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Variations in Classroom Language Environments of Preschool Children Who Are Low Income and Linguistically Diverse

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Abstract

Research Findings.—This study aimed to (a) provide an in-depth description of the frequency and type of language interactions that children who are low-income and/or dual language learners (DLL) experience in their classrooms and (b) examine whether differenceFor instance, in a randomized control trial with 461 first grade s exist in children's language experiences based on children's DLL status and level of English proficiency. Using the Language Interaction Snapshot, we observed four focal children in each of 72 early childhood classrooms: one monolingual English-speaking child (i.e., non-DLL), one Spanish-dominant DLL child, and two bilingual Spanish-English DLL children. Findings indicate that both lead and assistant teachers predominantly spoke in English and implemented few evidence-based language practices. Children spoke more often to peers than to teachers. Little variation was noted in the quality of the language environment for children based on their DLL status or language proficiency.

Practice.—Results suggest clear directions for professional development (PD). PD must include both lead and assistant teachers and should focus on evidence-based language strategies for facilitating children's language development, including how to effectively teach DLLs. Teachers may also benefit from PD that supports use of small group activity and peer strategies.

Learning to read is essential for academic and life-long success. Preschool children's oral language skills are a robust predictor of later reading achievement (e.g., Castro, Páez, Dickinson, & Frede, 2011; Dickinson, Golinkoff, & Hirsh-Pasek, 2010; NELP, 2008). Due to a myriad of environmental risk factors, young children who live in poverty generally have lower language skills compared to their more economically advantaged peers (e.g., Hoff, 2013; Zill & Resnick, 2006). Close to half (44%) of young children live in low-income homes (Jiang, Ekono, & Skinner, 2015). An even higher percentage of dual language

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learners (DLL) live in low-income homes, specifically 55% of all DLLs and 64% of all Spanish-speaking DLLs live in poverty (Child Trends, 2014a). DLLs are children who are learning the majority language (e.g., English) either simultaneously or sequentially with their home language (e.g., Spanish; Gutiérrez , Zepeda & Castro, 2010).

Children who are low-income and dual language learners (DLL) often enter school with lower English language skills than monolingual English-speaking children, including monolingual English-speaking children from low-income homes (Fuligini & Howes, 2011; Hoff, 2013; Sonnenschein, Thompson, Metzger, & Baker, 2013). In addition to English language skills, DLLs benefit academically as they continue to develop their home language skills (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007; Davison, Hammer, & Lawrence, 2011; Hammer, Lawrence, & Miccio, 2007). Given the critical relation between children's language skills, including both English and DLLs' home language, and their academic success, a pressing concern in early education is how to support the language development of all children, particularly those who are vulnerable.

According to social-constructivist theory (Bruner, 1978; Vygotsky, 1978), children learn language (and other skills) through interactions with others, such as families, peers, and early childhood education (ECE) teachers. Given that 61% of children are enrolled in early childcare and education programs (Child Trends, 2014b), ECE classrooms are critical environments in which to support young children's language skills through the provision of rich language experiences. While extant research has identified that the language interactions in ECE classrooms are an important mechanism to improving children's language abilities, the majority of research on classroom language environments has focused on monolingual English-speaking children and the language opportunities provided by the lead teacher (Dickinson & Smith, 1991; Dickinson, Darrow, & Tinubu, 2008; Dickinson & Tabors, 2001; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; Justice, Mashburn, Hamre, & Pianta, 2008; McCartney, 1984). Thus, there is a need to further explore the language environments experienced by DLLs as well as language interactions with other conversational partners in the classrooms. For instance, assistant teachers and peers have important roles in creating the language environment in early childhood classrooms. This may be particularly true for DLLs because in areas with higher concentrations of DLLs, such as California, New York, and Florida, assistant teacher and peers may be more likely to speak the child's home language (e.g., Atkins-Burnett, Sprachman, Lopez, Caspe, & Fallon, 2011).

Additionally, extant research has predominantly examined teachers' language provision at a macro-level (i.e., classroom level) and has not investigated whether language experiences differ for children within the same classroom. Transactional theory (Sameroff & Fiese, 2000) posits that child development is due to the interaction of the child and the child's experience. That is, based on children's language abilities, teachers may differentiate how they speak with individual children. While the classrooms that have been the focus of prior research have likely included children who are DLLs, it has not been an aim of this work to investigate whether children experience different language environments based on whether they are DLLs or monolingual English speakers. Furthermore, DLLs are not a homogeneous group. DLLs differ in their levels of English proficiency (Montrul, 2008; National

Academies of Sciences, Engineering, and Medicine, 2017), which may be associated with different types of language experiences in the classroom.

The purpose of this study was two-fold in regard to describing the language environment of early childhood classrooms that serve children who are from low-income homes, including Spanish-English DLLs. We focus on Spanish-English DLLs because Spanish is the predominant home language spoken by DLLs in the United States (NCES, 2016). First, we sought to more fully describe the quality of the language environment that children experienced with various language partners. Second, we examined whether there were differences in children's language experiences based on their DLL status and teacher-reported level of English proficiency.

Evidence-Based Language Practices

To promote optimal language development of all young children, including monolingual English speakers and DLLs, adults in ECE classrooms should use a wide array of language facilitation techniques. Through adults' use of labeling, repeating, elaborating children's responses, use of contextualized and decontextualized talk, and provision of opportunities to sustain discussion on a single topic, children learn vocabulary and syntax as well as develop understanding of concepts and extend their knowledge of the world (e.g., Cabell et al., 2011; Dickinson & Tabors, 2001; Huttenlocher et al., 2002; Wasik & Hindman, 2011; Yoder, Spruytenburg, Edwards, & Davies, 1995). When teachers provide children with ample opportunities to speak and extend children's response, children's expressive language development is bolstered (e.g., Huttenlocher et al., 2002). Shared book-reading is a widely researched context on how adults embed language facilitation strategies and is associated with improvements in children's language development (e.g., Dickinson & Tabors, 2001; Mol, Bus, de Jong, & Smeets, 2008; Swanson et al., 2011; Whitehurst et al., 1994).

In classrooms, best practice dictates that DLLs have continued opportunities to develop their home language skills as well as learn English. Studies comparing preschool dual language programs to English immersion programs for DLLs have identified numerous benefits for including both languages within the curriculum (Barnett, Yarosz, Thomas, Jung, & Blanco, 2007; Durán, Roseth, & Hoffman, 2010). Research indicates that children's skills in their home language transfer to English and support their academic development (e.g., Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007; Davison, Hammer, & Lawrence, 2011; Hammer, Lawrence, & Miccio, 2007). Due to the importance of continuing to build the home language as children acquire English, young Spanish-English DLLs benefit academically from receiving instruction in Spanish from fluent Spanish speakers (e.g., Barnett et al., 2007; Burchinal et al., 2012; Durán et al., 2010). However, even monolingual English-speaking adults in ECE classrooms can facilitate both home language and English skills by using key words in children's home language to connect the home language and English as well as encouraging children to use their home language (Goldenberg, Hicks, & Lit, 2013; National Academies of Sciences, Engineering, and Medicine, 2017).

Educators may have concerns that monolingual English-speaking children may not fare well in bilingual classrooms. However, research on school-age and preschool students indicates

that monolingual English-speaking children benefit academically from enrollment in bilingual classrooms (Barnett et al., 2007; Thomas & Collier, 2003). Specifically, Barnett and colleagues (2007) found that monolingual English speakers who were frequently exposed to Spanish in a bilingual classroom developed Spanish language skills with no loss in their English language skills. Thus, as Espinosa (2013) discusses, there is no empirical basis for concern that monolingual English-speaking children will "lose ground" by being exposed to a second language in the classroom.

Children's Language Experiences in Early Childhood Classrooms

Although previous research has identified a variety of efficacious language practices that promote child language outcomes, less is known about the influence of various interlocutors within the classroom environment. Verbal interactions with lead teachers, assistant teachers, and peers are all ways in which young children can develop language.

Lead and Assistant Teachers.

A robust body of work, including the seminal Bermuda Child Care study and the Harvard Home-School study, indicate that early childhood teachers' provision of high quality language input support the linguistic skills of young monolingual English children (e.g., Cabell et al., 2011; Dickinson & Porche, 2011; Dickinson & Tabors, 2001; Girolametto, Weitzman, & Greenberg, 2003; Huttenlocher et al., 2002; McCartney, 1984; Wasik & Hindman, 2011). An emerging body of work has also found associations between the quality of teachers' language interactions with DLLs and DLLs' language skills (Burchinal et al., 2012; Fuligini & Howes, 2011; Sonnenschein et al., 2013). However, the majority of studies focus on only the language practices of the lead teachers with monolingual English-speaking children. Only a few studies describe the language practices of the assistant teachers (Atkins-Burnett et al., 2011; Gest, Holland-Coviello, Welsh, Eicher-Catt, & Gill, 2006; Kontos, 1999). Thus, it is important to examine the degree to which both lead and assistant teachers offer high quality language supports, especially for children who live in low-income homes and/or who are DLLs.

Quality of Teachers' Language Input.

Research indicates that lead teachers in early childhood classrooms which enroll a majority of children from low-income homes (but with no focus on DLLs) often use limited evidence-based language practices, such as modeling advanced vocabulary, decontextualized talk, or syntactically complex language (Dickinson & Smith, 1991; Dickinson et al., 2008; Gest et al., 2006; Justice et al., 2008; Kontos, 1999). Moreover, talk is dominated by the lead teacher giving children few and limited opportunities to build their expressive language skills (Dickinson & Smith, 1991; Dickinson et al., 2008).

Studies that have an explicit focus on describing the language environment of DLLs also find similar non-optimal results (Atkins-Burnett et al., 2011; Burchinal et al., 2012; Chesterfield, Chesterfield, & Chavez, 1982; Jacoby & Lesaux, 2014; Layzer & Maree, 2011; Sonnenschein et al., 2013). For instance, Sonnenschein and colleagues (2013) assessed 25 preschool classrooms that enrolled large numbers of Spanish-English DLLs using the

language modeling scale of the CLASS. Similar to Justice et al. (2008), they found that 33% of classrooms were of low language quality, 60% of classrooms were of mid-level quality, and only 7% of classrooms were characterized as high quality.

As previously noted, few studies of language environments include assistant teachers in their samples (Atkins-Burnett et al., 2011; Gest et al., 2006; Kontos, 1999). Only two known studies provide detail on assistant teacher talk in ECE classrooms (Atkins-Burnett et al., 2011; Gest et al., 2006). Kontos (1999) also collected language data on both lead and assistant teachers; however, she reported aggregated lead and assistant teacher talk, and as such, it is unclear what language practices were used specifically by assistant teachers. Gest and colleagues (2006) found that lead and assistant teachers provided a very similar level of language input to children both in terms of frequency and type of language during book-reading and free play in Head Start classrooms. Atkins-Burnett and colleagues (2011), who focused specifically on DLLs, observed language interactions of lead and assistant teachers in 18 ECE classrooms with high enrollment of DLLs using the Language Interaction Snapshot (LISn), the measure used in the current study. Like Gest et al. (2006), lead and assistant teachers provided similar types of language environments. For both lead teachers and assistant teachers, the most common types of talk were giving directions and requesting language from children (i.e., contextualized talk). Lead teachers and assistants occasionally provided contextualized information but seldom provided complex language stimulation, such as elaborating upon what the child said or providing decontextualized talk.

Use of English and Home Language.

Extant research indicates that provision of language interactions in both English and their home language is advantageous for DLLs' academic success (e.g., Barnett et al., 2007; Burchinal et al., 2012; Durán et al., 2010). However, there is a limited amount of literature that has specifically examined the frequency and manner in which English and home languages are used in preschool language environments for DLLs (Atkins-Burnett et al., 2011; Gort & Sembiante, 2015; Jacoby & Lesaux, 2014; Layzer & Maree, 2011; Miller, 2017). The majority of these observational studies indicate that English is the predominant language that occurs in preschool classrooms, even when high numbers of DLLs are enrolled and/or teachers speak the DLLs' home language. For example, Layzer and Maree (2011) observed 67 preschool classrooms that varied in their linguistic composition and recorded the language used by children and teachers. Regardless of the classroom composition or capability of the teachers to speak the home language, few teachers (0–14% depending on classroom composition) used the home language. Jacoby and Lesaux (2014) observed literacy instructional time in six Head Start classrooms and found that English occurred at three times the rate of Spanish, children's home language; Additionally, in Jacoby and Lesaux's (2014) study, a larger sample of Spanish-speaking teachers ($n = 90$) completed a survey indicating the reasons they used Spanish in the classroom; these teachers reported that they used Spanish "to give directions, to comfort, and to clarify information" but they rarely used Spanish to instruct (p. 1170).

However, two studies find more encouraging results in regard to home language use. In Miller's (2017) observation of four bilingual classrooms in Head Start, she found more

consistent and purposeful Spanish use with Spanish-speaking preschoolers. Gort and Sembiante (2015) examined the roles of the bilingual (Spanish-English) lead and assistant teachers in one bilingual preschool classroom. They found that the lead teacher and two assistant teachers each used English and Spanish systematically, such as translating and using both languages to expand on children's utterances, in order to best support young children's academic participation.

Peers.

Peers have a significant positive influence on preschool children's language development for both monolingual English children (Henry & Rickman, 2007; Justice, Petscher, Schatschneider, & Mashburn, 2011; Mashburn, Justice, Downer, & Pianta, 2009; McGregor, 2000; Schechter & Bye, 2007) and DLLs (Atkins-Burnett, Xue, & Aikens, 2017; Aukrust, 2004; Chesterfield, et al., 1982; Palermo et al., 2014; Rojas et al., 2016). Specifically, children's language skills are positively predicted by the language ability of their peers (Atkins-Burnett et al., 2017; Henry & Rickman, 2007; Justice et al., 2011; Mashburn et al., 2009) as well as children's frequency of language interactions with peers (Chesterfield et al., 1982; Palermo et al., 2014; Rojas et al., 2016), suggesting that peers with stronger language skills serve as language models for young children. In fact, Atkins-Burnett and colleagues (2017) found that peer effects were more robust for DLLs than for monolingual English-speaking children. Additionally, several studies have documented that peers have a stronger positive effect on preschool DLL children's English proficiency than teachers or parents (Chesterfield, et al., 1982; Palermo et al., 2014; Rojas et al., 2016). Yet, few studies describe preschool language interactions between peers (Aukrust, 2004; Chesterfield et al., 1982; Dickinson & Smith, 1991; Palermo et al., 2014).

Several studies provide a broad lens about children's language interactions with peers in preschool classrooms in terms of frequency of talk and for DLLs, the languages used in these interactions. Aggregated across a variety of typically occurring activities (e.g., large or small group, free play meal-time), Dickinson and Smith (1991) found that English-speaking children in Head Start classrooms speak more to teachers than to peers (e.g., 30% vs. 13% for four-year-olds). Chesterfield and colleagues (1982) described language interaction patterns of six Spanish-speaking DLLs in three bilingual preschool classrooms and noted that DLL children's language preferences with peers shift more from Spanish to English over the course of the school year. Other studies have taken a more narrow view by examining a specific aspect of peer language interactions, such as explanatory discourse during play (Aukrust, 2004) or DLL children's interactions in only one language (Palermo et al., 2014). For instance, Palermo and colleagues (2014) examined preschool Spanish-speaking DLLs' exposure to English. Year-long data collection in 10 Head Start classrooms revealed that English exposure stemmed more from teachers than from peers, but the researchers did not ascertain the degree to which DLLs spoke to peers (or others) or the frequency of Spanish use/exposure.

Given the importance of peers in language interactions, it is important to further investigate the frequency with which both monolingual English-speaking and DLL children generally

engage in language interactions with peers as well as what languages are used in those interactions.

Variation of Experiences for Individual Children

Not all children in the same classroom will have identical experiences. An emerging body of research on language and literacy instruction indicates that children within the same classroom experience different learning opportunities (Connor, Morrison, & Slominski, 2006; Connor et al., 2009; Fuligini & Howes, 2011; Pelatti et al., 2014). Pelatti and colleagues (2014) found children within the same preschool classrooms could receive instructional differences of 20 or more minutes in various language and literacy skill domains (e.g., phonological awareness, comprehension, writing). To the best of our knowledge, only one study has examined instructional differences for DLLs and monolingual English-speaking children; however, this study did not specifically examine children's language experiences. Fuligini and Howes (2011) found that (a) DLLs and English-speaking children spent differing amounts of time in various activities, such as computer and outdoor time and (b) compared to monolingual English-speaking children, DLLs experienced higher positive climate (i.e., teacher-child shared enjoyment and respect) as measured by the Classroom Assessment Scoring System.

Yet, comparing DLLs with monolingual English-speaking children assumes that DLLs are a homogeneous group. Rather, DLLs vary widely in their levels of English proficiency (Montrul, 2008). It is conceivable that teachers may individualize their linguistic interactions with DLLs depending on the child's English language proficiency. For instance, teachers may more frequently label objects (i.e., contextualized talk) for DLLs who have lower English proficiency than to children who have fairly equal English and Spanish language skills.

More in-depth understanding of children's individualized experiences is imperative since the availability of different learning opportunities has important implications for children's skill development (Connor, Morrison, & Katch, 2004; Connor et al., 2006, 2009). For instance, in a randomized control trial with 461 first grade students, Connor and colleagues (2009) demonstrated that children made greater literacy gains when teachers implemented systematic individualized literacy instruction compared to business as usual language arts instruction.

The Purpose of the Study

Given the critical relation between young children's oral language development and their academic success (e.g., NELP, 2008), it is important to examine the array of language experiences that occur in early childhood classrooms for English-speaking and DLL children. Therefore, the first research question was to describe the quality of the language environment of early childhood classrooms in a more comprehensive manner rather than focus primarily on the language input provided by the lead teacher. The language environment was conceptualized as: (a) frequency of talk by lead teachers, assistant teachers, and children, including with peers; (b) quality of language that teachers use with

children; and (c) children and teachers' use of English or Spanish. Additionally, the second research question was to examine whether children's language experiences differ as a factor of their DLL status as well as their teacher-reported level of English proficiency

Method

Participants.

Trained observers visited 72 early childhood classrooms in 33 centers serving low-income children that included varying concentrations of Spanish-speaking DLLs. Classrooms were designated as Head Start classrooms or were located in preschool centers associated with their state's department of education, all of which served a large percentage of children (average of 95%) who received free or reduced lunch. The average percent of Spanish-speaking DLLs enrolled in these classrooms was 51% (SD = 22%). The classrooms were located in urban areas of a northeastern (n = 42) and southeastern (n = 30) state. None of the classrooms were considered bilingual programs. Almost all classrooms (91%) were full day programs. Classrooms used a variety of curricula (e.g., Creative Curriculum, High Scope, Tools of the Mind). Typical class size was 18 children (range of 12 –20). Each classroom had a lead and an assistant teacher, and as such, 72 lead and 72 assistant teachers participated.

Compared with national averages of preschool staff, most teachers in the study were highly educated. The majority of lead teachers had their Master's degree (53%). One-third (33%) had a Bachelor's degree, 10% had an Associate's degree, and 5% had a high school diploma. Approximately half of the teachers (51%) had an early childhood education certification, and one quarter (26%) had an elementary education certification. Few participants (7%) were certified bilingual teachers. Participants had over 7 years of preschool teaching experience (M = 7.67, SD = 7.09; range = 0 – 30 years). Teachers were predominantly female (93%). Close to half of the teachers were of Hispanic/Latino ethnicity (47%); the majority were Puerto Rican or Dominican. Over one-quarter of the sample was White (28%), 13% were Black, and 12% reported another race. One-third of lead teachers (32%) reported good or native-like ability to speak Spanish.

Assistant teacher educational attainment varied: 44% had a high school diploma/GED, 31% had an Associate's Degree, and 19% had a Bachelor's Degree. Few assistant teachers had a Master's Degree (2%) or less than a high school degree (4%). Approximately one-quarter (28%) of assistants held a teaching certification: 12% in early childhood education, 8% in elementary education, and 8% in bilingual education. Assistants had on average 2 years of experience in preschool settings (SD = 2.83; range = 0 – 21 years). All were female. More than half of assistant teachers were of Hispanic /Latino ethnicity (57%); of these, 75% were Puerto Rican. Approximately one-fifth of assistants were White (21%), and one-quarter (25%) were Black. The majority of assistant teachers (71%) reported good or native-like ability to speak Spanish.

Data were collected on four focal children per classroom (N = 288). Children were randomly selected from each classroom based on their language status per teacher report. One child was a monolingual English speaker (i.e., non-DLL). The other three children were Spanish

speaking DLLs—one child was Spanish-dominant and two children had roughly comparable English-Spanish language skills (hereafter referred to as bilingual). No direct assessments of children's English and/or Spanish skills were conducted. All children were low-income and were in their final year of preschool before beginning kindergarten, which typically corresponds to children being four to five years of age. No additional demographic data on the children were collected.

Measure.

Classroom language interactions were assessed with the Language Interaction Snapshot (LISn; Atkins-Burnett, Sprachman, & Caspe, 2010). The LISn is an observational measure whereby the language interactions of individual focal children are coded for a total of 25 minutes; specifically, each child is observed for five snapshots that last 5-minutes apiece (i.e., 5 snapshots X 5 minutes = 25 minutes) with coding occurring at 30-second intervals. For each 30-second interval, the data collector records the frequency of children's language input/output and in what language the interaction occurred (i.e., English, Spanish, and Mixed). When language interactions occur, the data collector also records to whom the child is talking and/or the type of language the child is hearing from the lead and assistant teachers. Interactions could occur when the focal child is one-on-one with an adult or in a group (large or small). The spoken utterances of the lead and assistant teachers are categorized as: repeating/confirming (e.g., child says "blue coat," and teacher repeats "It's a blue coat."), elaborating/building (e.g., child says "milk," and teacher says "Do you like milk?"), giving directions (i.e., directions can be direct such as "Get in line" or indirect such as "Where should you be right now?"), requesting language in context (e.g., teacher asks child what he is building with the blocks), providing information in context (e.g., teacher tells child that her coat is blue), providing or eliciting information out of context (decontextualized; e.g., teacher says "Yesterday, we had apples for snack" when no apples are present for child to reference), reading, singing, literacy, or other (i.e., language not captured by other codes such as a teacher using endearments or saying "good job" or other non-specific praise). During each interval, the data collector records all instances of language interaction. For instance, in one interval, the data collector can record instances of Spanish (or Mixed) and English as well as record multiple types of teacher talk (e.g., English and Spanish gives direction and English reads).

Atkins-Burnett and colleagues (2011) report adequate to strong psychometric properties. Cronbach's alpha for teacher talk and assistant talk in English (too few instances of Spanish or Mixed language use were observed to calculate reliability) were reported as .77 and .72, respectively. In this pilot study, total teacher talk in English is moderately correlated ($r = .55$) with the CLASS Instructional Support domain.

Procedures.

Observations occurred mid-year. Four focal children per classroom were observed, with observations typically lasting the full morning portion of the day (i.e., 3–4 hours) when the children were indoors and occurring over multiple activities/routines (i.e., whole group, small group, free choice/centers, meals, routines, and individual time). Classroom observations were conducted by six trained bilingual data collectors. Data collectors

participated in a three-day training on the LISn. During the first day, data collectors were oriented to the measure and its various codes through watching videotaped exemplars (e.g., mixed elaborating/building, Spanish giving directions) in various contexts (e.g., center time, large group, small group). On the second day, data collectors had the opportunity to practice using the measure in a live observation within a preschool classroom, again across various contexts, which was followed by a training debriefing. On the third day, data collectors were required to achieve a minimum of 90% reliability with an expert coder during a live classroom visit. In order to ensure high quality data collection, inter-rater reliability was also established on 20% of the classroom sample. Inter-rater reliability was calculated as percent agreement that dual raters concurred on both the coding of the language (English, Mixed, Spanish) and type of language (e.g., repeating/confirming, elaborating/building). The overall agreement was 99.02% (aggregated at the language level: English 98.49%, Spanish 99.83%, and Mixed 99.97%).

Results

Prior to presenting the results for the two research questions, we first provide a general description of the activity structures in which focal children were engaged during the observational snapshots (see Table 1). Activity structures are not mutually exclusive; that is, focal children may have been engaged in more than one type of activity structure during an observational snapshot. Focal children were engaged in whole group activities (i.e., more than half of the children in the classroom participating in activity) during almost half of all snapshots (43%). Focal children participated in small group activities (i.e., half or less than half the class) and individual activities occurred less frequently (13% and 6%, respectively). The children participated in free choice/centers or routines (e.g., standing in line, toileting, cleaning up) during approximately one-quarter of the snapshots (28% and 25%, respectively). and were engaged in meal or snack times less often (14%).

Research Question 1: Describe the overall language environment of early childhood classrooms

Data were analyzed descriptively. We collapsed Spanish and Mixed utterances into one category, because mixed utterances occurred in frequently. Table 2 provides the mean frequency of talk per type in English and Spanish/Mixed for all focal children. The frequency represents the average number of 30-second intervals per 5-minute snapshot in which the specific type of talk occurred. Therefore, the potential range was 0 (type of talk was *not* observed in any of the 30-second intervals) to 10 (type of talk was observed in *each* of the 30-second intervals).

Child talk.—Overall, children tallked to peers more than to teachers and predominantly spoke in English. Children spoke to peers in approximately three intervals in English and less than one interval in Spanish. Children talked to lead teachers and assistant teachers in less than one interval in English. Children almost never spoke to lead and assistant teachers in Spanish. The standard deviations were large (typically more than twice as large as the means), indicating high variability in child talk.

Lead teacher talk.—When speaking with focal children, lead teachers most often gave directions and rarely provided high quality language input. Specifically, in English, teachers gave directions in 1.65 intervals and used high quality language in less than one interval (.11 to .99 intervals), with the same patterns evident in Spanish but at lower frequency. In regard to their use of evidence-based language strategies, they were most often observed using contextualized language (i.e., requesting and providing contextualized language) but this type of language still occurred infrequently. Specifically, lead teachers requested contextualized language and provided contextualized language in less than an average of one interval for both uses of contextualized language. Lead teachers seldom sang, used decontextualized talk, read, repeated/confirmed, performed literacy activities with students, or elaborated/built on children's responses. Again, large standard deviations (greater than the means) indicate a high degree of variability in teachers' language use.

Lead teachers spoke almost exclusively in English. Spanish was used with focal children in 0.01 to 0.11 intervals depending on the type of language (i.e., repeating, giving directions), whereas English was used in 0.12–1.65 intervals.

Assistant teacher talk.—Assistant teachers talked to focal children less frequently than lead teachers. However, the pattern of talk was the same for lead teachers as for assistant teachers. Assistant teachers were most likely to give directions (.70 intervals in English and . 12 in Spanish). Although occurrence was rare, assistant teachers also were more likely to use contextualized language (.32 and .06 for requesting language and .28 and .03 for providing language in English and Spanish, respectively) than the other types of language supports. Standard deviations that were often twice as large as the means indicate a high degree of variability in assistant teachers' language use. Assistants also spoke to focal children almost exclusively in English, which is interesting considering that the vast majority of assistants (71%) reported good or native-like ability to speak Spanish.

Research Question 2: Examine whether the language environment differs for children who vary based on DLL status and level of English proficiency.

In order to address the second research aim, we conducted ANOVAs to determine whether the type of talk differed for children who were Spanish dominant DLLs, bilingual DLLs, and English monolingual (i.e., non-DLL). Tables 3 and 4 provide the descriptive results (means and standard deviations) of frequency of talk in English and Spanish/Mixed, respectively, for each of the three types of focal children. Again, the frequency represents the average number of intervals per snapshot in which the specific type of talk occurred. Tables 3 and 4 also provide the results of the ANOVA analyses, including post hoc findings. Given uneven sample sizes for the three types of focal children (i.e., sample included twice as many bilingual children as Spanish dominant and English monolingual), we report the more conservative Scheffe posthoc analysis. Statistically significant findings or trends toward significance are described.

Child talk.—As was expected from the whole group analysis, all focal children (a) spoke to peers more often than teachers and (b) spoke more frequently to lead teachers than assistant

teachers. Yet, not surprisingly, focal children differed in their use of English and Spanish based on their status as DLL and teacher-reported English proficiency.

English monolingual children talked more to peers in English than bilingual (3.82 intervals compared to 3.21, p =.004) or Spanish dominant DLLs (3.82 intervals compared to 2.54, p < .000); additionally, bilingual DLLs spoke more to peers in English than Spanish dominant DLLs (3.21 intervals compared to 2.54, p = .001). The opposite pattern emerged for talk with peers in Spanish. Spanish dominant DLLs spoke more in Spanish than bilingual DLLs (0.81 intervals compared to 0.55, p = .009) or English monolingual children (0.81 intervals compared to 0.25, p = .000); also, bilingual DLLs spoke more to peers in Spanish than English monolingual children (0.55 intervals compared to .25, p = .001). Interestingly, English monolingual children used some Spanish when speaking with peers.

In regard to child talk with teachers in English, there were no significant differences for talk with the lead teacher between the three types of focal children in English; yet, there was a trend for significance in child English talk to assistant teachers between bilingual and Spanish dominant DLLs (p = .051). Spanish dominant DLLs spoke more with lead teachers than English monolingual children (0.09 compared to .01 intervals, p = .002). For Spanish talk with assistant teachers, Spanish dominant DLLs spoke more often than bilingual DLLs (0.14 intervals compared to 0.06, p = .013) or English monolingual children (0.14 intervals compared to 0.02, p = .000).

Lead teacher talk.—There were no significant differences for lead teachers' use of English between the three types of focal children. Several statistically significant differences or trends emerged for Spanish talk. Specifically, lead teachers provided more repeating/confirming for Spanish dominant DLLs compared to English monolingual children (0.06 intervals compared to 0.01, p = .040). Lead teachers also gave more directions in Spanish to Spanish dominant DLLs compared to English monolingual children (0.16 intervals compared to 0.06, p = .003). Trends for statistical differences were found when again comparing Spanish dominant DLLs and English monolingual children in regard to lead teacher Spanish talk for elaborating/building (0.05 intervals compared to 0.01, p = .053), providing contextualized language (0.10 intervals compared to 0.03, p = .099), reading (0.06 intervals compared to 0, p = .093) and literacy (0.02 intervals compared to 0.00, p = .086). Another trend was found that showed lead teachers read more in Spanish to Spanish dominant DLLs compared to bilingual DLLs (0.06 intervals compared to 0.01, p = .085).

Assistant teacher talk.—As with lead teachers, no significant differences were found in assistant teacher talk in English comparing the three types of focal children. Assistant teachers provided more repeating/confirming in Spanish when comparing Spanish dominant DLLs to both bilingual DLLs (0.06 intervals compared to 0.02, p = .009) and English monolingual children (.06 intervals compared to .02, p = .038). Assistant teachers provided more 'other talk' in Spanish when comparing Spanish dominant DLLs to bilingual DLLs (. 03 intervals compared to .01, p = .013). Trends also emerged between Spanish dominant DLLs and English monolingual children for Spanish giving directions (0.16 intervals compared to 0.06, p = .052) and requesting contextualized language (0.10 intervals compared to 0.03, p = .093).

Discussion

The study adds to the literature by providing a more comprehensive picture of the quality of preschool classroom language environments through its focus on the various interlocutors in the classrooms (i.e., children, lead and assistant teachers). Additionally, the study extend the field's knowledge through its investigation of whether there were variations of language experiences for children based on DLL status and language proficiency. Three main findings emerged. First, both lead and assistant teachers implemented few evidence-based language practices, including limited use of language facilitation techniques and limited use of Spanish. Second, children spoke more often to peers than to teachers. Third, little variation was noted in the language environment for children based on their DLL status or language proficiency. These findings suggest directions for professional development (PD), at both the in-service level and preservice teacher training level, to enhance the classroom language environment.

Limited use of evidence-based language practices.

Lead and assistant teachers infrequently spoke to focal children in ways that would facilitate language development. This finding both aligns with numerous previous studies focused on less than optimal talk by lead teachers (e.g., Dickinson et al., 2008; Justice et al., 2008) as well as extends the more limited body of work that catalogues the language environment provided by assistant teachers (Atkins-Burnett et al., 2011; Gest et al., 2006). Instead, when teachers were talking to focal children, they were most often giving directions. Although necessary in a classroom, directives do not stimulate children's language skills. When teachers were using evidence-based language practices, teachers were most apt to use contextualized language. This finding is not surprising since providing and eliciting contextualized language may be more of a natural skill for teachers. For instance, a teacher is probably more prone to use strategies like the following: when showing child a picture of animals in a jungle, a teacher points to picture of a tiger and says "This is a tiger!" (i.e., providing contextualized language) or asks a child, "What do you see in this picture?" (i.e., eliciting contextualized language). On the other hand, elaborating on children's language by saying "Yes, that is a tiger. Tigers live in the jungle and are very strong and fast" is a more sophisticated technique and likely requires more training.

Use of DLL children's home language in the classroom supports their academic learning and the acquisition of English (e.g., Cardenas-Hagan et al., 2007; Hammer et al., 2007). Yet, Spanish was seldom used in the classroom, even though 32% of lead teachers and 71% of assistant teachers spoke Spanish with good to native-like ability. This language potential was unrealized, which aligns with findings from previous studies (Jacoby & Lesaux, 2014; Layzer & Maree, 2011).

These results suggest clear (and not new) directions for professional development (PD). PD must include both lead and assistant teachers. Teachers need further education on children's language development and evidence-based language facilitation strategies. Furthermore, they need training on how to effectively teach DLLs. For instance, DLLs learn the English language more effectively when teachers model language and elaborate on children's responses (e.g., Castro et al., 2011). Optimally, PD should be differentiated based on the

teachers' language proficiency. Monolingual English-speaking teachers dominate the early childhood education workforce (Buysse, Castro, West, & Skinner, 2005), and as such we recognize that teachers in the current study represent a higher percentage of teachers who can speak DLLs' home language. The expectation is not that monolingual English teachers will become proficient Spanish (or other language) speakers. Any teacher can learn and use key words in a child's home language to support DLLs' language development (e.g., "We are going to read a book, un libro, about a boy and a frog – un niño y un sapo."). Buysse and colleagues (2010) were successful in providing PD to enhance English-speaking teachers' linguistically responsive practices. With bilingual teachers, the focus of PD should be on how to systematically use both languages in the classroom.

It is important to note that the majority of lead teachers held a minimum of a Bachelor's degree (86%), with the majority having a Master's degree (53%). Approximately half of our assistant teachers (52%) held at least an Associate's degree. Thus, our findings also plainly point to the need for higher education institutions to provide better training to preservice and inservice teachers. For instance, higher education students would likely receive great benefit from a course dedicated to facilitation of language development, including an understanding of second language acquisition. Currently, many programs focus more on literacy than on the language development.

Peer talk.

A notable finding is that children spoke more frequently to peers than to teachers, although the data cannot detail the nature or quality of the talk that occurred between peers. Since peers can positively affect children's language development (e.g., Justice et al., 2011; Palermo et al., 2014) by serving as language models, it would be beneficial for teachers to take advantage of children's talk to peers. Professional development could educate teachers on how to facilitate peer conversation in ways to promote children's language development (Girolametto & Weitzman, 2007; Kemple, David, & Hysmith, 1997). For instance, teachers should organize the classroom in ways that encourage peer interactions (e.g., attractive and comfortable play spaces) and systematically engage children in cooperative activities (e.g., pair more and less verbal children together to play or complete a task like setting the table for snack). Additionally, teachers can scaffold peer conversation during these cooperative activities through interpreting a child's utterances (e.g., "Emma, Micah said he wants to play with the truck") and promoting communication between peers (e.g., "Micah, ask Emma if you can play with the truck").

Little variation between focal children.

Few significant differences emerged when examining the language environments experienced by Spanish dominant DLLs, bilingual DLLs, and English monolingual children. Despite clear evidence that DLLs benefit from the use of their home language in the classroom (e.g., Barnett et al., 2007; Burchinal et al., 2012) as well as the ability of many teachers in this study to speak Spanish, the majority of adult language use was English. Furthermore, there were no significant differences in adults' use of English between the focal children. As stated previously, DLLs would benefit from higher levels of contextualized language where referents (e.g., pictures, gestures) are provided to support

comprehension of English. Several significant differences were revealed for lead and assistant teachers' Spanish use; for instance, both lead and assistant teachers more often used Spanish to repeat/confirm with Spanish dominant DLLs when compared to English monolingual children. However, these differences are likely not practically significant given the infrequent use of Spanish by lead and assistant teachers.

One explanation for the limited variation in language experiences is that children were seldom in small group or individual activities where they would have the opportunity to receive more differentiated talk from teachers. Instead, teachers' talk was mostly directed to the whole class, meaning that all focal children within a classroom were most often receiving the same language input. The finding that children spend such a large percentage of observed time in whole group aligns with recent research by Early and colleagues (2010) and Jacoby and Lesaux (2017). For instance, Jacoby and Lesaux (2017) observed language and literacy instruction in 20 preschool classrooms and found that 74% of instruction was delivered in whole group format. However, whole group instruction is not as effective as small group instruction (e.g., Connor et al., 2006; Piasta & Wagner, 2010). Small group instruction allows teachers to differentiate instruction and maximize student engagement. For example, teachers could provide instruction to a small group of DLLs and use key words in a child's home language as well as pictures and props to support DLLs' understanding. Thus, teachers should be provided training to support their use of small group instruction, including how to optimize instruction and classroom management.

Not surprisingly, there were differences in the languages (English or Spanish/mixed) used by focal children as related to their DLL status and language proficiency. In short, Spanish dominant DLLs used more Spanish when speaking to others than English monolingual and often bilingual DLLs. English monolingual children used more English with peers than Spanish dominant DLLs or bilingual DLLs, and bilingual DLLs used more English when speaking with assistant teachers and peers than Spanish dominant DLLs. With instruction occurring primarily in English, it was certainly expected that DLLs would be speaking some English with others, but we were heartened to see that English monolingual children were using some Spanish in their language interactions as well. The use of Spanish by English monolingual speakers may connote the development of a classroom community where peers are developing mutual regard for others' cultures and languages. As noted by Thomas and Collier (2003) and Barnett et al. (2007), regular exposure to a second language has academic and linguistic benefits for monolingual English speakers.

Limitations and Future Directions—Several limitations, along with implications for future research, require mention. First, given the significant number of teachers who spoke Spanish (i.e., DLLs' home language) in our sample, we are fairly limited in our generalizability to preschool classrooms where one of the teachers speaks the child's home language. Second, we only conducted one observation per year in the classrooms. Results may differ if we conducted multiple observations per year. For example, more home language use may take place earlier in the school year. Third, while the LISn captures the frequency of child talk to teachers and peers, it does not capture the quality of talk between classmates. Future research should explore the manner in which children speak with one another and how this influences children's language outcomes. Fourth, we did not directly

assess children's language skills for this sample of children. Thus, we are not able to relate children's language environment to their language skills. Additionally, classification of focal children into Spanish dominant, bilingual and English monolingual categories was based on teacher report and not on direct language assessment. While not knowing children's actual language ability is a limitation of this study, teachers' personal perspectives about children's language proficiency are likely very salient factors of the language environment they are providing individual children. Future research could replicate this study with focal children categorized based on direct assessment to determine whether different patterns emerge.

Additionally, we collected data on the language environment over a broad span of time (3–4 hours) when focal children were engaged in a multitude of classroom activities and structures. On one hand, this is a strength of the study in regard to generalizability of the language environment for a school day (or the morning of a school day). However, because we did not systematically observe each child across the same activities (that is, focal children were observed in a cyclical manner during five-minute snapshots and thus all focal children were not engaged in the same activities, which does not allow for direct comparisons), the findings cannot provide clear information on how the language environment may differ based on activity context or structure. Future research should explore how children's language environments may vary by the type of classroom activity. Extant findings indicate that children and teachers use different language and teachers assume varying roles dependent on the activity and the group structure (Atkins-Burnett et al., 2011; Girolametto, Weitzman, van Lieshout, & Duff, 2000; Kontos, 1999). For example, Girolametto and colleagues (2000) found differences in frequency and type of talk between book-reading and play contexts.

Conclusion

The importance of children's early language skills for later academic success is clearly articulated in the literature. Early childhood teachers have a unique opportunity to promote the language skills of young children, especially for children who are low-income and dual language learners who are at risk for less than optimal academic success. However, extant findings and findings from the current study illuminate that teachers need further support in enhancing the language opportunities for young children.

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Table 1

Description of Focal Children's Participation in Activity Structures

Activity Structure	Percentage of Snapshots
Whole Group	43%
Small Group	13%
Individual Time	6%
Meal/Snacks	14%
Routine (e.g., toileting, standing in line, clean up time)	25%
Free Choice/Centers	28%

Note. Activity structure is not mutually exclusive. Focal children may have participated in more than one activity structure during a snapshot.

Table 2

Overall Representation of English and Spanish Talk in Classrooms (Aim 1)

	English			Spanish/Mixed		
	Range	**Mean**	**SD**	**Range**	**Mean**	**SD**
Focus child talks to…						
Lead teacher	0–7	0.51	1.08	0–7	0.06	0.38
Other adult	0–7	0.28	0.77	0–8	0.07	0.39
Other children/group	0–10	3.29	2.91	0–10	0.54	1.32
Lead teacher						
Repeats or confirms	0–7	0.26	0.68	0–5	0.03	0.25
Elaborates or builds	0–5	0.11	0.41	0–6	0.02	0.23
Give directions	0–10	1.65	1.95	0–4	0.11	0.42
Requests language	0–10	0.99	1.62	0–8	0.09	0.52
Provides contextualized information	0–8	0.72	1.41	0–9	0.07	0.42
Provides decontextualized information	0–8	0.31	0.86	0–4	0.02	0.20
Reads	0–10	0.30	1.40	0–9	0.02	0.36
Sings	0–10	0.41	1.40	0–9	0.03	0.31
Other talk	0–6	0.22	0.57	0–2	0.01	0.13
Literacy	0–9	0.12	0.69	0–3	0.01	0.12
Assistant teacher						
Repeats or confirms	0–5	0.06	0.33	0–4	0.03	0.21
Elaborates or builds	0–3	0.03	0.21	0–4	0.02	0.17
Give directions	0–10	0.70	1.45	0–6	0.12	0.48
Requests language	0–9	0.32	0.99	0–5	0.06	0.31
Provides contextualized information	0–10	0.28	1.02	0–4	0.03	0.21
Provides decontextualized information	0–10	0.11	0.57	0–2	0.01	0.88
Reads	0–10	0.13	0.87	0–6	0.01	0.16
Sings	0–10	0.16	0.92	0–2	0.01	0.09

	English			Spanish/Mixed		
	Range	Mean	SD	Range	Mean	SD
Other talk	0–5	0.13	0.44	0–2	0.01	0.12
Literacy	0–4	0.02	0.21	0–1	0.00	0.05

Table 3

Representation of English Talk by Child Language Type (Aim 2)

	English Talk							
	ANOVA		English Monolingual Children		Bilingual Children		Spanish Dominant Children	
	F-value	Post Hoc Comparison	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Focus child talks to…								
Lead teacher	0.36		0–6	0.53 (1.06)	0–6	0.47 (0.99)	0–7	0.52 (1.20)
Other adult	3.28*	B > S~	0–7	0.30 (0.77)	0–7	0.31 (0.84)	0–5	0.19 (0.56)
Other children/group	18.03***	E > B** E > S*** B > S**	0–10	3.82 (2.99)	0–10	3.21 (2.83)	0–10	2.54 (2.73)
Lead Teacher								
Repeats or confirms	0.69		0–6	0.29 (0.68)	0–7	0.25 (0.67)	0–6	0.24 (0.69)
Elaborates or builds	0.43		0–3	0.11 (0.36)	0–5	0.11 (0.46)	0–2	0.09 (0.31)
Give directions	0.07		0–9	1.57 (1.83)	0–10	1.61 (1.96)	0–10	1.61 (1.95)
Requests language	1.65		0–10	0.84 (1.42)	0–9	0.98 (1.62)	0–9	1.05 (1.76)
Provides contextualized information	0.74		0–7	0.62 (1.30)	0–8	0.71 (1.38)	0–8	0.75 (1.47)
Provides decontextualized information	0.28		0–6	0.29 (0.82)	0–8	0.30 (0.84)	0–7	0.34 (0.92)
Reads	2.47~		0–10	0.20 (1.14)	0–10	0.29 (1.32)	0–10	0.43 (1.73)
Sings	0.91		0–9	0.35 (1.32)	0–10	0.44 (1.49)	0–10	0.34 (1.13)
Other talk	1.51		0–4	0.18 (0.49)	0–6	0.24 (0.60)	0–3	0.21 (0.54)
Literacy	0.15		0–9	0.10 (0.74)	0–8	0.13 (0.70)	0–6	0.12 (0.61)
Assistant Teacher								
Repeats or confirms	0.43		0–5	0.07 (0.38)	0–3	0.06 (0.32)	0–2	0.05 (0.25)
Elaborates or builds	0.15		0–3	0.03 (0.24)	0–3	0.03 (0.21)	0–2	0.03 (0.19)
Give directions	0.53		0–10	0.73 (1.52)	0–9	0.64 (1.34)	0–10	0.68 (1.49)
Requests language	0.36		0–9	0.34 (1.02)	0–9	0.31 (0.96)	0–7	0.28 (0.96)

	English Talk							
	ANOVA		English Monolingual Children		Bilingual Children		Spanish Dominant Children	
	F-value	Post Hoc Comparison	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Provides contextualized information	0.02		0–8	0.27 (0.94)	0–10	0.27 (1.04)	0–9	0.28 (1.07)
Provides decontextualized information	1.09		0–5	0.12 (0.56)	0–10	0.09 (0.55)	0–5	0.14 (0.60)
Reads	0.69		0–8	0.17 (1.00)	0–10	0.12 (0.85)	0–9	0.10 (0.77)
Sings	0.14		0–9	0.15 (0.84)	0–10	0.16 (0.95)	0–9	0.19 (0.94)
Other talk	0.01		0–4	0.13 (0.42)	0–5	0.13 (0.46)	0–3	0.13 (0.43)
Literacy	0.05		0–3	0.02 (0.21)	0–4	0.02 (0.23)	0–3	0.02 (0.18)

Note. E= English Monolingual. B = Bilingual. S = Spanish Dominant.

$^{\sim}p < .10$

$^{*}p < .05$

$^{**}p < .01$

$^{***}p < .011$.

Table 4

Representation of Spanish Talk by Child Language Type (Aim 2)

	Spanish Talk							
	ANOVA		English Monolingual Children		Bilingual Children		Spanish Dominant Children	
	F-value	Post Hoc Comparison	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Focus child talks to…								
Lead teacher	4.81**	S > E*	0–1	0.01 (0.08)	0–5	0.06 (0.37)	0–7	0.09 (0.55)
Other adult	9.42***	S > B** S > E***	0–2	0.02 (0.15)	0–3	0.06 (0.30)	0–8	0.14 (0.63)
Other children/group	16.87***	S > B** S > E*** B > E**	0–6	0.25 (0.78)	0–9	0.55 (1.35)	0–10	0.81 (1.60)
Lead Teacher								
Repeats or confirms	3.23*	S > E*	0–1	0.01 (0.09)	0–2	0.03 (0.22)	0–5	0.06 (0.39)
Elaborates or builds	3.01*	S > E~	0–2	0.01 (0.11)	0–2	0.02 (0.16)	0–6	0.05 (0.39)
Give directions	5.76**	S > E**	0–2	0.06 (0.30)	0–3	0.11 (0.39)	0–4	0.16 (0.55)
Requests language	1.64		0–7	0.05 (0.43)	0–5	0.09 (0.42)	0–8	0.12 (0.72)
Provides contextualized information	2.77~	S > E~	0–2	0.03 (0.18)	0–9	0.08 (0.48)	0–5	0.10 (0.44)
Provides decontextualized information	0.29		0–2	0.01 (0.14)	0–4	0.02 (0.22)	0–2	0.03 (0.19)
Reads	3.07*	S > E~ S > B~	0–1	0.00 (0.05)	0–2	0.01 (0.14)	0–9	0.06 (0.69)
Sings	0.88		0–3	0.03 (0.23)	0–3	0.02 (0.18)	0–9	0.05 (0.52)
Other talk	1.25		0–2	0.01 (0.11)	0–2	0.02 (0.14)	0–1	0.01 (0.11)
Literacy	2.86~	S > E~	0–0	0.00 (0.00)	0–2	.00 (0.08)	0–3	0.02 (0.21)
Assistant Teacher								
Repeats or confirms	5.16**	S > B** S > E*	0–2	0.02 (0.15)	0–1	0.02 (0.12)	0–4	0.06 (0.34)

	Spanish Talk							
	ANOVA		English Monolingual Children		Bilingual Children		Spanish Dominant Children	
	F-value	Post Hoc Comparison	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)
Elaborates or builds	2.14		0–2	0.01 (0.12)	0–1	0.02 (0.12)	0–4	0.03 (0.27)
Give directions	2.98~	S > E~	0–3	0.07 (0.32)	0–6	0.12 (0.50)	0–4	0.16 (0.56)
Requests language (contextualized)	2.69~	S > E~	0–2	0.04 (0.23)	0–2	0.05 (0.25)	0–5	0.09 (0.46)
Provides contextualized information	1.57		0–1	0.01 (0.12)	0–3	0.03 (0.21)	0–4	0.04 (0.28)
Provides decontextualized information	1.87		0–1	0.00 (0.05)	0–1	0.00 (0.06)	0–2	0.01 (0.14)
Reads	1.14		0–6	0.02 (0.32)	0–1	0.00 (0.04)	0–1	0.00 (0.05)
Sings	0.67		0–1	0.00 (0.05)	0–2	0.01 (0.12)	0–1	0.00 (0.05)
Other talk	4.36*	S > B*	0–1	0.01 (0.11)	0–1	0.01 (0.07)	0–2	0.03 (0.18)
Literacy	1.01		0–1	0.01 (0.08)	0–1	0.00 (0.05)	0–0	0.00 (0.00)

Note. E= English Monolingual. B = Bilingual. S = Spanish Dominant.

~ p <.10

* p < .05

** p < .01

*** p <.011.