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EMPIRICAL ARTICLE

CHILD DEVELOPMENT

The linguistic complexity of adult and child contextualized and decontextualized talk

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Abstract

The association between decontextualized talk (DT; i.e., talk extending beyond immediate context) and child language outcomes is well-attested but not well-understood. This study tested the hypothesis that DT is more linguistically complex than contextualized talk (CT). Thirty-eight Norwegian children (M_{age} = 5.5 years; 25 girls; 30 Norwegian-speaking monolinguals and eight multilinguals) and their teachers were videotaped during picture book reading, story card conversations and toy play (collected 2010–2011 and 2017). Results show that DT was more complex than CT among children and teachers. Both types of talk were more complex during book reading and story conversations than during play. The conversational context should be accounted for when theorizing about the role of DT in language development.

Children's acquisition of oral language skills during preschool years functions as the foundation for later levels of literacy and academic achievement (Durham et al., 2007; Hjetland et al., 2020; Pace et al., 2019). These oral language skills are honed through communicative interactions with caregivers, at home and in early childhood education and care (ECEC). Specifically, the use of decontextualized talk, or talk that extends beyond the here-and-now (Snow et al., 2001), has been shown to be effective for predicting children's language proficiency, including child vocabulary and syntax, as well as their narrative production and comprehension skills (Aukrust & Rydland, 2011; Demir et al., 2015; Dickinson & Porche, 2011; Dickinson & Smith, 1994; Rowe, 2012). There is also evidence that decontextualized talk in the preschool years predicts academic language proficiency in middle school, suggesting that children's early engagement in decontextualized talk may promote the acquisition of school-relevant discourse practices (Uccelli et al., 2019).

While the associations between decontextualized talk and child language outcomes are well-attested, less is known about the mechanisms underlying this relation. A prominent hypothesis is that decontextualized talk is more lexically and syntactically complex than talk grounded in immediate context (i.e., contextualized talk), thereby representing linguistic input that is beneficial for children's development of language and literacy (Curenton & Justice, 2004; Demir et al., 2015; Rowe & Snow, 2020). However, as few studies have compared the linguistic features of contextualized and decontextualized talk, we currently know little about the lexical and syntactic complexity of these two types of talk. Accordingly, in this study, we observed conversations between children and their teachers to investigate whether decontextualized talk is actually more linguistically complex than contextualized talk. By testing this hypothesis, we seek to improve the understanding of how decontextualized talk may support language acquisition in early childhood.

Abbreviations: BPVS-II, British picture vocabulary scale-II; CHILDES, child language data exchange system; CLAN, computerized language analysis; CT, contextualized talk; C-units, communication units; DT, decontextualized talk; ECEC, early childhood education and care; ENPs, elaborated noun phrases; ICC, intraclass correlation; MANOVA, multivariate analysis of variance; MLU-w, mean length of utterance in words.

Linguistic differences between contextualized and decontextualized talk

Contextualized and decontextualized talk are best perceived as opposite ends of a continuum that differ functionally, conceptually, and structurally (Rowe & Snow, 2020; Westby, 1985). *Functionally*, contextualized talk is used to regulate social interactions and share information about the concrete and the practical. Typically, contextualized talk involves people, objects, and events that are present in the immediate environment, whereby meaning is supported by contextual cues that are provided by the surroundings of an interaction (Snow, 1991; Uccelli et al., 2019). In contrast, decontextualized talk conveys information about the nonpresent, as in the discussion of abstract ideas such as hypotheticals or counterfactuals, talk about past and future events or fantasy talk during episodes of pretend play (Demir et al., 2015; Rowe, 2012). This means that decontextualized talk is *conceptually* different from contextualized talk because it relies on mental representations of entities that either are absent from a conversational setting or treated in a nonliteral way (e.g., attributing thoughts and feelings to a toy animal; Katz, 2001). Moreover, with less support of a physical environment, meaning is conveyed primarily through language itself (Rowe, 2012; Uccelli et al., 2019). Thus, it is suggested that decontextualized talk necessitates the use of linguistic features that increase explicitness and reduce ambiguity, making it more *structurally* complex than contextualized talk (Curenton & Justice, 2004). For example, clear communication about the nonpresent calls for explicit references to people, objects, and events, rather than using gestures or deictic cues (e.g., this, that, and there) to convey meaning (Schleppegrell, 2004; Snow, 1983). Decontextualized talk thus requires more precise vocabulary, which may result in a higher density of content words carrying independent lexical meanings (e.g., nouns, verbs, and adjectives). Other features believed to facilitate the rendering of abstract content in decontextualized talk include the use of elaborated noun phrases (ENPs), which increases the explicitness of subjects and objects through the addition of modifiers such as articles, adjectives and prepositional phrases (e.g., the little cat in the window; Curenton & Justice, 2004). Importantly, explicitness and precision are highlighted as attributes of language that are used in written texts and academic discourse (Schleppegrell, 2004; Uccelli, 2019). In fact, school-based texts are often characterized by high densities of lexical words, and frequent use of noun phrase elaboration (Nagy & Townsend, 2012; Schleppegrell, 2001). Additionally, school-based texts rely on relatively complex syntactic strategies that explicate logical connections and promote coherence. For example, whereas colloquial communication typically includes chains of independent clauses connected with a few common coordinating conjunctions (e.g., and, so), academic texts often link information by using subordinating conjunctions (e.g., because, while, and where) that specify time and place or connect events in a cause-effect manner (Pellegrini, 1985; Schleppegrell, 2001).

Although decontextualized talk in early childhood appears in informal everyday interactions, the need for making meanings clear in conversing about the nonpresent echoes the demands for explicitness and precision that characterize school-relevant language practices. It is therefore reasonable to assume that decontextualized talk draws on linguistic resources for lexical reference and syntactic linking that resemble those of written text and academic discourse. Indeed, some studies have reported occurrences of academic language features in language contexts that are associated with decontextualized talk. For example, the use of linguistic features such as ENPs and subordinating conjunctions has been found in preschoolers' symbolic play and oral narratives (Curenton & Justice, 2004; Pellegrini, 1985). Additionally, Curenton et al. (2008) found that the use of mental and linguistic verbs (e.g., think, say), a category of verbs that explicate cognitive and linguistic processes, was positively correlated with rates of decontextualized talk in storytelling interactions between mothers and preschoolers. Although these findings indicate a relation between decontextualized talk and the use of complex linguistic features, there is still much to learn about the distinct characteristics of contextualized and decontextualized talk. To the best of our knowledge, only one study has directly compared linguistic features of these two types of talk. In a study of parents' everyday conversations with their children, Demir et al. (2015) found that decontextualized parent utterances were, on average, longer than contextualized parent utterances. As mean length of utterance is often considered an index of syntactic complexity (Scarborough et al., 1991), these results provide budding evidence in support of the hypothesis that decontextualized talk is more complex than contextualized talk.

Putting the context in decontextualized talk

Decontextualized talk is inherently detached from physical context, but this does not imply the absence of a larger communicative context (Grøver et al., 2019). On the contrary, we know that certain settings and activities are conducive to different types of decontextualized talk. For example, book reading and oral storytelling interactions are believed to promote inferential language and talk about the internal states of people and characters (Curenton et al., 2008; DeTemple, 2001), while play-based activities provide access to abstract themes through engagement in pretend talk (Katz, 2001; Pellegrini, 1985). Moreover, research has demonstrated that mealtimes, both at home and in preschool, are dense with personal narratives such as recounts of events of the day,

discussion of plans for later activities, or reminiscence about shared experiences (Beals, 2001; Cote, 2001; Gest et al., 2006; Snow & Beals, 2006). However, the reported rates of decontextualized talk in these and other activities vary substantially among studies conducted in different settings. For example, within preschool, research has demonstrated that children are less likely to engage in decontextualized talk during play than during other language contexts, such as book reading, mealtimes, and math and science-related activities (Chaparro-Moreno et al., 2022; Gest et al., 2006; Massey et al., 2008). In contrast, Katz (2001) found that pretend talk constituted almost half of mothers' and children's talk during toy play, which exceeds proportions of decontextualized talk found in both family and preschool mealtimes (Beals, 2001; Gest et al., 2006).

Notably, one may expect settings and activities to vary, not only in the types of talk that occur but also in the linguistic complexity they induce. For example, establishing a play frame (e.g., going to the doctor) during dramatic play may hypothetically compensate for a lack of support from a physical environment and reduce the need for linguistic explicitness. Furthermore, in preschool years, talk during play is often assisted by manipulable objects (e.g., making use of an empty cup while saying "yum, this tastes good"), meaning that pretend talk might be less detached from physical context (Pellegrini, 1985) than other types of decontextualized talk. Although this hypothesis has received little attention, a line of previous research has examined the moderating effects of context on the complexity of language—albeit without distinguishing between linguistic features of contextualized and decontextualized talk. In particular, several studies have demonstrated that linguistic input provided by parents and preschool teachers is more complex during book reading interactions compared with input during other activities, including play (Dickinson et al., 2014; Ece Demir-Lira et al., 2019; Farrow et al., 2020; Gest et al., 2006; Hoff-Ginsberg, 1991; Noble et al., 2018). Yet, the results from previous research are not conclusive. For example, in line with the studies cited above, Crain-Thoreson et al. (2001) found that parent input during book reading was more linguistically complex than parent talk during toy play as well as during a personal narrative. However, for children, the pattern of results was reversed—talk was less complex during book reading compared with talk during toy play and the personal narrative. These findings highlight an important, although often neglected, notion. Namely, that some activities may provide children with rich exposure to linguistically complex input, while others yield more opportunities for children to practice complex language. In that regard, some have suggested that oral storytelling constitutes a particularly rich language context for children to practice abstract—and potentially linguistically complex—talk (Curenton & Justice, 2004; Westby, 1985). Indeed, Curenton et al. (2008) found that when in charge of narrating a story, both preschool children and their mothers produced more linguistically complex language compared with talk during picture book reading. The authors suggested that the act of creating a story is more decontextualized than that of sharing a story from a book, requiring the use of complex linguistic devices to ensure that listeners can build a mental model of the narrative. In brief, there is reason to believe that context matters—even for decontextualized talk. However, exactly how the linguistic features of contextualized and decontextualized talk vary across different settings and activities remains an open question.

Present study

To summarize, the assumption that decontextualized talk is more lexically and syntactically complex than contextualized talk is theoretically sound, but we still know relatively little about the linguistic differences between these two types of talk. Previous research has found associations between decontextualized talk and the use of academic language features (Curenton et al., 2008), but direct comparisons between contextualized and decontextualized talk have been limited to measures of utterance length (Demir et al., 2015). We also know that different activities impose various language demands (Crain-Thoreson et al., 2001; Curenton et al., 2008), but the moderating effects of context on the characteristics of contextualized and decontextualized talk are poorly understood. In particular, as most research has focused on adult talk, we need more knowledge of how different conversational contexts influence the linguistic complexity of child talk. Understanding the interplay between conversational context, types of talk and the relative complexities of adult and child language is not only of theoretical importance—this knowledge may provide tools for designing educational activities that facilitate stimulating interactions and ensure varied opportunities for language learning.

In this study, we address the gaps in the literature by investigating lexical and syntactic features of contextualized and decontextualized adult and child talk and how they vary across conversational contexts. Specifically, we observed children in dyadic conversations with their teachers during three different activities: toy play, picture book reading, and a story generation activity. In addition to utterance length, contextualized and decontextualized talk were coded for academic language features, including lexical density, elaborated noun phrases, and the use of more complex strategies for syntactic linking, allowing us to replicate and expand the investigations by Demir et al. (2015). Overall, we expected decontextualized talk to be more complex than contextualized talk, although we anticipated some variation between activities. That is, we hypothesized that decontextualized

talk would be most linguistically complex in the story generation activity and least complex during toy play, where conversation is supported by manipulable objects. We did not, however, formulate any a priori hypotheses regarding the varying complexities of contextualized talk across activities. Because few previous investigations have compared the linguistic features of contextualized and decontextualized talk, the present study is primarily exploratory.

METHOD

Participants

A total of 38 children (M_{age} = 5.5 years, SD = 0.40; 25 girls) and their teachers (n = 37; M_{age} = 39.3 years, SD = 9.6; 30 women) participated in the study. Teachers were recruited from 36 ECEC centers in the greater Oslo region of Norway. All teachers had a degree in ECEC, with an average of 13 years of experience working with children (SD = 9.5; range = 3–39). Teachers each recruited one child from their class, except for one teacher who recruited two children. The sample of children included 30 Norwegian-speaking monolinguals and eight multilinguals who speak Urdu or Punjabi at home. The sample as a whole was representative of the region's population, where 30% of children in ECEC belong to a language minority (Statistics Norway, 2021a), and Urdu and Punjabi are among the largest minority language groups (Statistics Norway, 2021b). All children were in their final year of ECEC and had attended Norwegian day care for a minimum of one year. A total of 68% of the children's mothers and 54% of their fathers had education at the college or university level. In Oslo, 50% of the adult population has a higher education, whereas the national average is 35% (Statistics Norway, 2021c). In Norway, personal data revealing race or ethnic origin are considered particularly sensitive and is subject to strict processing conditions. We therefore did not collect data on these demographic indicators.

None of the children had known impairments, and their nonverbal abilities were in the normal range of the Block Design subtest of the Wechsler Preschool and Primary Scale of Intelligence, third edition (scaled scores: M = 11.56, SD = 2.97; Wechsler, 2002). The children's scores on standardized measures of language were also close to the normative mean, averaging 101.64 (SD = 14.6) and 100.86 (SD = 20.6) on measures of vocabulary and grammatical comprehension, respectively. Vocabulary skills were measured with the Norwegian standardized version of the British Picture Vocabulary Scale-II (BPVS-II; Dunn et al., 1997; Lyster et al., 2010). The Norwegian standardized version of the Test for Reception of Grammar-2 (Bishop, 2004; Lyster & Horn, 2009) was used to measure the children's comprehension of grammatical structure.

Procedure

The data were collected in 2010–2011 (n = 15 dyads) and 2017 (n = 23 dyads). The children and teachers were videotaped in a separate room in their preschool while engaging in three different activities that were presented in a fixed order: (a) reading a picture book, (b) a conversation based on story cards, and (c) toy play. The activities were untimed, and participants were allowed to continue as long as they liked. In all activities, the participants were placed on chairs next to a table. The multilingual children, who were originally recruited for a related study, did not partake in the story card conversations.

In the picture book activity, the participants were provided with the story *Building a New House* (Scarry, 1979). The story narrative is structured around a boy who follows the home building process of the new next-door neighbors with excitement. Throughout the story, the reader is presented with several steps in building a house, such as constructing a foundation and decorating rooms. The text, which is highly connected to the pictures in the book, introduces a relatively large number of infrequent words such as the names of different tools.

In the story card activity, the participants were provided with two colored drawings. The first drawing illustrated children in a schoolyard during recess. In the background, children are engaged in various types of play, while in the foreground, two older girls are tugging the hair and pulling the arm of a younger girl. The other drawing showed a boy falling into a river, witnessed by a woman standing on a bridge. These drawings were chosen because they were presumed to represent thought-provoking events.

During the toy play activity, the participants received a small toy suitcase that contained figures of farm and forest animals, plus some scenery elements, such as trees and fences.

At the beginning of each session, teachers were informed that we wanted to observe their usual practice, and they were told to talk and interact with the children as they normally would. A more specific instruction was provided with the story cards: "Talk about what is going on in these pictures. What has happened and what may happen?" We expected the three activities to elicit ranges of different types of decontextualized talk, such as pretend talk during toy play and inferential talk during shared book reading and in the story generation context. The activities also provided rich opportunities for contextualized talk about pictured items, present objects and current events. All activities were recorded on the same day, with breaks provided when needed. There were missing data for eight dyads in the story card conversations. Additionally, we excluded one story card interaction due to an error in the administration of the

activity, and one picture book interaction that mainly comprised reading of text.

Seven minutes of conversation from each activity (N = 104 interactions; M = 6 min, 36 s; SD = 53 s) were orthographically transcribed following the conventions of the Child Language Data Exchange System (CHILDES; MacWhinney, 2000). Across the three activities, 38 interactions were less than 7 min and transcribed in their entirety. The unit of transcription was the utterance, and included both verbal and nonverbal teacher and child communication. Verbal utterances were segmented into communication units (C-units; i.e., one main clause with all subordinate clauses attached to it). Utterances lacking a clausal structure (e.g., sentence fragments and elliptical responses) were counted as separate C-units when the intonation of the utterance indicated that a complete thought had been spoken. Songs, rhymes and counting were marked with an underscore (one_two) to count as one word. Contractions and assimilations (e.g., vakke "wasn't") were considered in their full forms (i.e., var ikke "was not"). All transcripts were verified for accuracy by a second transcriber.

Coding and measures

Contextualized and decontextualized child and teacher talk

Utterances were coded as either *contextualized* or *decontextualized*. Contextualized talk was operationalized as any utterance referring to persons, objects or events that were present in the immediate environment of the interaction (Uccelli et al., 2019). Examples included talk about the concrete and the practical, such as labeling of objects, organization of roles and activities during play, simple directions, and description of pictured items and characters, as illustrated by excerpts from toy play, book reading and story card conversations, respectively: "Child: But now you are going to guess which one [animal] I take. Teacher: Can you describe how it looks first?", "Teacher: Should I read now? Child: Read there and there", "Teacher: What is happening there right now? Child: Someone is holding her."

Conversely, decontextualized talk was defined as topics of conversation extending beyond the here-and-now, thereby indicating either a spatial or a temporal detachment from immediate context (Grøver et al., 2019; Snow et al., 2001). Temporally detached talk included any utterance referring to events happening in the past or that might happen in the future (Rowe, 2012). Based on a review of the extant literature, we considered spatial detachments broadly to include any reference to the nonpresent, including talk about absent entities or distant places (Gest et al., 2006), inferences about people's or characters' intentions and mental states (DeTemple, 2001), or semantically abstract talk, such as discussing hypotheticals and counterfactuals or providing definitions and explanations of unobservable concepts (Beals, 2001; Leech et al., 2018; Rowe, 2012). The nonpresent also included talk detached from actuality, such as the creation of fantasy scenarios during pretend play, attribution of thoughts and feelings to inanimate objects, assuming a role or persona, or making an object represent another (Katz, 2001, p. 65; Pellegrini, 1985; Snow, 1991). Qualitative examples from toy play, book reading and story card conversations included: "Child: I have been to a zoo before and there were bears. Teacher: Therefore, you have seen a real bear", "Teacher: And what does it mean to be very lonely? Child: Maybe to be very alone?", "Teacher: If I were her, I would have been very happy if you were there and could help me. Child: I would have helped you."

Some utterances that carried little independent meaning or lacked conceptual content were coded as *other* and excluded from further analyses (other child utterances: M = 86.05, SD = 32.77; other teacher utterances: M = 147.63, SD = 51.05). These utterances included nonverbal actions (e.g., pointing, nodding), interjections (e.g., uh oh, wow), fillers (e.g., uh, um), yes/no responses, brief expressions of approval (e.g., good, how nice), and requests for confirmation, repetition or clarification (e.g., what did you say?). Verbatim reading from the picture book was also coded as other and excluded from analysis. All transcripts were coded by the first and second authors. Reliability was achieved by having the third author independently code 24% (n = 25) of the transcripts for contextualized, decontextualized and other utterances (Cohen's kappa ranging between .78 and .94). All disagreements were resolved through discussion before data analysis. The three categories were exhaustive and mutually exclusive.

Measures of linguistic complexity

The lexical and syntactic features of contextualized and decontextualized child and teacher talk were assessed using four different measures: mean length of utterance in words (MLU-w), lexical density, elaborated noun phrases and the use of subordinating conjunctions to combine clauses. *MLU-w* was calculated using automated analyses in the program Computerized Language ANalysis (CLAN).

Lexical density

We defined lexical density as the average number of content words per utterance. We considered content words as words that express meaning on their own, which included nouns, adjectives, adverbs, and verbs, with the exception of auxiliaries. To calculate lexical density, we used CLAN to extract lists of the total number of word types from each transcript. These lists were manually

inspected by the first and second authors to identify content words.

Elaborated noun phrases

We defined elaborated noun phrases (ENPs) as any noun phrase with two or more modifiers (e.g., articles, demonstratives, quantifiers, possessives, adjectives, etc.) preceding a noun (e.g., *that brown* chimney) or a head noun or pronoun followed by modifiers such as prepositional phrases (e.g., someone *in the street*) or relative clauses (e.g., the boy *who lives next door*). All transcripts were manually coded for ENPs by the first and second authors, and the average number of ENPs per utterance was used in the analyses.

Subordinating conjunctions

To assess the use of more complex syntactic strategies, we coded subordinating conjunctions that introduce adverbial clauses. This group of conjunctions was chosen because they link pieces of information while explicitly showing the relation between them. By using an adverbial subordinating conjunction, one may, for example, specify the time of an action (e.g., *after* the rain stopped, we went home), indicate why something is happening (e.g., "she missed the bus *because* she overslept") or describe how something is done (e.g., he drove *as if* he was being chased). The use of subordinating conjunctions was coded in two steps. First, for each transcript, we used a prespecified word list in CLAN to highlight all Norwegian subordinating conjunctions that can be used to introduce an adverbial clause (Askedal et al., 2017). Next, all transcripts were manually inspected by the first and second authors to identify instances where the subordinating conjunctions functioned as connectives. That is, instances where the conjunction actually linked an adverbial clause to an independent clause. Adverbial clauses were defined as any subordinate clause that modifies a verb, adjective, adverb or even a whole sentence (e.g., I studied all night *so I could take the day off*). The final score used in the analyses represented the average number of subordinating conjunctions per utterance.

To assess the reliability of the coding procedures, 17% ($n=18$) and 21% ($n=22$) of the transcripts were independently double coded for ENPs and subordinating conjunctions, respectively. Following Curenton and Justice (2004), scoring agreement was determined through item-by-item comparisons. For each transcript, the total number of agreements was divided by the total number of comparisons and multiplied by 100. This procedure resulted in a mean reliability score of 95% for ENPs and 98% for subordinating conjunctions. Disagreements were resolved through discussion before analysis. The measure of lexical density was not independently double coded because initial tests of the coding scheme revealed extremely high levels of agreement. However, 10% of the coded word lists were checked for accuracy by the third author of this article.

Strategy of analyses

Data were cleaned and processed using IBM® SPSS® Statistics, and all analyses were conducted in the statistical software environment R. To account for multiple measures per child-teacher dyad, we used a multivariate mixed-effects model. The modeling approach used in the present study is comparable to multivariate analysis of variance (MANOVA). MANOVA, however, cannot readily account for dyadic data and is less robust in cases of unbalanced data, and its handling of missing data is less straightforward than with multivariate mixed models (Schuster & Lubbe, 2015). Notably, to prevent issues related to multiple testing, we used the four measures of linguistic complexity as a within-subject factor. That is, we handled the four outcome variables similarly to multiple occasions in a repeated measures design. Since the four linguistic measures differed in mean and variance, the variables were z-standardized ($M=0$, $SD=1$) to maintain interpretability of the results. Predictors of linguistic complexity (the dependent variable) were type of measure (i.e., MLU-w, Lexical density, ENPs or subordinating conjunctions), speaker (i.e., child or teacher), type of utterance (i.e., contextualized or decontextualized), and type of activity (i.e., toy play, book reading or story cards). For further discussion of similar uses of mixed-effects models, see De Boeck et al. (2011) and Schuster and Lubbe (2015).

As a robustness check, we performed independent nonparametric comparisons of contextualized and decontextualized talk using the Wilcoxon signed-rank test. For each comparison, we calculated the nonparametric effect size r as the z-value, derived from the Wilcoxon test, divided by the square root of the sample size ($N=38$; see Fritz et al., 2012, for a discussion of effect size estimation for the Wilcoxon test). In these cases, the interpretation of the effect size follows common benchmarks for correlational data: 0.1 = small effect; 0.3 = medium effect; 0.5 = large effect. However, the effect size r used for nonparametric comparisons can exceed the value of 1.

RESULTS

Descriptive statistics

As displayed in Table 1, decontextualized talk constituted a substantial portion of all child and teacher contextualized and decontextualized utterances, which was anticipated due to the nature of the conversational contexts we observed. On average, 43% of the children's utterances were decontextualized, and 46% of the teachers' utterances were identified as decontextualized. The proportion of decontextualized utterances varied considerably among both children and teachers. One child did not produce any utterances, and another child produced only contextualized utterances. For six children,

decontextualized utterances constituted more than 60% of their combined total of contextualized and decontextualized utterances. Teachers' proportion of decontextualized utterances ranged from 8% to 70%. Child and teacher proportions of decontextualized utterances were strongly related ($r(36) = .60$, $p < .001$). Figure 1 shows the distribution of contextualized and decontextualized utterances across the three conversational contexts.

As illustrated by the figure, there were relatively equal proportions of contextualized and decontextualized talk in the toy play and story card activities, whereas higher proportions of contextualized talk were observed during picture book reading (73% and 74% for children and teachers, respectively). The overall amount of talk also varied between activities, with the highest rates of both child and teacher talk occurring in the toy play activity.

The means and standard deviations for the linguistic complexity measures are displayed in Table 2: decontextualized child and teacher utterances were, on average, longer than contextualized utterances and included a higher density of content words. In general, the rates of ENPs and subordinating conjunctions were also higher in decontextualized utterances, except in the story card activity, where rates of ENPs were similar for teachers' contextualized and decontextualized utterances.

TABLE 1 Descriptive statistics for contextualized and decontextualized child and teacher utterances.

Measure	*M* (*SD*)	Range
Child use of contextualized and decontextualized talk		
Total number of contextualized utterances	56.11 (26.02)	0–100
Total number of decontextualized utterances	51.16 (30.54)	0–112
Proportion of decontextualized utterances	.43 (.17)	0–.69
Teacher use of contextualized and decontextualized talk		
Total number of contextualized utterances	96.55 (31.81)	33–179
Total number of decontextualized utterances	83.29 (33.41)	8–151
Proportion of decontextualized utterances	.46 (.14)	.08–.70

The linguistic complexity of contextualized and decontextualized talk

To test the hypothesis that decontextualized talk is more linguistically complex than contextualized talk, we fitted two multivariate linear mixed-effects models. In the first model, we introduced main effects (i.e., dummy variables denoting the type of linguistic complexity measure, speaker and utterance type) and random effects to account for multiple observations per person. In the second model, we added interaction terms between utterance type (i.e., contextualized/decontextualized) and measures of linguistic complexity. Accordingly, we could investigate whether differences between contextualized and decontextualized talk varied significantly across the four linguistic complexity measures.

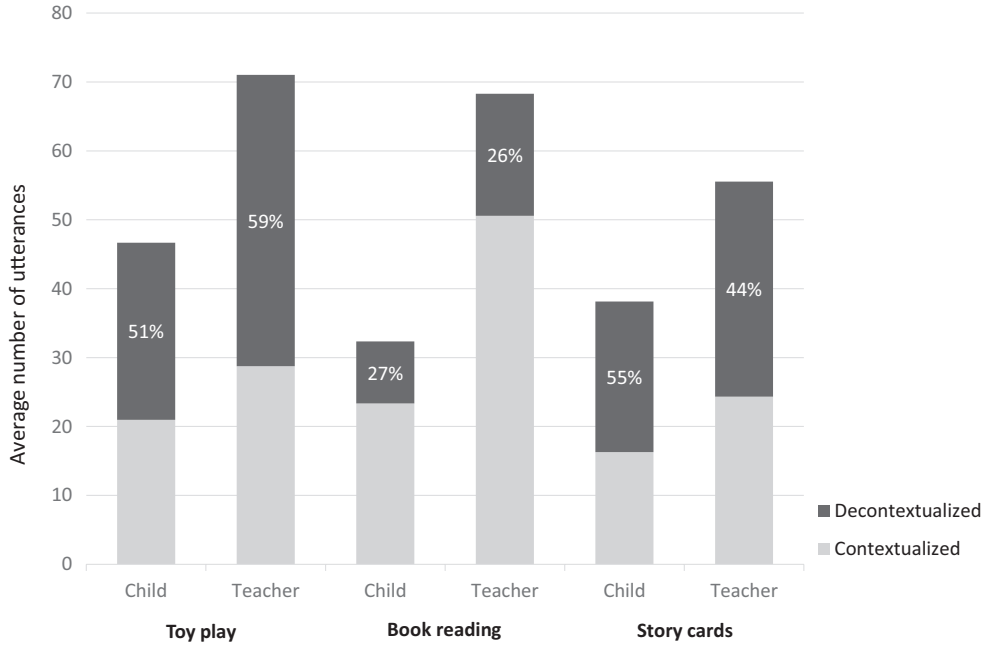

FIGURE 1 Distribution of contextualized and decontextualized child and teacher utterances across activities. Mean proportions (%) of decontextualized utterances in white font.

TABLE 2 Means and standard deviations (*SD*s) for linguistic complexity measures for contextualized (CT) and decontextualized (DT) child and teacher talk.

	Child		Teacher	
Measure	**CT**	**DT**	**CT**	**DT**
MLU-w	**3.60 (0.97)**	**5.43 (1.40)**	**5.52 (0.80)**	**7.26 (1.02)**
Toy play	3.59 (1.06)	5.12 (1.44)	5.24 (0.77)	6.69 (1.08)
Book reading	3.43 (1.15)	6.10 (2.06)	5.67 (0.70)	7.73 (1.20)
Story cards	4.24 (0.66)	6.13 (1.43)	6.13 (0.77)	8.52 (1.10)
Lexical density	**1.12 (0.19)**	**1.69 (0.33)**	**1.61 (0.18)**	**2.21 (0.33)**
Toy play	1.14 (0.38)	1.68 (0.47)	1.42 (0.32)	2.10 (0.47)
Book reading	1.05 (0.28)	1.72 (0.65)	1.72 (0.24)	2.30 (0.42)
Story cards	1.40 (0.41)	1.82 (0.39)	1.63 (0.24)	2.38 (0.38)
ENPs	**0.07 (0.05)**	**0.12 (0.10)**	**0.19 (0.06)**	**0.22 (0.12)**
Toy play	0.06 (0.06)	0.09 (0.10)	0.15 (0.09)	0.18 (0.16)
Book reading	0.07 (0.07)	0.17 (0.18)	0.21 (0.08)	0.34 (0.16)
Story cards	0.08 (0.10)	0.12 (0.14)	0.19 (0.10)	0.19 (0.10)
Conjunctions	**0.01 (0.02)**	**0.06 (0.05)**	**0.02 (0.02)**	**0.09 (0.06)**
Toy play	0.01 (0.03)	0.05 (0.07)	0.02 (0.03)	0.06 (0.06)
Book reading	0.01 (0.01)	0.08 (0.10)	0.02 (0.03)	0.11 (0.10)
Story cards	0.03 (0.05)	0.07 (0.07)	0.02 (0.03)	0.15 (0.10)

Note: *M*s and *SD*s in bold are based on all contextualized and decontextualized utterances across the three activities.
Abbreviations: Conjunctions, subordinating conjunctions; ENPs, elaborated noun phrases; MLU-w, mean length of utterance in words.

As shown in Table 3, the results of the analyses revealed a statistically significant negative effect of speaker. That is, children generally scored lower on the measures of linguistic complexity than teachers. Interestingly, the statistically significant main effect of utterance type indicated higher outcomes for decontextualized utterances on the dependent variable. Statistically significant interaction effects showed that differences between contextualized and decontextualized talk were smaller for ENPs than for measures of lexical density, MLU-w and subordinating conjunctions. The low intraclass correlation (ICC) suggested that effects were relatively consistent across the 38 dyads that participated in the study.

As a robustness check, we performed eight independent nonparametric comparisons (Wilcoxon signed-rank tests). These tested pairwise differences between contextualized and decontextualized utterances across the four linguistic complexity measures for children and teachers when averaged across activities. The results of the Wilcoxon tests corresponded to the outcomes of the multivariate mixed-effects models. Compared to contextualized utterances, decontextualized utterances were significantly longer (child: $W=4$, $p<.001$, $r=1.03$; teacher: $W=0$, $p=<.001$, $r=1.11$), had a greater lexical density (child: $W=5$, $p<.001$, $r=1.02$; teacher: $W=11$, $p<.001$, $r=1.01$), and had a higher rate of subordinating conjunctions (child: $W=19$, $p<.001$, $r=0.71$; teacher: $W=7$, $p<.001$, $r=0.83$). The difference in ENPs between contextualized and decontextualized utterances was statistically significant for children but not for teachers (child: $W=120$, $p=.004$, $r=0.46$; teacher: $W=305$, $p=.34$, $r=0.15$). We note that the size of the observed differences between contextualized and decontextualized utterances ranged from small to large across the linguistic measures and speakers ($r=0.15$–1.11), with a median effect size of $r=0.92$. Because the linguistic measures used in the regression analyses were *z*-standardized, the magnitude of this median effect size is comparable with the regression coefficient for utterance type in Model 1, Table 3 ($b=0.96$).

Finally, we examined whether the linguistic complexity of contextualized and decontextualized talk varied with activity. Once again, we fitted two multivariate mixed effects models. In the first model, the main effects for each of the three activities, speaker and utterance type, were estimated. In a second step, we added interaction terms between the type of utterance and activities to investigate whether conversational context moderated differences between contextualized and decontextualized talk.

As shown in Table 4, the results of these exploratory analyses revealed statistically significant main effects of activity, indicating higher overall outcomes on measures of linguistic complexity in book reading and story card conversations than in toy play. In the second model, significant interaction effects indicated that the discrepancy in the linguistic complexity of contextualized and decontextualized utterances was smaller in the toy play activity than in the book reading and

TABLE 3 Multivariate mixed-effect models with measures of linguistic complexity as a dependent variable and dummy variables denoting type of measure (ENPs, lexical density, MLU-w or subordinating conjunctions), speaker (child or teacher), and type of utterance (contextualized or decontextualized) as predictors.

	Model 1		Model 2	
Predictors	***b***	**95% CI**	***b***	**95% CI**
ENPs (Intercept)	−0.03	[−0.19, 0.13]	0.25*	[0.06, 0.43]
Lexical density	0.00	[−0.16, 0.16]	−0.43**	[−0.65, −0.20]
MLU-w	0.00	[−0.16, 0.16]	−0.34*	[−0.56, −0.12]
Conjunctions	0.01	[−0.16, 0.17]	−0.36**	[−0.58, −0.14]
Speaker[a]	−0.90**	[−1.01, −0.78]	−0.90**	[−1.01, −0.79]
Utterance type[b]	0.96**	[0.84, 1.07]	0.39**	[0.17, 0.61]
Lexical density × Utterance type			0.86**	[0.54, 1.17]
MLU-w × Utterance type			0.68**	[0.36, 0.99]
Conjunctions × Utterance type			0.74**	[0.42, 1.05]
Random effects				
σ^2	0.50		0.48	
τ_{00}	0.06_{dyad}		0.06_{dyad}	
ICC	.11		.12	
Observations	594		594	
Marginal R^2/Conditional R^2	.44/.50		.46/.53	

Abbreviations: CI, confidence interval for *b* [lower limit, upper limit]; Conjunctions, subordinating conjunctions; ENPs, elaborated noun phrases; ICC, intraclass correlation; MLU-w, mean length of utterance in words.

*p < .01.; **p < .001.

[a]Teacher = 0, child = 1.

[b]Contextualized utterances = 0, decontextualized utterances = 1.

TABLE 4 Multivariate mixed effect models with measures of linguistic complexity as a dependent variable and dummy variables denoting type of activity (toy play, book reading or story cards), speaker (child or teacher), and type of utterance (contextualized or decontextualized) as predictors.

	Model 1		Model 2	
Predictors	***b***	**95% CI**	***b***	**95% CI**
Toy play (Intercept)	−1.02**	[−1.12, −0.92]	−0.92**	[−1.04, −0.81]
Book reading	0.32**	[0.23, 0.41]	0.13*	[0.00, 0.26]
Story cards	0.37**	[0.27, 0.47]	0.27**	[0.14, 0.41]
Speaker[a]	−0.72**	[0.65, 0.80]	0.72**	[0.65, 0.80]
Utterance type[b]	0.86**	[0.78, 0.93]	0.67**	[0.54, 0.79]
Book reading × Utterance type			0.39**	[0.21, 0.57]
Story cards × Utterance type			0.19*	[0.00, 0.38]
Random effects				
σ^2	0.62		0.61	
τ_{00}	0.04_{dyad}		0.04_{dyad}	
ICC	.06		.06	
Observations	1636		1636	
Marginal R^2/Conditional R^2	.35/.38		.35/.39	

Abbreviations: CI, confidence interval for *b* [lower limit, upper limit]; ICC, intraclass correlation; MLU-w, mean length of utterance in words.

*p < .05.; **p < .001.

[a]Teacher = 0, child = 1.

[b]Contextualized utterances = 0, decontextualized utterances = 1.

story card activities. Because eight of the nine dyads that were missing from the story card activity included multilingual children, we performed a series of ad-hoc analyses to check whether the effects of activity were sensitive to this participation pattern. First, we found that the BPVS-II was correlated with missingness in the story card conversations, indicating lower vocabulary scores among children from the missing dyads ($r(36) = .62$, $p < .001$; missing = 1, not missing = 0). We therefore reran the analyses using the BPVS-II as a control variable, but estimates were only marginally changed. Next, we inspected correlations between the BPVS-II and each of the linguistic measures across the three conversational contexts. These correlations were, on average, negligible and of similar magnitude across activities. Thus, we could not find evidence indicating that missingness posed a problem for the interpretation of results.

DISCUSSION

The present study supports the hypothesis that decontextualized talk is more linguistically complex than contextualized talk. Notably, the differences between the two types of talk that we observed were robust; overall and within each of the three conversational contexts, decontextualized talk was more complex than contextualized talk. Moreover, differences could be observed in both child and teacher talk and were consistent across the dyads that participated in the study. In other words, the linguistic characteristics of decontextualized talk appeared to be inherently more complex than those of contextualized talk. Below, we elaborate on these results and discuss their theoretical and practical implications.

Linguistic features of contextualized and decontextualized talk

One of the contributions of our study is to corroborate the findings by Demir et al. (2015), who demonstrated that adult decontextualized utterances, on average, are longer than contextualized utterances. Additionally, we found that adult and child decontextualized talk contains higher rates of academic language features, such as use of content words, noun elaboration, and use of subordinating conjunctions. In other words, our results indicate that engagement in decontextualized talk provides both exposure to linguistic complexity and opportunities for children to practice complex language. These findings have important practical implications. Previous research has demonstrated that children's acquisition of specific linguistic features relates to the rate with which these are heard at home or in preschool (e.g., Dickinson & Porche, 2011; Huttenlocher et al., 2002). However, as speakers typically pay little attention to their choice of words and sentences, prompting parents and teachers to use particular language forms might prove difficult. Conversely, engaging in conversations about the there-and-then, as in reminiscence about shared experiences or pretend talk, is a tangible means of providing linguistically complex input, recognizable for most parents and teachers. Indeed, Leech et al. (2018) successfully managed to train parents to increase their use of abstract topics in conversations with their children, demonstrating that decontextualized talk is a malleable target for intervention. In other words, the results of our study indicate that decontextualized talk may function as a shortcut to linguistic input that facilitates children's language acquisition. Thus, the use of decontextualized talk might ease the transition from informal communication to academic discourse, which is characterized by the use of language features that enable precise communication about abstract concepts and remote topics (Schleppegrell, 2001; Uccelli, 2019).

It should be noted, however, that the effect sizes among the four linguistic measures included in this study varied. In particular, the difference between contextualized and decontextualized talk was less pronounced for ENPs than for measures of lexical density, utterance length, and subordinating conjunctions. When inspecting the coded transcripts, we noticed some interesting patterns of ENP use in the teachers' contextualized talk. For example, teachers often used noun elaboration as a means of ensuring joint attention when the physical context was rich in detail, such as when looking at the illustrations in the picture book (e.g., "What is happening with *the green pipes*?"). This finding illustrates that contextualized talk may also necessitate precise and explicit language, particularly when there are large numbers of possible referents in an environment. Moreover, during both book reading and the story card conversations, some teachers used ENPs when highlighting details in the pictures that facilitated analysis of characters' internal states (e.g., "Look at *the girl's face*") or promoted reasoning about past or future events (e.g., "There is *something [a jar] which is falling next to him there*" [The teacher is prompting the child to make an inference about what caused the boy to fall into the river]). In these cases, the use of ENPs in teachers' contextualized utterances served as an invitation to decontextualized talk, which also demonstrates that contextualized talk sometimes functions as a starting point for more abstract topics of conversation.

Moderating effects of context

Similar to previous studies, we found that the proportions of adult and child contextualized and decontextualized talk varied between activities. However, there are some differences between our results and those reported by previous research. For example, several studies conducted in preschool settings have found that children are

less likely to engage in decontextualized talk during play compared with other activities in the classroom, particularly book reading (Gest et al., 2006; Massey et al., 2008). In our study, we found the opposite pattern of results. The highest proportion of decontextualized talk occurred during toy play, while the lowest rates were observed during picture book reading. There are several possible explanations for the discrepancies between these findings. First, as opposed to the studies cited above, we observed semistructured dyadic interactions rather than daily routines in the preschool classroom. In fact, in regard to the play activity, our results were closely aligned with Katz (2001), who found that decontextualized talk constituted almost half of mothers' and children's talk during toy play. Thus, when the setup of play-based activities is similar, teacher–child communication seems to resemble parent–child interactions. Next, in regard to the book sharing activity, we speculate that the choice of book might have contributed to the relatively high proportion of contextualized talk we observed. Although the book contains a story narrative that allows for several types of decontextualized talk, the story is illustrated by captivating and richly detailed drawings. Thus, in many dyads, talk during book reading was characterized by extensive labeling, elaborate descriptions and discussions about events depicted in the pictures. Another book, with other story characteristics, could have resulted in a different distribution of contextualized and decontextualized talk (see also Dickinson et al., 2014, for a discussion about the relation between language use during book reading and the type of book being read).

As expected, the three activities in the present study varied not only in the types of talk that occurred but also in the linguistic complexity they induced. Notably, we found that child and adult talk were significantly more complex during book reading and story generation than during toy play. Our results thereby align with previous research suggesting that book and oral storytelling interactions constitute particularly rich language contexts (e.g., Curenton et al., 2008; Dickinson et al., 2014; Gest et al., 2006; Noble et al., 2018). Moreover, our results indicated that the discrepancy in the linguistic complexity of contextualized and decontextualized talk was smaller during toy play than during the other activities, which adds some nuance to the study's main finding. That is, although decontextualized talk was more complex than contextualized talk within each of the three activities, decontextualized talk during toy play was not necessarily more complex than contextualized talk in the other activities. For example, the mean length of teachers' contextualized utterances during story generation approximated the mean length of teachers' decontextualized utterances during toy play. There are several possible explanations for this finding. Previously, we hypothesized that support from manipulable objects makes toy play less detached from the immediate context, which may reduce the need for linguistic explicitness. Alternatively, one may speculate that play-based activities are more likely to be led by children, with teachers' talk tuned in to the children's level of language skill.

Nevertheless, we stress that our findings are not generalizable to all forms of play—other types of toys or different play-based activities could have generated more linguistically complex talk. For example, Weisberg et al. (2013) suggested that talk during sociodramatic play, such as negotiation of roles or coordination of actions, encourages children to practice more advanced linguistic forms than they use in other interactions. More importantly, however, we did not examine children's actual learning outcomes. In fact, previous research implies that interactive play, which is sensitive to children's interests, is one of the main factors that facilitates children's language learning during play (Ferrara et al., 2011; Weisberg et al., 2013). For example, although Crain-Thoreson et al. (2001) found that parent input during toy play was less linguistically complex compared with talk during book reading and a personal narrative, only in the play context did a significant relation emerge between parents' input and children's later vocabulary growth. Furthermore, in the present study, we found that children produced more talk during toy play than in the other two activities, reminding us that the level of linguistic complexity does not necessarily reflect children's level of engagement. More work is needed to shed light on the specific links between play and children's language development.

Limitations and conclusion

Before we conclude this article, we would like to acknowledge some limitations of the present study. First, the activities we used were introduced to the participants in a fixed order. Hence, although toy play generated the highest amount of child and teacher talk, we cannot rule out that tiredness or impatience affected this conversational context, which was the last activity in our set. Similarly, shyness or insecurity may have impacted the book reading interaction, which was the first activity we observed. Second, the sample size was relatively small, and the recruitment of children for the study was not random. Replicating the results with larger and more diverse samples, as well as among various conversational partners, would increase the robustness of our findings. Finally, the study used an observational design, which precludes drawing causal inferences regarding the relation between contextualized or decontextualized talk and children's language learning.

Despite these limitations, the current study offers unique empirical evidence demonstrating that decontextualized talk is associated with increased linguistic complexity. That is, compared with contextualized talk, adult and child decontextualized talk contains higher rates of lexical and syntactic features that facilitate precise communication. Our findings from exploratory analyses also indicate that conversational context

moderates the linguistic characteristics of contextualized and decontextualized talk. In particular, book and storytelling interactions seem to promote the use of more complex language. In sum, the results of our study point to a mechanism with the potential of generating positive outcomes for children's language and literacy. In particular, decontextualized talk provides experience with academic language forms, which might ease the transition from informal communication to school discourse (Uccelli et al., 2019). Future investigations using causal research designs may provide further knowledge of how decontextualized talk in different settings and activities supports and shapes children's language development.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest relevant to this article to disclose.

DATA AVAILABILITY STATEMENT

The data necessary to reproduce the analyses presented here are not publicly accessible. However, the analytic code and materials are available from the first author upon request. The analyses presented here were not preregistered.

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