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Title

Early Childhood Educators' Verbal Interactions with Preschoolers during Group Chat, Snack Time, and Shared Book Reading

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Abstract

Research Findings

This study investigates the quality of verbal interactions between early childhood educators (ECEs) and preschoolers across three activity settings: group chat, snack time, and shared book reading. We collected data from 16 ECEs and their preschool groups through video recordings. We analyzed verbal interactions between ECEs and preschoolers on eight measures covering the three dimensions of interaction proposed by Rowe and Snow (2020): linguistic, conceptual, and interactive dimensions. Compared to shared book reading, statistical analysis showed that both snack time and group chat had similar results: more extended conversations, a higher percentage of utterances within decontextualized conversations (i.e., conversations about absent objects, persons, or events), and a higher rate of ECEs' utterances per minute. ECEs' vocabulary diversity was higher during shared book reading than during group chat and snack time. The activity setting did not influence syntactic complexity, but the type of conversation did: decontextualized conversation was associated with ECEs' use of more complex syntax.

Practice

These findings suggest that diverse activities offer unique opportunities for language learning. Activity settings and conversation topics must be considered when designing effective professional development that targets ECEs' use of language-supporting practices with preschoolers.

Introduction

Children's language skills, such as the breadth and depth of their vocabulary, use of complex sentences, and ability to narrate events, are associated with their educational success once in school (Dolean et al., 2021; Kendeou et al., 2009). In class, learning is mainly mediated through verbal interactions between pupils and the teacher (Schleppegrell, 2004). Therefore, the language children acquire before entering school plays an essential role in their future academic success.

To develop their language, preschoolers must participate in responsive interactions with adults (Cabell et al., 2015; Justice et al., 2018). Responsive interactions are characterized by adults using strategies like being warm and receptive to the child, encouraging interaction, following the child's lead, and responding to children's interests, questions, or comments (Girolametto et al., 2000; Hadley et al., 2023). At the same time, preschoolers benefit from exposure to complex language to maximize their language development (Massey, 2004; Rowe & Snow, 2020). As many preschoolers spend a large part of their waking hours with early childhood educators (ECEs), verbal interactions occurring in early childhood classrooms have the potential to promote preschoolers' language development.

The language used by ECEs is critical to preschoolers' language development (Jiang, 2024). Wanzek et al. (2023) have shown a correlation between children's vocabulary growth and adults' use of academic words (words such as *resource*, *analyze*). Moreover, children whose ECEs used more complex utterances showed greater syntactic development (Canut et al., 2022; Huttenlocher et al., 2002). Research also suggests that the initiation of

conversations by an adult influences children's language production: children are trying to “mirror” the language used by the ECEs by matching the level of abstraction of their ideas to those of the ECEs (Hadley et al., 2022). For example, Tompkins et al. (2013) showed that inferential questions elicited more inferential answers from children (than literal ones). These research results indicate that ECEs’ input is a key factor in preschoolers' language development.

Conceptual framework

Previous studies often used global measures and Likert scales to assess the quality of verbal interactions between ECEs and preschoolers (e.g., CLASS pre-k, Piasta et al., 2008). However, recent research has suggested that these global measures do not entirely capture what features of interactions promote preschoolers’ language development (Levickis et al., 2023; Thorpe et al., 2022). To better understand whether and how ECEs engage in conversations with children that have been shown to support language development, fine-grained analyses of conversations are needed (Levickis et al., 2023; Thorpe et al., 2022). Rowe and Snow (2020) have proposed a detailed framework for analyzing the quality of adult-child verbal interactions using three dimensions: linguistic, conceptual, and interactional. In the present study, we used this framework because these three dimensions capture aspects of interactions that have been shown to influence language development : 1) what words and sentences are used (linguistic dimension), 2) which conversation topics are chosen (conceptual dimension), and 3) how the interaction unfolds (interactive dimension). High-quality linguistic dimension comprises the adult’s use of diverse and

sophisticated vocabulary and complex syntax (Rowe & Snow, 2020). Regarding the conceptual dimension, studies indicated that conversations about decontextualized topics such as past events, explanations, and abstract ideas are related to preschoolers' oral language growth (Cash et al., 2019; Hadley et al., 2022). Massey (2004) described these types of conversations as “cognitively complex” for children, as they move language beyond the literal and immediate context, for example by defining words or discussing a character's internal state. Finally, high-quality on the interactional dimension refers to the adult's responsiveness and the presence of conversation with many back-and-forths. Past research showed that preschoolers learn better when they actively participate in conversations rather than when they solely listen to adults speaking (Justice et al., 2018; Lepola et al., 2023). The three dimensions are closely related. Decontextualized talk without back-and-forth interactions results in less learning than discussing these topics *with* children (Zimmerman et al., 2009). Furthermore, a high level of interactivity may provide an opportunity to adjust the linguistic input to the child's actual language skills, thus contributing to larger language gains (Rowe & Snow, 2020).

Verbal interactions in early childhood education

Many studies have documented the nature of verbal interactions between adults and children in educational settings. Regarding the interactional dimension, researchers have identified clear patterns where the adult occupies the vast majority of speaking time (Heritage, 2004). Moreover, conversations between the teacher and the children are typically brief, with most interactions following the Initiation-Response-Evaluation (IRE)

format (Mehan, 1979), where the adult asks a question (e.g., “What do flowers need to grow?”), a child responds (“Water”), and the adult evaluates the response (“Yes, exactly”). These questions are primarily designed to elicit the child’s knowledge and prompt the correct answer (Boyd & Rubin, 2006). On the linguistic dimension, studies have highlighted the limited use of syntactic complexity and a tendency for adults to simply repeat the child’s utterance without any elaboration (Cabell et al., 2015; Dickinson et al., 2008). For example, if a child says, “I ate a cake with my cousin,” the adult might respond, “Oh! You ate a cake!” Finally, for the conceptual dimension, adult’s talk in early childhood education is often characterised by a high proportion of contextualised talk (Gest et al., 2006; Massey et al., 2008; Tompkins et al., 2013).

While these patterns have demonstrated consistency across various studies, they have also suggested that specific contexts and activities can facilitate certain features of ECE’s talk, such as the use of more complex syntax or a better balance between adult and children’s talking time (Gest et al., 2006; Hadley et al., 2022). These variations underscore the necessity of a deeper understanding of the way activity settings influence ECEs’ language use.

Variations in verbal interaction as a function of activity settings

Language is rooted in the context in which it is used; thus, activities influence the nature of adult-child talk. Past studies have demonstrated that verbal interactions between ECEs and children vary due to factors such as group composition and activity settings (Cabell et al., 2013; Hadley et al., 2023). Each activity has its specific socio-

communicative rules: Who has the right to speak? What topics are discussed? These different rules affect the features of verbal interactions. For example, Cabell et al. (2013) indicated that teachers use richer vocabulary and act more responsively to children during whole group teacher-directed activity than during meals. As they modify the characteristics of verbal interactions, activity settings can be considered levers for improving the quality of verbal interactions between ECEs and preschoolers.

Past studies have mainly focused on verbal interactions during shared book reading (Hadley et al., 2022). In this setting, conversations between ECEs and children are often characterized by high vocabulary diversity and decontextualized talk (Massey et al., 2008; Author et al., 2014). However, even if shared book reading has the potential to support language learning, it typically occupies between 10 and 30 minutes when it is implemented in a highly interactive format (Hindman et al., 2019; Lefebvre et al., 2011): this is only a small fraction of the day. Apart from shared book reading, there is a need to broaden the investigation to other activities since many other contexts have the potential to support language learning throughout the day (Gest et al., 2006; Hadley et al., 2023; Snow & Beals, 2006). For instance, mealtimes and science activities seem to promote the use of decontextualized talk (Chaparro-Moreno et al., 2022; Gest et al., 2006; Kook & Greenfield, 2021; Massey et al., 2008).

The linguistic dimension of interaction is also influenced by the setting in which language is produced. Although research on preschoolers is still scarce, studies conducted with adolescents show that they use more complex syntax when discussing complex topics (e.g., explaining how to play a game) than when discussing simpler topics such as their family (Nippold, 2009; Rioux & Thordardottir, 2023). Gaining a better understanding of

how verbal interactions vary as a function of the activity settings would help target contexts that genuinely elicit high-quality ECE-children conversations.

Taking natural contexts into account

Enhancing the impact of teacher talk on preschoolers' oral language development requires greater attention to the ways in which interactions already occur naturally in early childhood education classrooms (Barnes et al., 2020; Levickis et al., 2023). This is crucial because strategies that have been identified as efficient in research contexts (e.g., where additional staff is present to manage the rest of the group) are difficult to reproduce in real-life settings (Piasta et al., 2020). For instance, previous research showed that small groups promote ECEs' responsiveness (de Schipper et al., 2006) and decontextualized talk (Chaparro-Moreno et al., 2022). However, small groups are relatively rare in early childhood classrooms, even when they are recommended in professional development (Bradley & Reinking, 2011; Chien et al., 2010; Piasta et al., 2022). Recent studies including large scale implementation have shown mitigated effects of professional development programs targeting preschoolers' language development through enhancing the verbal behaviors of ECEs. Cabell et al. (2013) suggest that professional development's limited impacts on ECEs' verbal practices might be linked to paying too little attention to the activities in which strategies must be implemented. Other research has shown that ECEs' verbal interactions with children are difficult to alter even when multiple hours of coaching are provided (Downer et al., 2024; Piasta et al., 2020). To design more ecological professional development, it is essential to study how verbal interactions naturally happen during activities settings that are already frequent or

mandatory in early childhood classrooms. Chien et al. (2010) reported that in the typical schedule of early education classrooms, 30% of the time was spent in free play, 27% in whole-group activity, 6% in small-group activity, 5% in shared book reading, and finally, 12% of the time was used for meals and snacks. Thus, a better understanding of how conversations unfold naturally during different activities could be key to more effective professional development, allowing new patterns of interaction to be integrated into everyday practices rather than layered on top of them (Kim, 2019). Professional development could take advantage of the opportunities each activity setting offers and recommend activities that more genuinely encourage language-supporting practices.

The Present Study

In the present study, our main objective was to determine whether the linguistic, conceptual, and interactive features (Rowe & Snow, 2020) of verbal exchanges between ECEs and children varied by activity. We chose whole-group activities as they are frequent in early childhood classrooms (Chien et al., 2010). We selected three activities: shared book reading, snack time, and group chat. Our choice was based on two criteria: 1) the likelihood that these activities would generate a large number of verbal interactions and 2) the similarity of the activities from one class to another (to allow for comparison). Although free play usually composes the largest part of the day, this setting does not allow us to compare verbal interactions across classrooms, as the different toys and games used during free play influence the characteristics of the interactions (Klein et al., 2010).

Based on the results of past research, we had three hypotheses: 1) group chat will be characterized by long conversations, based on the assumption that this activity would

involve fewer interruptions than shared book reading and snack time (e.g., a child asking for more food during snack time), 2) snack time and group chat will generate a higher quantity of decontextualized talk, as these contexts promote conversations about past or future events (Barnes et al., 2020; Gest et al., 2006), and 3) shared book reading will show higher lexical diversity because of the literate language written in the text that the ECEs will discuss with the children.

This study will allow us to identify the strengths and limitations of different activity settings regarding the specific features of verbal interactions that propel preschoolers' language development. This study is essential to enhancing the efficacy of professional development in improving teachers' language practices. Even though there is some research on the impacts of activity settings on verbal interactions, as Barnes (2020) stated, "we know relatively little about teachers' language practices in early childhood settings" (p.338).

Method

The ethics committee of [removed to allow blinded peer review] approved the protocol of the present study (# XXXX).

Participants

We sent emails to 25 early childhood education centers presenting them the study. These centers offered their ECEs to be part of the project. To be eligible as participants, ECEs had to be in charge of a group of 4- and 5-year-olds with French (official language in Quebec) as their first language. Sixteen ECEs from ten different early childhood centers agreed to participate in the study. Each ECE completed a demographic questionnaire. ECEs who participated in the study had an average early childhood work experience of $17,4 \pm 8,4$ years, they had worked exclusively with 4- and 5-year-old children for $5,6 \pm 4,5$ years and all but one had a technical diploma from a post-secondary institution (similar to an associate's degree). They were all women, and their average age was $40 \pm 7,9$.

Once the ECEs were recruited, parents consented for their child to be filmed. Parents also filled out a form about their child's development and their family's socio-demographic information. Apart from their parents' consent, there were no other criteria for children to participate in the study. A total of 126 children took part in the study, and during the recording, there were between six and ten children per group. Participating children were $61 \text{ months} \pm 3.8 \text{ months}$ old, 59% were boys, and 13% had a disability that impacted their language development (e.g., autism, language difficulty or disorder, hearing

impairment). Half of the mothers had a university degree (50%), and a high proportion (57%) of families had an income of more than (CDN) 90 000\$.

Data Collection

We told ECEs we wanted to record natural conversations during shared book reading, snack time, and group chat. To maximize the representativeness of our data, we adjusted filming to their schedule. Therefore, if group chat happened at 8h30, shared book reading at 12h30 p.m., and snack time at 3 p.m., the researcher visited three times during the day to record these activities. Four ECEs indicated that they did not engage in group chat activity. Since we wanted to report actual practice, we only recorded the two other activities (shared book reading and snack time) for these ECEs. Thus, the results presented in this study are based on the number of ECEs that carried out each activity once: book reading ($n = 16$), snack time ($n = 16$), and group chat ($n = 12$).

When recording the first activity, we asked ECEs to interact with children as they usually do (e.g., potentially interrupting activities to manage children's behavior). The book activity was presented to ECEs without further guidance on how to proceed or what reading style to adopt. Shared book reading mostly happened before nap time, and every ECE chose a children's story book. For the group chat activity, we allowed ECEs to choose the time as this activity could be performed at different times: after shared book reading, before snack time, etc. Moreover, given the objectives of the present study (i.e. to document naturally-occurring activity) we did not want to change the usual routine. Indeed, across ECEs, the course of the group chats was the most diverse. Some ECEs asked children if

they wanted to share something with the group or what they planned to do during free play. Other ECEs did their morning routine: describing the weather, singing songs, choosing the “friend of the day,” talking about events coming up during the week, etc. In 11 groups, snack time was spent with all the children sitting at the same large table. In the other five groups the children were divided between two tables. During snack time, half of the ECEs ($n = 8$) sat with the children. The other eight ECEs stood and distributed food by walking around the children.

To collect data, we used a video camera, and a digital audio recorder. The microphone was attached to the collar of the ECEs' piece of clothing. The recordings were made between February and June 2021. After the recording, the ECEs rated how representative of their day-to-day reality the activities were. On a scale from 0 to 10 (10 being entirely typical), shared book-reading obtained an average of 8.8 (SD: 1.3, $n = 16$), snack time, 8.6 (SD: 1.5, $n = 16$), and group chat, 9.1 (SD: 1.0, $n = 12$).

Data Transcription and Preparation

A trained research assistant (undergraduate student) transcribed verbal interactions between ECEs and children in CHAT format (from the CHILDES programs; MacWhinney, 2000). Rote counting (e.g., one, two, three, four...) and singing songs were not transcribed as utterances. Non-verbal behaviors (e.g., pointing) were noted where relevant to support coding. Utterances were transcribed if they were part of a conversation between ECEs and children and if children's utterances were the focus of ECEs' attention. For example, if the ECE asked a question and did not listen to the child's response, the

question was transcribed, but the child's response was not. In addition, when the ECE talk with another adult or when two children spoke together, these utterances were not analyzed as they were not part of a conversation between ECE and the children. In total, 7 hours and 50 minutes of interactions were transcribed and resulted in 1928 utterances.

For snack time, we started transcribing when the food was presented to the children and stopped when the ECEs announced the next activity or when ECEs left the table to clean up. For group chat, we started transcribing when the ECEs announced the beginning of the activity and stopped when the children transitioned to a different activity. For shared book reading, we started transcribing when the book title was mentioned and stopped with the announcement of the next activity. As our study focused on the verbal interaction between ECE and preschoolers, only extratextual talk by each ECE was coded (we did not include texts read aloud by the ECE during shared book reading). The first author, an experienced speech-language pathologist, revised all the transcripts.

We segmented ECEs and preschoolers' speech into utterances based on pausing, syntactic and semantic cues, and intonation (Bernstein Ratner et al., 2020). Then, four rounds of coding were performed (see appendix 1 for an example of the coding of an excerpt). During the first round, we grouped utterances into conversations defined as exchanges between ECEs' and children on the same topic. To be considered part of the same topic, utterances had to be semantically linked. The first author performed the first conversation grouping, and each co-author verified the grouping for half of the transcripts. In the event of disagreement, the three authors worked together until they reached agreement. Example 1 illustrates the result of this conversation analysis:

Example 1

(1) ECE: Who has a bike at home?

- (2) Do you have a bike?
(3) Child 1: I can ride my bike all by myself.
(4) Child 2: *Can you tie my shoe?*
(5) ECE: *Yes, come here.*
(6) Did you ride your bike yesterday?

In this example, the first conversation (bike riding) consists of four utterances (1, 2, 3, and 6), and the second conversation (tying shoe; italicized) consists of two utterances (4 and 5).

In the second round, using a coding scheme adapted from Leech et al. (2018), we classified the conversation topics specified during round one into contextualized or decontextualized conversation. Decontextualized conversations involved talking about objects, people, events or explanations that went beyond what was happening in the “here and now”. These topics could be directly linked to children’s personal lives (e.g. activities done during the weekend) or unrelated to their lives (e.g. explanation of why oranges can’t grow in winter). Table 1 includes a complete description and examples of the coding scheme we used to arrive to a consensus between two authors.

[Table 1 near here.]

During the third round of coding, we counted the number of turns for each conversation. One turn was counted for every group of consecutive utterances produced by either the ECEs or the children during a conversation. A turn could be composed of one or more utterances. In example 1, the bike riding conversation is composed of 3 turns: the first turn is ECE (utterances 1 and 2), the second turn is child 1 (utterance 3), and the third turn is ECE (utterance 6).

If one conversation was interrupted by a parallel conversation on a different topic that lasted five turns or more, the split utterances of the primary topic utterances were counted as part of two different conversations. This is illustrated in example 2. The “riding a bike” topic is interrupted by a child asking for more food. This new conversation lasted six turns (italicized in the example). Thus, the ECE talking again about bike riding in utterance 9 is considered to start a new conversation rather than the continuity of the same conversation (because it was interrupted by another topic of 5 turns or more).

Example 2 - Nine utterances forming three conversations

- (1) ECE: Who has a bike at home?
- (2) Child: I can ride my bike all by myself.
- (3) Child: *Can I have another piece of apple?*
- (4) ECE: *Maybe later.*
- (5) Child: *I am still hungry.*
- (6) ECE: *But your friend has not eaten yet.*
- (7) Child: *He is not hungry.*
- (8) ECE: *OK, two more pieces for you.*
- (9) So, you can ride your bike by yourself?
- (10) Child: Yes, and my sister too.

Finally, in round four of coding, we counted and indicated the number of conjugated verbs for each ECE’s utterances.

Data Analysis

We analyzed the transcripts based on the three dimensions of input quality proposed by Rowe and Snow (2020): linguistic, interactive, and conceptual.

The linguistic dimension comprised four measures of ECEs’ utterances : 1) number of utterances per minute, 2) type-token ratio, 3) vocabulary diversity, and 4) use of complex syntax. For this dimension, we focused solely on ECEs’ talk as it is recognized as the driving force for vocabulary and grammar development of children (Canut et al., 2022;

Wanzek et al., 2023). To report the input quantity, we measured the number of ECEs' utterances per minute: for each activity, the number of utterances made by the ECEs to the children was divided by the duration of the activity (in minutes). Given that children benefit from being exposed to a variety of words, we assessed ECE's lexical diversity using a type-token ratio (number of different words divided by the total number of words) and a vocD measure, which controls for the total quantity of speech, providing an unbiased estimate of vocabulary diversity. Both measures were calculated with CLAN. Finally, to assess the complexity of ECE's syntax, we reported the rate per minute of utterances containing two or more conjugated verbs. This rate per minute facilitated the comparison across activities.

Regarding the conceptual and interactive dimensions, both ECEs and preschoolers' contributions were analyzed. The interactive dimension was composed of two measures: 1) ratio of ECE to children's utterances and 2) average number of turns per conversation. The first measure aimed at measuring the balance between ECEs' and children's verbal participation in the interaction. To do so, we calculated the total number of ECEs' utterances divided by the total number of children's utterances. For the second measure, we calculated the average number of turns per conversation since extended conversations facilitate children's language learning (Justice et al., 2018).

Finally, the conceptual dimension was examined using conversation topics. We calculated the rate per minute of utterances in decontextualized conversations (ECEs and children combined). We also calculated the percentage of utterances in decontextualized conversations (ECEs' and children's combined).

Statistical Analyses

Since our objective was to assess how activity settings influence the verbal interactions between ECEs and preschoolers, we performed statistical analyses using SAS/STAT software Version 9.4 (SAS Institute Inc., Cary, NC, USA). A repeated measures ANOVA was conducted to measure the association between verbal interaction measures and activity settings. Independent variables were the three activity settings (group chat, snack time, and shared book reading), and the eight measures described above were dependent variables. As post-hoc tests, pairwise comparisons were performed for statistically significant simple main effects. We used a Bonferroni correction for both the ANOVA and post-hoc tests.

Results

We compared verbal interactions between ECEs and preschoolers among three whole-group activities. On average, group chat ($n = 12$) lasted 7min50sec (SD: 5min35sec), snack time ($n = 16$) lasted 14min16sec (SD: 6min34sec), and shared book reading ($n = 16$) lasted 10min34sec (SD: 2min56sec).

Table 2 displays the mean and standard deviation (SD) of the eight measures of verbal interaction across the three activity settings. Table 3 presents the ANOVA and the post-hoc tests examining the association between verbal interactions and activity settings.

[Table 2 near here]

[Table 3 near here]

Linguistic Dimension

As shown in Table 4, we found no statistically significant differences between the three activity settings regarding complex sentences per minute, $F(2, 26.6) = 2.30, p=1$) and ECEs' type-token ratio, $F(2, 10.9) = 7.14, p = .094$).

However, we found statistically significant differences for the two other linguistic measures across the three activities: ECEs' vocD, $F(2, 12.3) = 13.66, p=.001$) and ECEs' number of utterances per minute, $F(2, 27) = 19.21, p=.001$). Pairwise comparisons indicated that the vocD measure was higher during shared book reading than during group chat (effect size = 1.35) and snack time (effect size = 1.12). Moreover, ECEs produced significantly more utterances per minute during group chat and snack time than shared book reading. Once again, effect size were appreciable: 1.11 for group chat and 0.82 for snack time.

Interactive Dimension

As shown in Table 4, we found no statistical difference in the ratio of educators' utterances to children's utterances, $F(2, 41) = 0.32, p=1$). Across the three settings, on average, ECEs produced between 2.30 and 2.49 utterances for every utterance a child of the group produced. Statistical analyses indicate that conversation length differed between activity settings, $F(2, 12.9) = 19.66, p<.001$). Conversations were statistically more extended during group chat and snack time than shared book reading. Effect size were considerable: 1.01 for group chat and 1.50 for snack time.

Based on this difference in conversation length, we compared the proportion of utterances in short (4 turns or less) or long (5 turns or more) conversations. Extended

conversations were more frequent during group chat (65% of all utterances) and snack time (66% of all utterances) than during shared book reading (47% of all utterances).

Conceptual Dimension

As shown in Table 4, the percentage of utterances in decontextualized conversation was not statistically different across activity settings, $F(2,13) = 4.38, p = .317$). However, the number of ECEs' and children's utterances in decontextualized conversations per minute was statistically different across activity settings, $F(2,12) = 17.54, p = .003$). Pairs comparisons show that such utterances were more frequent during group chat than during shared book reading with an effect size of 1.02. During group chat, decontextualized conversations were mainly about personal events (past or future) and general knowledge. During snack time, prototypical decontextualized conversations were almost exclusively related to children's and ECEs' personal lives, preferences, families, or past experiences. Finally, decontextualized talk was mostly impersonal during shared book reading: topics were related to print awareness, explanations about the story, and word definition.

Post-hoc analysis

Because other studies have found that complex utterances were more frequent during certain types of discourse (Nippold, 2009; Rioux & Thordardottir, 2023), we decided to perform a post-hoc analysis on complex syntax. Consistent with the aforementioned results, the interaction between the percentage of complex syntax and activity setting was not statistically significant, $F(2, 19.6) = 1.74, p = .202$). When

considering activity settings, the interaction between the average percentage of complex sentences and decontextualized conversations was non-significant, $F(2, 19.8) = 1.63, p = .221$). However, when solely considering decontextualized and contextualized conversations (not taking activity settings into account), the average percentage of complex sentences was statistically higher when subjects were decontextualized than when they were contextualized, $F(1, 14.7) = 6.09, p = .026$). In other words, complex sentences were more frequent when conversations were decontextualized (effect size = 0.60).

Discussion

This study aimed to describe and compare verbal interactions between ECEs and preschoolers in three activity settings: group chat, snack time, and shared book reading. The main strength of this study is the fine-grained analysis of verbal interactions between the educators and the children. Each activity was transcribed and analyzed according to eight variables related to the linguistic, interactive, and conceptual dimensions of quality input that are recognized as facilitating preschoolers' language development. This allowed us to draw a complete portrait of what was going on during these activities and whether certain high-quality features were present at the expense of others.

Although all three activities occurred during whole group interactions, the conversations unfolded differently depending on the context. During group chat and snack time, ECEs were more talkative, and conversations were more extended than during shared book reading. Our results also show that the number of both ECEs' and children's utterances per minute in decontextualized conversations was higher during snack time than during shared book reading. ECEs' vocabulary diversity (vocD) was higher during shared book reading than during group chat and snack time. These findings align with previous studies

showing that not all activity settings are equivalent regarding the linguistic features that promote language development in preschool children (Cabell et al., 2013; Gest et al., 2006; Hadley et al., 2023): different activity settings tend to focus on different aspects of language.

Our results showed that the percentage of decontextualized talk between activities was not statistically significant. However, the number of ECEs' and children's utterances in decontextualized conversations per minute was statistically different across activity settings. It is worth noting that contextualized topics comprised the majority of ECEs' utterances produced during shared book-reading activity (65%) and a lower percentage during snack time (59%) and group chat activities (43%). Our findings also suggest that for some linguistic features, such as syntactic complexity, the type of activity might not be the most decisive factor. The post-hoc analysis indicates that complex syntax was not associated with activity but varies according to the conversation topic. This is in line with studies on discourse types and syntax conducted with adolescents, which indicate that the more complex the discourse type, the more complex the syntax (Nippold, 2009; Rioux & Thordardottir, 2023).

Shared Book Reading: Impersonal Decontextualized Topics, Limited Interactions

Our findings show that the shared book reading activity did not prompt many verbal interactions features that are particularly supportive of preschoolers' language development, such as complex syntax or extended conversations. This could be partly explained by the fact that almost all ECEs choose to read the book early in the afternoon,

just before naptime. ECEs may have felt rushed to finish the book to be "on schedule" for nap time, which reduced verbal interactions. Ten minutes might not be enough to read an entire book and to have responsive conversations with children (Chien et al., 2010). Our findings echo those of Hindman and Wasik (2019), who conducted a study in a similar setting as in the present study. They reported that shared book reading was usually short (10 minutes on average), characterized by brief conversations with the children and a small number of extratextual utterances per minute.

Concerning the lexical diversity measures, we found a discrepancy between the ECEs' type-token ratio and vocD measures across different activity contexts. While the type-token ratio did not reveal significant differences between shared book reading, group chat, and snack time, we found that during shared book reading had a higher vocD measure than group chat and snack time. This divergence can be explained by the methodological properties of each measure. Type-token ratio is highly sensitive to sample length: as the number of tokens increases, the likelihood of word repetition also increases, which tends to lower the type-token ratio (Silverman & Ratner, 2002). In contrast, vocD accounts for sample size by modeling the probability distribution of word types across the sample (Silverman & Ratner, 2002). This makes vocD more reliable for comparing lexical diversity across different contexts and our results suggest that shared book reading encouraged ECEs to use a more diverse vocabulary, potentially reflecting the rich lexical content found in books (Montag et al., 2015). In the present study, conversation about word definitions was almost exclusively discussed during shared book reading and might have influenced ECEs to use more diverse vocabulary. More broadly, impersonal topics, such

as word definitions or explanations of natural phenomena, were almost solely present during the shared reading activity. These conversation topics are particularly important for preschoolers' language development as they resemble the language children hear more often once they enter school (Schleppegrell, 2004; van Kleeck, 2014).

Group Chat: Short Activity, Long Conversation

In accordance with our hypothesis, our results demonstrate that group chat activity includes indicators of high-quality interactions: long conversations and a high percentage of utterances in decontextualized conversation. Although the group chat activity was the shortest (7 minutes on average), the rate per minute of utterances in decontextualized conversations was twice as high as during shared book reading. This suggests that even a few-minute group chat might contribute to language development.

Interestingly, four ECEs said they did not have a group chat activity. They justified their choice mostly by stating that the children in their group had limited attention spans. We acknowledge that group chat activities can challenge preschoolers' attention and language abilities. However, this raises the question of ECEs' beliefs and expectations (i.e., what they consider a successful "group chat") and how they view their role in supporting children's engagement in conversational activities. In a previous study (Author et al., 2023), ECEs' described their own practices, and some of the participants mentioned that they persisted in offering challenging activities such as "group chat" despite children being shy and having difficulty participating in decontextualized conversations. These ECEs believed that with their support, preschoolers could learn and be successful in those activities. It might not be the case for the four ECEs in the present study, who do not carry

out group chat activities. They might believe that to conduct a group chat activity, children must already be able to participate effectively with little support and no prior practice.

Snack Time: A Long and Mandatory Activity that Might be Underestimated

In the present study, snack time was the longest activity (average: 14 minutes), and preschoolers usually snacked twice daily. Thus, snack time can provide numerous opportunities to promote language development since our results show that it generates long and decontextualized conversations. As hypothesized, snack time prompted many conversations about past events (e.g., what happened the day before with the substitute ECE). This is in line with Quebec's cultural habits, in which lively conversation are an integral part of a "good meal" (Croteau, 2011). The advantages of cultural practices supporting language development at mealtimes and snack times might not be evident when studied in isolation (Bouchard et al., 2010), but they are more apparent when activities are compared with each other (Gest et al., 2006).

Limitations and Future Directions

One of the limitations of this study is the small sample size that we were able to analyze due to the length of the coding process we carried out. Another limitation of this study regards the fact that our results focus primarily on the contribution of ECEs to interaction. As verbal participation is a crucial feature of children's language learning (Lepola et al., 2023), it would be useful to analyze both sides of the interactions in future studies: ECEs' input and preschoolers' verbal participation (Hadley et al., 2023). There is much to study in different activity settings: Is every child in the group participating verbally

in interactions (Chaparro-Moreno et al., 2019)? Do certain activities encourage children to use more complex syntax (Klein et al., 2010)?

Given the present findings, conversation topics remain an interesting research subject. It may be easier for ECEs to change conversation topics than to implement specific language-supporting strategies. Futures studies could interview teachers about the topics they discuss with children (are their choices intentional? what influences their decision to discuss a specific topic?) and study ECEs' implementation of decontextualized topics. Since extended conversations are valuable for language development, researchers could study how topics foster more extended conversations.

Implications

Our findings point to some implications for professional development. First, professional development aiming to familiarize preschoolers with academic language should offer various activity settings where language support is present since each activity is usually brief (less than 15 minutes in the present study). Mandatory activities, such as snack time, might be a good moment to add verbal interactions as these do not imply schedule modification. During snack and meals, professional development could promote conversation as ECEs seem to regard these activities as accessible and acceptable times for verbal interaction. Indeed, snack time can be used to talk about more things than the food served.

Second, as demonstrated by the interaction's variations observed during the three activities, it is clear that different activities require different professional development focus. For shared book reading, in addition to promoting specific language-supporting

strategies, professional development might be more effective if it addressed the moment and the time devoted to shared book reading: placing the activity not before a quiet moment (nap time) and allowing more time to it might encourage more verbal interactions between ECEs and children. Regarding the group chat activity, we were surprised by the high percentage of ECEs who did not plan this activity as part of the routine because children in their group “*did not have enough attention*”. Therefore, professional development could target ECEs' beliefs about what constitutes a “successful” group chat, as these beliefs influence ECEs' decision to implement the activity or not.

Third, professional development could suggest to ECEs to choose decontextualized topics deliberately, as these topics tend to enhance ECEs use of more complex sentences in conversations. ECEs could engage young children in reminiscing conversations (Van Bergen & Andrews, 2021) or discuss complex topics like “Can we believe what happens in our dreams ?” (Snow & Beals, 2006, p.56). It is possible that ECEs may find it easier to consciously control conversation topics than other aspects of interaction (e.g. complexity of sentences produced, variety of vocabulary used, length of conversations).

Conclusion

The present findings suggest that to maximize language gains for preschoolers in early childhood settings, professional development for ECEs could focus on different activities occurring throughout the day. In addition to shared book reading, professional development could focus on other more frequent and mandatory activities, like snack time. These activities might be supportive contexts for ECEs' to implement strategies presented during professional development. The intention of professional development should not be to

standardize verbal interactions so that conversations all look the same across activity settings but rather to take advantage of the opportunities each activity setting offers. Responsive and challenging conversations do not exist in a vacuum; they are intrinsically related to the activity and the conversation topic. How activities influence verbal interactions could contribute to broadening the tools that will help children develop their language and be more ready for school.

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Declaration of interest statement

The authors report that there are no competing interests to declare.

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Table 1. Coding scheme for conversation topics

Codes and definition	Topics' example	Examples of coding
Contextualized Topics about what is happening here and now	<ul style="list-style-type: none"> - Giving directions for an activity taking place now - Greeting and praising - Describing what is happening here and now 	<ul style="list-style-type: none"> - You can go and sit at the table. - Good morning [name of the child] ! Well done, you cut the banana nicely ! - You're done. You're talking to me at the same time.
Decontextualized - Absent objects or persons, past or future events or explanations	<p>Related to children's personal lives (personal)</p> <ul style="list-style-type: none"> - Activities done during the weekend - Explanations about why a child is absent - Directions about what will happen later in the day <p>Unrelated to children's personal lives (impersonal)</p> <ul style="list-style-type: none"> - Print concepts and phonological awareness - Meaning of a word such as "chives", "squall" or "cautious" 	<ul style="list-style-type: none"> - I ate a lot of candy during the week-end. - Today, [Name of the child] is not coming because she's staying home with her mom. - Today, after lunch, we will be resting upstairs, okay? - The quotation marks on the page mean a person is speaking.

-
- General knowledge (e.g., the dinosaurs, the weather, how a public library works)
 - Mental state of a character
- Chives taste a little bit like onion. My daughters like to pick them from my garden and eat them straight away.
 - Do you know why the dinosaurs all disappeared? It's because of a mega-meteorite.

Why do you think he [the character in the book] doesn't look sad ?

Table 2. Descriptive statistics for each activity

Variables	Mean (SD)		
	Group Chat	Snack time	Shared book reading
Linguistic dimension			
Number of ECEs' utterances: Rate per minute	17.12 (1.06)	14.75 (0.93)	10.26 (0.93)
ECEs' Type-token ratio	0.38 (0.05)	0.28 (0.01)	0.37 (0.02)
ECEs' VocD	92.62 (18.37)	100.53 (11.93)	127.61 (23.68)
Number of ECEs' utterances containing two or more conjugated verbs: Rate per minute	2.01 (0.21)	1.83 (0.19)	1.57 (0.19)
Interactive dimension			
Number of ECEs' utterances on the number of children's utterances	2.49 (0.19)	2.33 (0.16)	2.30 (0.16)
Average number of turns in conversations	5.27 (0.58)	4.92 (0.33)	3.23 (0.14)
Conceptual dimension			
Number of educators' and children's utterances in decontextualized conversations: Rate per minute	14.07 (2.45)	8.93 (1.28)	5.78 (0.75)
Percentage of utterances in decontextualized segments	0.57 (0.09)	0.41 (0.05)	0.35 (0.04)

Table 3. Statistical comparisons between activity settings

Measures	<i>p</i> value ANOVA repeated measures	<i>p</i> value for pairs comparisons (effect size – Cohen’s values)		
		Group Chat vs. Snack Time	Group Chat vs. Shared Book reading	Snack time vs. Shared Book reading
Linguistic dimension				
Number of ECEs’ utterances: Rate per minute	0.001*	.150 (0.38)	<.001* (1.11)	.001* (0.82)
ECEs’ Type-token ratio	0.094			
ECEs’ VocD	0.006	0.523 (-0.41)	0.001* (-1.35)	0.002* (-1.12)
Number of ECEs’ utterances containing two or more conjugated verbs: Rate per minute	1			
Interactive dimension				
Number of ECEs’ utterances on the number of children’s utterances	1			
Average number of turns in conversations	0.001*	1 (0.17)	.011* (1.01)	<.001* (1.50)
Conceptual dimension				
Number of educators’ and children’s utterances in decontextualized conversations: Rate per minute	0.003*	0.339 (0.44)	0.008* (1.02)	0.074 (0.65)
Percentage of utterances in decontextualized segments	0.317			

* $p < 0.05$

Speaker	Utterance	Number of conjugated verbs in ECEs' utterances	Topic	Contextualized or decontextualized (personal or impersonal) topics	Number of turns on the same topic
Child	I want orange juice.		Snack	Contextualized	5
ECE	You want orange juice ?	1			
ECE	If you want orange juice, you'll have to eat an orange.	2			
Child	Yes, an orange.				
ECE	Okay, I'll give you one, here.	1			
Child	I want two.				
ECE	Oh, I remember [Name of child]' mother told me she's not coming today.	3	Child absent for the day	Decontextualized (personal)	3
Child	She'll come later ?				
ECE	No, she's with her grandma for the day.	1			