethnic, racial, and national backgrounds (e.g., Latinx, Black/African American, Asian). Rachel and Madge worked in Classroom 1; Stacey and Miriam worked in Classroom 2; Eileen and Mary worked in Classroom 3. The program staff and/or teachers described the children as being 35% dual language learners (DLLs), based on their families' reports of home languages spoken. However, none of the teachers were certified to teach children with limited English proficiency or to teach English as a second language. Table 2 provides descriptive and demographic information for the teachers and children across the three classrooms.

[Insert Table 2]

## <h2>Data Collection

Three trained undergraduate research assistants observed in the three classrooms for eight weeks, from October to December 2012. In Weeks 1–2, the researchers only observed and took notes, with the goal of allowing the teachers and the children to become acclimated to their presence. In Week 3, the research assistants began videotaping naturalistic conversations and interactions that occurred in the classrooms between the teachers and the children. For example, they videotaped teacher-student interactions taking place during small-group, teacher-directed instruction (e.g.,

recall or planning time) or during free-choice time when students worked and played in a center of their choosing (e.g., block area, house area, table activities). The data used included the videotapes and transcripts of these interactions.

Throughout November and December of 2012, the Head Start staff conducted CLASS (Pianta, LaParo, & Hamre, 2008) observations of each classroom as part of their ongoing program monitoring. These observations were conducted separately and independently of the study, and the study team was made aware of the scores only after follow-up observations were complete. CLASS scores range from 1 (*lowest*) to 7 (*highest*); the scores are a reflection of the entire classroom experience and are not tied to a specific teacher.

In Classroom 1, taught by Rachel and Madge, CLASS scores were in the moderate range: Emotional Climate = 6.19, Classroom Organization = 5.84, Instructional Support = 4.84. In Classroom 3, taught by Eileen and Mary, scores also were moderate: Emotional Climate = 5.69, Classroom Organization = 5.09, Instructional Support = 4.17. In Classroom 2, taught by Stacey and Miriam, observational scores were not calculated, because for half of the fall semester there were temporary substitutes working in the room and the program staff chose to wait until a permanent teacher was in place. The permanent teacher was not hired until after our study observations were complete.

## **<h2>Descriptive Analysis**

All teachers were taped for 10–20 minutes. A total of 47 observations were recorded, but some teachers had more observations than others. All 47 videotaped interactions were viewed by the third and fourth author, and they manually counted for the numbers of *how/why* versus *wh-* questions within each videotaped interaction.<sup>6</sup> However, because some teachers had more

videotaped observations, only the longest videotaped interaction was transcribed for each teacher. The longest videotaped interactions were determined by length of video.

Videos were transcribed in the summer and fall of 2014 by the third author, a multilingual (English, Spanish, Hindi, and Urdu) undergraduate research assistant who served as the primary transcriber for the study. Across the sample, the teacher utterances per video ranged from 88 to 324, and children's utterances ranged from 54 to 212; due to the variance in transcript length, all relevant descriptive outcomes were reported in terms of the proportion/ratio of the number of utterances by the speaker. Videos were transcribed and analyzed using the Child Language Data Exchange System (CHILDES; MacWhinney, 2000). All video observations were transcribed by two people, one as the primary transcriber (i.e., the transcriber who created the initial transcription) and one as secondary transcriber (i.e., the transcriber who checked the initial transcription by watching the videotapes and verifying the transcription). Any discrepancies were discussed by the transcribers until they reached a consensus. After transcriptions, CLAN was used to analyze the descriptive outcomes of the conversations.

Patterns of the data from the PD versus non-PD teachers were analyzed. On average, as depicted in descriptive means (and standard deviations) from Table 3, teachers who participated in Conversation Compass PD engaged their students in longer conversations that included more turn-taking exchanges than did their co-teachers working in the same classroom. In addition, the PD teachers asked more *wh-* and *how/why* questions. The third author's notes from watching all the videotapes and counting the types of questions confirmed that the language interactions were different across teachers, particularly as they related to open-ended *how/why* and *wh-* questions. The PD teachers also used more words per utterance (MLU), and they used more words at each conversational turn-taking exchange (MLT). Many of the same children were engaged in

conversations throughout the day with different teachers; therefore, the element that consistently changed in the conversation was the teacher, not necessarily the child. During conversations with the PD teachers, children used more causal language (i.e., coordinating conjunctions such as *but*, *and*, *yet*, *so*) and more internal state language (i.e., talk about thoughts and/or emotions), as opposed to conversations with the non-PD teachers. These results are intriguing and align with prior work of Justice, Jian, and Strasser (2018), who found that in their conversation-based PD intervention, the intervention teachers were more linguistically responsive than comparison teachers and the intervention was positively related to child outcomes.

[Insert Table 3 About Here]

Another source of descriptive data comes from comparing a PD teacher (Rachel) with her non-PD co-teacher (Madge) working in the same classroom (Table 4). The conversation took place during “planning time,” which is the part of the HighScope Curriculum where children have to articulate where they want to play during work time (free-choice play). The example illustrates how the Conversation Compass PD teachers asked more questions and had more turn-taking exchanges; in addition, Rachel engaged the children in a joint conversation about letter recognition and phonemes. In contrast, the comparison teacher used the same classroom routine in a perfunctory manner that only required the children to use a predetermined response (e.g., stating with one word or pointing to the area where they wanted to go). The children were not encouraged to engage in a joint conversation with their peers, and no critical thinking was involved.

[Insert Table 4 About Here]

These descriptive results are intriguing, but additional trials of the approach are needed. A recent iteration of the Conversation Compass approach includes an online training course that has been completed by several teachers working in a Head Start program in the Northeast, and the approach has been modified to train infant/toddler teachers and family child care providers in Ohio (Curenton & Granda, 2019). Future research with this approach needs to increase the sample size and include standardized measures of children's language and literacy skills in addition to measures from the classroom language sample. In addition, robust experimental or quasi-experimental designs testing the approach need to be conducted.

## **<h1>Policy Considerations for Supporting Classroom**

### **Conversations in Preschool**

The convergence of several policy drivers highlight the importance of addressing classroom conversations—namely, requirements in the Common Core State Standards coupled with the limitations in early childhood teachers' practice and knowledge, particularly in terms of CALD learner's oral language needs—demonstrate a critical need for PD efforts (both preservice and in-service) focused on communication-facilitation strategies to promote preschool children's language development. It is imperative to consider the racial, ethnic, and linguistic diversities of children when investing in PD because these children have unique language, curricular, and instructional practice needs, especially those who come from low-income households with few resources. Both the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS-SDE) characterize high-quality instruction that is “thoughtfully planned, challenging, engaging, developmentally appropriate, culturally and linguistically responsive, comprehensive,

and likely to promote positive outcomes for all young children” (p. 2, NAEYC & NAECS-SDE, 2003). Teachers facilitate children’s learning and development when they engage in culturally responsive practices, create lessons that reflect the cultural heritage of their students, and plan activities that encourage ethnic and language minority children to take active roles (Castro, Gillanders, Franco, Bryant, Zepeda, Willoughby, & Méndez, 2017). Designing PD efforts that equip teachers with the appropriate and effective skills to engage children from *all* backgrounds in meaningful conversations will enhance young children’s ability to be ready for school and to achieve long-term overall academic success.

### <h1>Conclusion

Our goal for this chapter was to demonstrate that classroom conversations are an important aspect of a high-quality instruction in the classroom. The preschool classroom setting is a key environmental context for fostering children’s oral language development because so many young children attend early education programs. Several early childhood scholars have demonstrated that classroom conversations during the early school years provide the foundation for later school success (see Bond & Wasik, 2009; Cabell et al., 2011; Girolametto, Weitzman, & Greenberg, 2003; Piasta et al., 2012). Classroom conversations serve as the vehicle through which children receive knowledge about the use and meaning of sociocultural linguistic artifacts and/or symbols, such as stories, letters, or numbers. As Dickinson (2006) points out, the most powerful predictor in the preschool classroom accounting for children’s later literacy skills is teacher instructional strategies that support extended conversations. Thus, classroom discourse is at the core of pedagogy and practice and is worth the educational investment.

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## <h1>Notes

<sup>1</sup> Such a standard only applies to children who have the vocal and audible capacity to perform such tasks. The American Speech and Hearing Association provides guidance as to how these standards can be modified for children with hearing loss (<https://www.asha.org/aud/Common-Core-State-Standards-and-Students-With-Hearing-Loss/>).

<sup>2</sup> Children who are racially and/or ethnically diverse and whose households are linguistically diverse are referred to as culturally and linguistically diverse (CALD) learners; they include children representing numerous racial or ethnic backgrounds and nationalities, such as Afro-Caribbean immigrants, Korean Americans, Chicanos, African Americans, and Puerto Ricans.

<sup>3</sup> These prior studies did not involve separate analyses by child ethnicity.

<sup>4</sup> All names are pseudonyms.

<sup>5</sup> Therefore, this was a sample of convenience that was selected by the program, not the researcher.

<sup>6</sup> Summary counts of the types of questions across all the 47 videotaped interactions showed that the PD teachers asked more questions (total number of questions overall) than the

non-PD teachers; nevertheless, due to the range in number of videotapes across teachers, the results we present related to questions is based only on the questions asked during the longest transcript for each teacher.

### <h1>References

- Aukerman, M. (2007). A culpable CALP: Rethinking the conversational/academic language proficiency distinction in early literacy instruction. *The Reading Teacher*, 60(7), 626–636. doi:10.1598/RT.60.7.3
- Baker, M. (2019). Playing, talking, co-constructing: Exemplary teaching for young dual language learners across program types. *Early Childhood Education Journal*, 47(1), 115–130. doi:10.1007/s10643-018-0903-0
- Blank, M., Rose, S. A., Berlin, L. J. (1978). *The language of learning: The preschool years*. New York, NY: Grune & Stratton.
- Blumenfeld, P. C., Marx, R. W., Soloway, E., & Krajcik, J. (1996). Learning with peers: From small group cooperation to collaborative communities. *Educational Researcher*, 25(8), 37–39. doi:10.2307/1176492
- Bond, M. A., & Wasik, B. A. (2009). Conversation stations: Promoting language development in young children. *Early Childhood Education Journal*, 36(6), 467-473. doi:10.1007/s10643-009-0310-7
- Buyse, V., Castro, D. C., West, T., & Skinner, M. (2005). Addressing the needs of Latino children: A national survey of the state administrators of early childhood programs. *Early Childhood Research Quarterly*, 20(2), 146–163. doi:10.1016/j.ecresq.2005.04.005



- Cabell, S. Q., Justice, L. M., Piasta, S. B., Cumenton, S. M., Wiggins, A., Turnbull, K. P., & Petscher, Y. (2011). The impact of teacher responsivity education on preschoolers' language and literacy skills. *American Journal of Speech-Language Pathology, 20*(4), 315–330. doi:10.1044/1058-0360(2011/10-0104)
- Castro, D. C., Gillanders, C., Franco, X., Bryant, D. M., Zepeda, M., Willoughby, M. T., et al. (2017). Early education of dual language learners: An efficacy study of the Nuestros Niños School Readiness professional development program. *Early Childhood Research Quarterly, 40*, 188–203. doi:[10.1016/j.ecresq.2017.03.002](https://doi.org/10.1016/j.ecresq.2017.03.002)
- Cazden, C. B. (2001). *Classroom discourse: The language of teaching and learning* (2nd ed.). Portsmouth, NH: Heinemann.
- Cohen, E. G. (1994). Restructuring the classroom: Conditions for productive small groups. *Review of Educational Research, 64*(1), 1–35. doi:10.3102/00346543064001001
- Connor, C. M., Morrison, F. J., & Slominski, L. (2006). Preschool instruction and children's emergent literacy growth. *Journal of Educational Psychology, 98*(4), 665–689. doi:10.1037/0022-0663.98.4.665
- Cumenton, S. M. (2006). Oral storytelling: A cultural art that promotes school readiness. *Young Children, 61*(5), 78–89. Retrieved from <https://www.naeyc.org/resources/pubs/yc>
- Cumenton, S. M. (2016). *Conversation compass: A teacher's guide to high-quality language learning in young children*. St. Paul, MN: Readleaf.
- Cumenton, S. M., & Granda, C. (2019). Building blocks of infant-toddler conversation skills: using the Conversation Compass© to drive innovation in Early Head Start classroom conversations. *Early Child Development and Care, 1-11*. doi.org/10.1080/03004430.2019.1647190

- Curenton, S. M., Sims, J., Rochester, S. E., & Gardner, S. L. (2019) The Conversation Compass Communication Screener–Revised. *Early Childhood Research Quarterly, 47*, 182–193. doi.org/10.1016/j.ecresq.2018.10.013
- Diamond, K. E., & Powell, D. R. (2011). An iterative approach to the development of a professional intervention for Head Start teachers. *Journal of Early Intervention, 33*(1), 75–93. doi:10.1177/1053815111400416
- Dickinson, D. K. (2001). Putting the pieces together: Impact of preschool on children’s language and literacy development in kindergarten. In D. K. Dickinson & P. O. Tabors (Eds.), *Beginning literacy with language* (pp. 223–255). Baltimore, MD: Brookes.
- Dickinson, D. K. (2006). Toward a toolkit approach to describing classroom quality. *Early Education and Development, 17*(1), 177–202. doi:10.1207/s15566935eed1701\_8
- Durden, T. R., & Dangel, J. R. (2008). Teacher-involved conversations with young children during small group activity. *Early Years, 28*(3), 251–266. doi:10.1080/09575140802393793
- Early, D. M., Iruka, I. U., Ritchie, S., Barbarin, O. A., Winn, D. M. C., Crawford, G. M., . . . Pianta, R. C. (2010). How do pre-kindergarteners spend their time? Gender, ethnicity, and income as predictors of experiences in pre-kindergarten classrooms. *Early Childhood Research Quarterly, 25*(2), 177–193. doi:10.1016/j.ecresq.2009.10.003
- Farran, D., Aydogan, C., Kang, S., & Lipsey, M. (2006). Preschool classroom environments and the quantity and quality of children’s literacy and language behaviors. In D. K. Dickinson & S. B. Neuman (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 257–268). New York, NY: Guilford Press.

- Foorman, B. R., Anthony, J., Seals, L., & Mouzaki, A. (2002). Language development and emergent literacy in preschool. *Seminars in Pediatric Neurology*, *9*(3), 173–184.  
doi:10.1053/spen.2002.35497
- Gándara, R., Maxwell-Jolly, J., & Driscoll, A. (2005). *Listening to teachers of English language learners: A survey of California teachers' challenges, experiences, and professional development needs*. Santa Cruz, CA: Center for the Future of Teaching and Learning.
- Gardner, S. L., & Curenton, S. M. (2017). Conversation Compass Communication Screener: A conversation screener for teachers. *Early Child Development and Care*, *187*(3–4), 487–497. doi:10.1080/03004430.2016.1246443
- 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. doi: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. doi:10.1044/0161-1461(2002/022)
- Girolametto, L., Weitzman, E., & Greenberg, J. (2003). Training day care staff to facilitate children's language. *American Journal of Speech-Language Pathology*, *12*, 299–311.  
doi:10.1044/1058-0360(2003/076)
- Goh, S. S., Yamauchi, L. A., & Ratliffe, K. T. (2012). Educators' perspectives on instructional conversations in preschool settings. *Early Childhood Education Journal*, *40*(5), 305–314.  
doi:10.1007/s10643-012-0518-9

- Goldberg, C. (2013). Unlocking the research on English learners: What we know—and don't yet know—about effective instruction. *American Educator*, 37(2), 4–11. Retrieved from <https://www.aft.org/ae>
- Goldenberg, C. (1992). Instructional conversations: Promoting comprehension through discussion. *The Reading Teacher*, 46(4), 316–326. Retrieved from <https://ila.onlinelibrary.wiley.com/journal/19362714>
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Brookes.
- Heath, S. B. (1983). *Ways with words: Language, life and work in communities and classrooms*. Cambridge, MA: Cambridge University Press.
- Justice, L. M., Jiang, H., & Strasser, K. (2018). Linguistic environment of preschool classrooms: What dimensions support children's language growth? *Early Childhood Research Quarterly*, 42(1), 79–92. doi:10.1016/j.ecresq.2017.09.003
- Justice, L. M., Mashburn, A. J., Pence, K., & Wiggins, A. (2008). Experimental evaluation of a preschool language curriculum: Influence on children's expressive language skills. *Journal of Speech, Language, and Hearing Research*, 51(4), 983–1001. doi:10.1044/1092-4388(2008/072)
- Kendeou, P., Van den Broek, P., White, M. J., & Lynch, J. S. (2009). Predicting reading comprehension in early elementary school: The independent contributions of oral language and decoding skills. *Journal of Educational Psychology*, 101(4), 765–778. doi:10.1037/a0015956

- Lervåg, A., Hulme, C., & Melby-Lervåg, M. (2018). Unpicking the developmental relationship between oral language skills and reading comprehension: It's simple, but complex. *Child Development, 89*(5), 1821–1838. doi:10.1111/cdev.12861
- MacWhinney, B. (2000). *The CHILDES project: Tools for analyzing talk: Vol. 1. Transcription format and programs* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Massey, S. L., Pence, K. L., Justice, L. M., & Bowles, R. P. (2008). Educators' use of cognitively challenging questions in economically disadvantaged preschool classroom contexts. *Early Education and Development, 19*(2), 340–360. doi:10.1080/10409280801964119
- McFarland, J., Hussar, B., de Brey, C., Snyder, T., Wang, X., Wilkinson-Flicker, S., et al. (2017). *The condition of education: 2017* (NCES 2017-144). Washington, DC: National Center for Education Statistics.
- Melzi, G., Schick, A. R., & Kennedy, J. L. (2011). Narrative elaboration and participation: Two dimensions of maternal elicitation style. *Child Development, 82*(4), 1282–1296. doi:10.1111/j.1467-8624.2011.01600.x
- Michael Luna, S. M. (2017). Academic language in preschool: Research and context. *The Reading Teacher, 71*(1), 89–93. doi:10.1002/trtr.1582
- National Association for Education of Young Children (NAEYC) & National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE). (2003). *Early childhood curriculum, assessment, and program evaluation: Building an effective, accountable system in programs for children birth through age 8: Joint position statement*. Retrieved from [www.naeyc.org/about/positions/pdf/CAPEexpand.pdf](http://www.naeyc.org/about/positions/pdf/CAPEexpand.pdf).

- National Center for Education Statistics. (2012). *The condition of education: 2012*. Washington, DC: U.S. Department of Education.
- National Governors Association & Council of Chief State School Officers. (2010). *Common Core State Standards for English language arts and literacy in history/social studies, science, and technical subjects*. Washington, DC: Authors.
- NICHD Early Child Care Research Network. (2005). Pathways to reading: The role of oral language in the transition to reading. *Developmental Psychology*, *41*(2), 428–442.  
doi:10.1037/0012-1649.41.2.428
- O'Connor, C., & Michaels, S. (2019). Supporting teachers in taking up productive talk moves: The long road to professional learning at scale. *International Journal of Educational Research*, *97*, 166–175. doi: doi.org/10.1016/j.ijer.2017.11.003
- Pence, K. L., Justice, L. M., & Wiggins, A. K. (2008). Preschooler teachers' fidelity in implementing a comprehensive language-rich curriculum. *Language, Speech, and Hearing Services in Schools*, *39*(3), 329–341. doi:10.1044/0161-1461(2008/031)
- Peterson, C., & McCabe, A. (1994). A social interactionist account of developing decontextualized narrative skill. *Developmental Psychology*, *30*(6), 937–948.  
doi:10.1037/0012-1649.30.6.937
- Phillips Galloway, E., & Lesaux, N. (2017). A matter of opportunity: Language and reading development during early childhood for dual-language learners. In N. Kucirkova, C. E. Snow, V. Grøver, & C. McBride (Eds.), *The Routledge international handbook of early literacy education: A contemporary guide to literacy teaching and interventions in a global context* (26–49). London, England: Routledge.

- Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., et al. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions? *Applied Developmental Science, 9*, 144–159. doi:10.1207/s1532480xads0903\_2
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008). *Classroom Assessment Scoring System (CLASS) preschool version*. Baltimore, MD: Brookes.
- Piasta, S. B., Justice, L. M., Cabell, S. Q., Wiggins, A. K., Turnbull, K. P., & Curenton, S. M. (2012). Impact of professional development on preschool teachers' conversational responsiveness and children's linguistic productivity and complexity. *Early Childhood Research Quarterly, 27*(3), 387–400. doi:10.1016/j.ecresq.2012.01.001
- Reese, E., Leyva, D., Sparks, A., & Grolnick, W. (2010). Maternal elaborative reminiscing increases low-income children's narrative skills relative to dialogic reading. *Early Education and Development, 21*(3), 318–342. doi:10.1080/10409289.2010.481552
- Scarcella, R. (2003). *Academic English: A conceptual framework*. (Technical Report No. 2003–1). Retrieved from <https://escholarship.org/uc/item/6pd082d4>
- Snow, C. E. (2010). Academic language and the challenge of reading for learning about science. *Science, 328*(5977), 450–452. doi:10.1126/science.1182597
- Sperry, D., Sperry, L., & Miller, P. (2019). Reexamining the verbal environments of children from different socioeconomic backgrounds. *Child Development, 90*(4), 1303–1318. doi:10.1111/cdev.13125
- Spinath, F. M., Price, T. S., Dale, P. S., & Plomin, R. (2004). The genetic and environmental origins of language disability and ability. *Child Development, 75*(2), 445–454. doi:10.1111/j.1467-8624.2004.00685.x

- Strickland, M. J., & Marinak, B. A. (2016). Not just talk, but a “dance”! How kindergarten teachers opened and closed spaces for teacher–child authentic dialogue. *Early Childhood Education Journal*, *44*(6), 613–621. doi:10.1007/s10643-015-0750-1
- Sylva, K., Siraj-Blatchford, I., Taggart, B., Sammons, P., Melhuish, E., Elliot, K., et al. (2006). Capturing quality in early childhood through environmental rating scales. *Early Childhood Research Quarterly*, *21*(1), 76–92. doi:10.1016/j.ecresq.2006.01.003
- Vernon-Feagans, L., Hammer, C. S., Miccio, A. & Manlove, E. (2001). Early language and literacy skills in low-income African American and Hispanic children. In S. B. Neuman, & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 1, pp. 192–210). New York, NY: Guilford Press.
- Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology*, *93*, 243–250. doi:10.1037/0022-0663.93.2.243
- 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. doi:10.1037/0022-0663.98.1.63
- Zepeda, M., Castro, D. C., & Cronin, S. (2011). Preparing early childhood teachers to work with young dual language learners. *Child Development Perspectives*, *5*(1), 10–14. <http://doi.org/10.1111/j.1750-8606.2010.00141.x>
- Zhang, J., & Stahl, K. A. D. (2011). Collaborative reasoning: Language-rich discussions for English learners. *The Reading Teacher*, *65*(4), 257–260. doi:10.1002/TRTR.01040



**Table 1. Teachers' Individual Feedback Regarding the In-Service Workshop on Conversation Compass (on a Scale of 1 to 5)**

Items	Rachel	Stacey	Eileen
<i>The Conversation Compass . . .</i>			
Provides me with new information about how to talk with children	5	2	5
Can help build children's language skills	5	5	5
Can be used with children who are bilingual (or children who speak a dialect of English, Creole, or Patios)	5	5	5
<i>The learning modules/activities in the training . . .</i>			
Provided me with concrete information about how to use the conversation strategies	5	3	5
Helped me develop a deeper understanding of the Conversation Compass	5	3	5
<i>The trainer was . . .</i>			
Knowledgeable about early childhood language	5	4	5
<i>In the future . . .</i>			
I plan to use these conversation suggestions in my classroom	5	5	5

*Note.* 1 = strongly disagree; 2 = mildly disagree; 3 = not sure; 4 = mildly agree; 5 = strongly agree.

**Table 2. Teacher and Student Demographics Across Classrooms**

Classroom	Classroom Teacher Characteristics					Classroom Student Characteristics			
	Name	Position	Degree (Field of Study)	Race/ Ethnicity	Years of Teaching Experience	Number of Girls/Boys	Number of Students by Race/Ethnicity	DLLs	IEPs
1	Rachel (PD)	Assistant	AA (management)	Black/ African American	1.5	9/9	8 Black/African American 10 Hispanic/Latinx	10	2
	Madge (non-PD)	Lead	BA (ECE)	Black/ African American	21				
2	Stacey (PD)	Lead	BA (ECE)	White/ Caucasian	2	9/9	5 Black/African American 10 Hispanic/Latinx	5	1
	Miriam (non-PD)	Temporary assistant	n/a	White/ Latina	n/a		2 Asian 1 Multiracial		
3	Eileen (PD)	Assistant	HS (CD)	Black/ Jamaican American	12	10/8	4 Black/African American 14 Hispanic/Latino	4	1
	Mary (non-PD)	Lead	BA (applied mathematics)	Asian/ Filipino	5				

*Note.* DLLs = number of students who are dual language learners; IEPs = number of students who have an Individualized Education Plan. PD = received professional development training; AA = two-year associate of arts degree; non-PD = did not receive professional development training; BA = four-year bachelor of arts degree; ECE = early childhood education; HS = high school diploma; CD = child development. All teachers' names have been changed to a pseudonym in order to protect their confidentiality.

**Table 3. Conversation Features Comparing PD With Non-PD**

Conversational Features	Conversation Compas PD ( <i>SD</i> )	Non-PD ( <i>SD</i> )
Total number of turn-taking exchanges (utterances between teachers and children)	108.67 (38.55)	84.00 (36.50)
<i>Children's conversational language</i>		
Proportion of internal state words	.05 (.04)	.02 (0.01)
Proportion of coordinating conjunctions	.07 (.02)	.01 (.00)
<i>Teachers' conversational language</i>		
Proportion of <i>how/why</i> questions	.31 (.11)	.17 (.12)
Proportion of <i>wh-</i> questions	.75 (.05)	.39 (.26)
Ratio of words per speaking turn (MLT)	11.01 (3.68)	8.91 (4.35)
Ratio of words per utterance (MLU)	4.20 (0.27)	3.53 (0.95)

*Note.* PD = received professional development training; non-PD = did not receive professional development training. The *proportion* and *ratio* were calculated to control for variation in transcription length; they were calculated by dividing the linguistic feature (e.g., internal state words, conjunctions, questions, mean length of turn [MLT], and mean length of utterance [MLU]) by the total number of utterances in the transcript.

**Table 4. Examples of Conversations From the Same Classroom of a PD and Non-PD Teacher**

Conversation Compass PD teacher		Non-PD teacher	
Rachel:	Can we help Isabel out to see what letter she has?	Madge:	Who has the pink rectangle?
Child 1:	a E!	Child 1:	Sam [child points and teacher looks at another child who shouted].
Rachel:	a E!	Madge:	Where would you like to go? {
Rachel:	a letter E [teacher makes the sound of the letter E].	Child 2:	the blocks [child points].
Rachel:	Do we know what some words are that start with the letter E? What are some words that start with the letter E?	Madge:	Okay.
Child 2:	Eric!	Madge:	Who has the [teacher takes away child's card] purple square?
Rachel:	Eric. E—ric [teacher makes the sound of the letter E].	Child 3:	me [child raises hand]!
Child 3:	elephant.	Madge:	Where would you like to go?
Rachel:	E—lephant [teacher makes the sound of the letter E]. And who else?	Child 3:	umm. block area [child points].
Child 4:	daddy!	Madge:	That's toy area.
Rachel:	What's your daddy's name?	Child 3:	toy area.
Child 4:	Eduardo.	Madge:	Okay. No guns. If you make a gun today you are going to be sitting.
Rachel:	Eduardo [teacher points to child in acknowledgment].		
Child 5:	xxx. [unintelligible].		
Rachel:	egg [teacher makes the sound of the letter E]. Right. An(d) also with the letter E. E—egg [teacher makes the sound of the letter E].		
Rachel:	What would you like to do for work time?		
Child 5:	paint.		
Rachel:	a who?		
Child 5:	my cat.		
Rachel:	your cat? What is your cat's name?		
Child 5:	Bachi.		
Rachel:	Bachi? Let's see, B—achi [teacher makes the sound of the letter B]. What letter is that?		
Child 5:	xxx. [unintelligible].		
Rachel:	a B. Bachi starts with the letter B [teacher makes the sound of the letter B].		

*Note.* PD = received professional development training; non-PD = did not receive professional development training. The transcripts were edited for ease of comprehension.