



# Amount, diversity and density of words in book reading dialogues with preschool teachers and children with Norwegian language-majority and -minority backgrounds

JANNICKE KARLSEN<sup>1</sup>, HANNE RØE-INDREGÅRD<sup>1</sup>, ASTRI HEEN WOLD<sup>2</sup> & BENTE HAGTVET<sup>1</sup>

<sup>1</sup>Institutt for spesialpedagogikk, Universitetet i Oslo

<sup>2</sup>Psykologisk institutt, Universitetet i Oslo

## ABSTRACT

In the current study, we aimed to identify similarities and differences in the words used by preschool teachers and children with a language-minority background and children with a language-majority background during shared book reading. Fourteen dyads were transcribed, coded and analyzed using CLAN (CHILDES). We examined the number of words (tokens), the number of different words (types), the type/token ratio and the proportion of content words produced by both teachers and children. The teachers interacting with language-majority children tended to produce more words (tokens), more different words (types), and a higher proportion of content words compared to the teachers interacting with language-minority children. The results indicate that there might be differences in the variety and number of words children from language-majority and language-minority backgrounds hear and use in preschool, but the results do not indicate how, or if, these differences are beneficial for second language learning.

## KEYWORD

book-reading dialogues, pre-school, minority-language background, words, type/token

## 1. Introduction

The amount and diversity of words used by parents (e.g., Hart & Risley 1995; Rowe, Pan & Ayuob 2005; Weizman & Snow 2001) and teachers (e.g., Aukrust & Rydland 2011; Dickinson & Tabors 2001) are related to children's language development. Children from language-minority backgrounds get less exposure to the majority language and often have poor vocabulary knowledge compared to their monolingual peers (Karlsen, Lyster & Lervåg 2017; Lervåg & Aukrust 2010). The major arenas for second language (L2) exposure are educational institutions such as kindergarten and school. Consequently, the time L2 learners spend in these arenas could be critical for their L2 word learning. However, overheard speech alone is not sufficient for learning a language (Sperry, Sperry & Miller 2018); participation in meaningful conversation is essential in

this regard. One of the activities that Norwegian preschool teachers value the most in supporting children's language learning is shared book reading (Andersen et al. 2011). By tradition, adults typically read aloud to children, who adopt rather passive roles as listeners. Shared book reading, on the other hand, provides a rich source of linguistic input (Flack, Field & Horst 2018) and opportunities for children to be active parts of a conversation (Zevenbergen & Whitehurst 2001), thus creating great opportunities for the learning of words (Mol, Bus, de Jong & Smeets 2008, Flack et al. 2018), including L2 words (Fitton, MacIlraith & Wood 2018). During shared book reading, in which a child continuously reveals his/her thematic interests and linguistic insights and shortcomings via dialogical contributions, preschool teachers can adapt the linguistic environment to each child, increasing the opportunities to learn new words and linguistic structures. Adaptions of the lexical density and diversity might be of particular importance for L2 learners' understanding of input (e.g. Révész & Brunfaut 2013) and, consequently, their word learning.

Previous studies of shared book reading among monolingual children have identified several factors that influence the word learning potential of this task (Flack et al. 2018). However, we know less about the factors that influence L2 word learning (Fitton et al. 2018), and about the qualities of the book-reading dialogues involving preschool teachers and children from a language-minority background as compared to dialogues with children from the language-majority is limited. In the present study, we begin to unwrap this field of practice and research by examining how words are used during book reading dialogues with preschool teachers and children. We studied the language contributions of children and teachers in fourteen preschool teacher-child dyads during book reading. More precisely, we examined the quantity (number of word tokens) and the quality (number and proportion of word types and content words) of the language produced by teachers and five-year-old children with the majority language Norwegian as a first language ( $N = 7$ ) and children from a language-minority background who were learning Norwegian as an L2 ( $N = 7$ ). This thematic focus and methodological approach was also motivated by the previous findings of Karlsen, Røe-Indregård, Wold, Lykkenborg and Hagtvet (2018), in which we identified a surprisingly high asymmetry in dyads of preschool teachers and language-minority children during shared picture book reading. To pursue the qualities of the book reading dialogues further, the current study aimed to identify similarities and differences in the number and diversity of words, as well as the lexical density of the dialogical contributions in dyads of preschool teachers and children from diverse language backgrounds.

## 2. Exposure to words

For most children, the quality and quantity of their language experiences are reflected in their language skills (Paradis 2011). Children learn new words through their everyday experiences (Hart & Risley 1995), and the input provided by parents (e.g., Hart & Risley 1995; Rowe 2012; Rowe, Pan & Ayuob 2005; Weizman & Snow 2001) and teachers (e.g., Aukrust & Rydland 2011; Dickinson & Tabors 2001) is related to their language development. Some of the variation in this input is related to factors such as socio-economic (SES) background (Hoff 2006; Westeren, Halberg, Ledesma, Wold & Oppedal 2018).

Previous studies have examined different aspects of the language input children receive; in the following, we will review studies that have focused on the number and diversity of the words received. Hart & Risley (1995) studied how children's early interactions with family members in the home affected their vocabulary development. A main finding was that a child's amount of language experience was strongly related to the size of the child's vocabulary. Moreover, the amount of parental talk was related to the quality of the talk (see also Hoff & Naigles 2002); hence, more talk led to more words and a greater variety of words. Additionally, some children heard almost twice as many words per hour compared to others (Hart & Risley 1995). While Hart and Risley (1995) found that both the quantity and the quality of language exposure were important for children's language learning, several other studies have emphasized the relevance of quality, concluding that the exposure to a diverse and sophisticated vocabulary predicts vocabulary learning in monolingual children (e.g. Dickinson & Porche 2001; Wiezman & Snow 2001; Rowe 2012). Rowe, Pan & Ayoub (2005) looked more closely into the variation in mothers' talk to their children. They found that mothers adapted their language to the language skills of the child during free play, and as the children grew older, the mothers increased the diversity of words more than they increased the amount of talk (Rowe et al. 2005). Similarly, Montag, Jones & Smith (2018) found that even though the opportunity for children to hear new words or more different words varies with the total amount of talk, the relationship between amount and diversity is not linear. Moreover, the strength of the relationship between amount and diversity might change with a child's language competence.

While the abovementioned studies focused on parent-child interaction during the first three years of life, 'the Home-School Study of Language and Literacy Development' included children aged three to five years. In that study, the impact of the language and literacy environment in kindergarten on children's language development was also examined (Dickinson & Tabors 2001). The results of this study indicate that the preschool teacher's use of rare words predicted children's vocabulary. The results of other studies examining the relationship between preschool teachers' language and L2 development indicate that the amount of language exposure (tokens) is a more relevant predictor than diversity (types) (Bowers & Vasilyeva 2011; Rydland, Grøver & Lawrence 2014; Grøver, Lawrence & Rydland 2018), particularly in the early stages of L2 development (Bowers & Vasilyeva 2011). However, the amount and diversity of talk are often highly correlated (Hoff & Naigles 2002, Jones & Rowland 2017, Montag et al. 2018) and difficult to separate in observed data. A computational modelling study isolated the effects of quantity and diversity on vocabulary growth. In line with the abovementioned studies, they found that quantity is more important early in learning and diversity is more important at later stages (Jones & Rowland 2017).

Recent meta-analyses have not found that the reader (e.g. parent or teacher) moderates the relationship between shared book reading and word learning in monolingual children (Flack et al. 2018) or L2 learners (Fitton et al. 2018). However, in one of the meta-analyses, the use of a dialogic reading style and the number of tokens were found to be the most stable moderators of the relationship between book reading and word learning in monolingual children (Flack et al. 2018), and the authors suggest that the results indicate that an increasing number of word

exposures provides children with better opportunities to learn and consolidate new words during shared book reading (Flack et al. 2018; 1342). The effect of the amount and diversity of talk was not examined in the meta-analysis that included L2 learners (Fitton et al. 2018). Overall, however, diversity was a stronger predictor of language skills (Jones & Rowland 2017). In essence, it appears that both the amount and diversity of language exposure are important for word learning. For monolingual children, quality indicators such as the diversity of language used by adults might be more important for language development, while for L2 learners, the amount of language exposure might be more important (at least in the early stages of L2 development). A similar argument is made with regard to the language development of monolingual children, i.e., in the early stages of their vocabulary development, monolingual children appear to be more dependent on the amount of talk. Then, when they have developed a basic set of language skills, more qualitative aspects, such as a diverse vocabulary, become more important (Rowe 2012).

### 3. Children's language use

Children's language use might also affect their language development. In the home-school study, the quality of the vocabulary used by children in their interactions with teachers was among the factors that predicted vocabulary knowledge (Dickinson 2011). Paradis (2011) found that children's L2 use correlated more strongly with L2 vocabulary than with L2 input. Moreover, Ribot, Hoff & Burrige (2018) examined the relationship between language use and language exposure and vocabulary development in young L2 learners (aged 30 to 42 months) using parental questionnaires. They found that language exposure was related to both receptive and expressive vocabulary, but the children's own use of language was related to expressive vocabulary development only. Studies of shyness can also shed light on the relationship between language use and L2 development because shy children tend to speak less. Strand, Pula, Parks and Cerna (2011) found a relationship between shyness and receptive vocabulary, mediated by communication competence (e.g., answering questions, participating in conversation), in four- to five-year-old children from English and Spanish speaking homes. Keller, Troesch and Grob (2013) examined the relationship between shyness and L2 development in children at the same age (four- to five-year-olds) and concluded that shy children had a slower development of their L2 compared to children who were less shy. A large study of Spanish-English bilingual prekindergarten- and kindergarten-aged children added nuance to the findings of language use by concluding that language input is important when children begin to use a language and that using the language is important for further language development (Bohman, Bedore, Peña, Mendez-Perez & Gillam 2010). Together, these studies indicate that children's language use should also be taken into account when examining the relationship between the language environment and language learning.

#### 4. Preschool teachers' interactions with children from diverse language backgrounds

In preschool, children from various backgrounds are presumably exposed to language from the same teachers; thus, language exposure in preschool should be similar in terms of quality and quantity. However, at a Danish preschool, Palludan (2005) identified different patterns of interaction, i.e., the teachers more often used an instructional tone with children from a language-minority background than with their peers from a higher SES, language-majority background. The children from a language-minority background, on the other hand, seldom took the initiative and more often positioned themselves apart from interactions. The findings of Palludan (2005) point to an often underestimated interactional quality of language learning: The teacher is not the only source of influence, and both participants – the teacher and the child – affect the dialogue. Fillmore argues that children “by their verbal initiatives and their receptivity to the communicative efforts of their caregivers affect the quality and the quantity of the language they receive” (1989: 312). In other words, children’s linguistic output and responses also affect the linguistic output of their conversational partner (De Houwer 2017).

How both children and teachers actually use language, however, is rarely studied, and studies comparing talk in different samples are even rarer. To the best of our knowledge, only one study has compared teachers’ talk during book reading dialogues with monolingual children and children from language-minority backgrounds. Aarts, Demir-Vegter, Kurvers & Henrichs (2015) examined the language used by teachers during book reading dialogues with children with either Dutch (the majority language) or Turkish as a mother tongue. The teachers used more types and a more complex language when talking to the children in the Dutch sample at both ages four and five. However, the teachers in the Turkish sample had more utterances at high abstraction levels. These findings suggest that preschool teachers might talk differently to children from different backgrounds.

In a previous study, we examined book reading dialogues between preschool teachers and children with a language-minority background during the shared reading of two books (Karlsen et al. 2018). We focused on patterns of dominance, initiatives and responses: how teachers invited children to participate in dialogues and how children responded to the invitations. The results showed that the preschool teachers were more dominant than in previous studies including same-age monolingual children (e.g. Hølland 2017). Furthermore, a substantial proportion of the contributions from the teachers comprised close-ended questions. Children’s answers were primarily short verbal (e.g. *yes, no, do not know* or naming) or nonverbal (e.g. nodding or pointing) responses. The noticeably large degree of asymmetry and the many close-ended questions from the teachers made us question whether the observed pattern of language use represented a general trend in Norwegian preschool teacher-child dialogues or if these characteristics were exclusive to interactions between teachers and children from a language-minority background. Together with our awareness of the importance of exposure to a large amount of a diverse vocabulary and the importance of language use for word learning, this made us wonder what characterized *the words* used during book reading dialogues. We therefore ques-

tioned whether the words used in dialogues between preschool teachers and children with a language-minority background were comparable to those used in dialogues between preschool teachers and monolingual children.

## 5. The current study

In the current study, we examined the quantity and quality of the words used by both participants in teacher-child dialogues for the purpose of comparing dyads in which teachers communicated with five-year-old children from a language-minority background relative to dyads involving same-age children from a language-majority background. Because vocabulary knowledge represents the greatest challenge for children with a language-minority background learning an L2 (Snow & Kim 2007), we focused on the use of words in pursuing the following research questions: To what extent are there similarities and/or differences in a) the number of words, b) the diversity of words, and c) the density of content words used in book-reading dyads involving children with a language-minority background and their teachers relative to dyads of children with a language-majority background and their teachers?

## 6. Method

### 6.1 Participants

The participants included 14 preschool teachers and 14 five-year-old children: seven children in the subsample of children with a language-minority background and Norwegian as an L2 (four girls and three boys; mean age: 64.71 months;  $SD = 4.46^1$ ) and seven in the subsample of children with a language-majority background whose first language was Norwegian (six girls and one boy; mean age: 64.00 months;  $SD = 4.17$ ). All the children had attended Norwegian day care for a minimum of one year. The dyads of teachers and children from the language-minority background will hereafter be referred to as langMIN, and the dyads of teachers and children from the language-majority background as langMAJ. The participants were recruited from preschools in areas within central Norway, but there were sociodemographic differences within the areas from which the subsamples were recruited: the langMIN subsample came from a demographic area with a lower educational level, lower incomes, a higher level of unemployment and a higher level of immigrants compared to the langMAJ subsample (Statistics Norway 2018a; Oslo Municipality 2017). However, there were also within-sample differences in both samples: for example, there were parents with no education after upper secondary school in the langMAJ subsample and parents with a university-level education in the langMIN subsample. All the children were enrolled in Norwegian preschools under similar conditions and received the same instruction at school.

The mother tongue of the children in the langMIN dyads was Urdu, and all had attended pre-

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1 We included the same langMIN sample (children and teachers) that was included in our previous study (Karlsen et al. 2018), with the exception of one individual who was excluded due to technical problems with the recording.

school for at least one year at the time of the assessment. None of the children had known impairments. The teachers were all working as kindergarten teachers in the children's preschools and knew the children well.

The nonverbal abilities of the children were within the normal range, as measured with the subtest *block design* of the WPPSI-II (Wechsler 2002). The receptive vocabulary skills of the children were assessed using The British Picture Vocabulary Scale (BPVS) – II (Dunn, Dunn, Whetton & Burley 1997, translated and adapted to Norwegian by Lyster, Horn & Rygvold 2010 and to Urdu by Monsrud, Thurmann-Moe & Bjerkan 2011). All the children in the langMAJ subsample scored average or higher on the Norwegian version of the BPVS-II. In the langMIN subsample, one child scored within the range of normal variation (Min1), and the six other children scored below the mean. This is in line with previous studies (e.g., Bowers & Vasilyeva 2011). The scores of these children on the Urdu version of the test were lower than their scores on the Norwegian version, which is also in line with previous studies (Karlsen et al. 2017; Lervåg & Aukrust 2010).

## 6. 2 Procedure

The main selection criterion for the children in the langMIN subsample was that the child should have Urdu as a mother tongue. The langMAJ subsample was recruited after the langMIN subsample. Twenty-three dyads of children and teachers were recruited, and we included the seven first transcribed dialogues in the current study to have the same number of dyads in each subsample (langMIN and langMAJ).

Once a teacher agreed to participate, (s)he gave consent forms to eligible children, and the children of parents who consented to participate were included in the study. The teacher-child dyads were given a picture book (*Frog, where are you?*, Mayer 1969), and we informed them that we wished to see their usual practice. Among the various educational situations within the preschool setting, book reading was selected because of the great potential it offers for language learning (Mol et al. 2008; Flack et al. 2018). The book was selected because it has been extensively used in previous research but remains unknown to most Norwegians; the same book was used for all dyads to have a common task and a better basis for comparing the book reading dialogues of the two samples. We also considered the book a good basis for dialogue. The preschool teachers and children read the book in a room separate from other preschoolers.

A person with educational training and experience working with children conducted the linguistic and cognitive assessments. The video recordings and assessments were conducted on separate days.

## 6. 3 Analyses

The video recordings were transcribed and analysed using CLAN (CHILDES; McWhinney 2000). The dialogues were separated into turns, defined as continuous utterances from one person (Linell & Gustavsson 1987). Sounds (such as animal sounds or laughter) and nonverbal symbolic acts (such as nodding, shrugging, etc.) that had a communicative function were categorized as a turn. One verbal turn could comprise several utterances segmented into C-units. We defined a C-unit as one main clause with the subordinate clauses attached to it. All words

listed in ordinary Norwegian dictionaries were included when calculating the type/token ratio. Additionally, we included onomatopoeia, counted compound words and contractions of two words as one word and excluded repetitions, fillers and discourse markers such as *wow*, *sure* or *ha!* Aiming for information on quantity and quality in the dialogue, we focused on tokens, types and the proportion of content words. Types refer to the total number of different word forms, and tokens refer to the total number of words. The density of content words (lexical density) was defined as the proportion of content words (nouns; adjectives; verbs, except auxiliaries such as *is/are*, *should*, *would*, *have*, etc.; and adverbs derived from adjectives) out of the total number of words. The density of content words can be considered an indicator of quality (Nagy & Townsend 2012), as can the proportion of different word types (Weizman & Snow 2001; Rowe 2012).

## 7. Results

As presented in Table 1, of the 103.67 minutes of dialogic video material, more than half (approximately 60%) were recordings of the monolingual sample (57.85 minutes). The difference was not significant.

**TABLE 1. DURATION AND NUMBER OF TURNS IN BOOK READING DIALOGUES IN LANGMIN DYADS AND IN LANGMAJ DYADS**

	Duration/time*			Number of turns		
	In total	Range	M (SD)	In total	Range	M (SD)
<b>langMIN</b>	45.82	02.31-12.56	6.55 (3.07)	700	29-187	100 (42.96)
<b>langMAJ</b>	57.85	03.35-13.26	8.26 (2.90)	1221	51-317	174.43 (83.63)
<b>In total</b>	103.67	-	-	1921	-	-

\*the duration is reported in minutes. seconds.

There were differences in the number of turns produced during the dialogues in the two samples: 63.56% of the total number of turns were attributable to the langMAJ dyads. The difference approached significance ( $t = 2.095$ ;  $p = 0.058$ ) and could be interpreted as large (Cohen's  $d = 1.11$ ). In all the dialogues, the contributions of the teachers and children, measured as the number of turns, were equal.

### 7.1 Variation in words

To address the research question regarding the number of words, we examined the number of word tokens; to address the question regarding diversity, we examined the number and proportion of word types. Figure 2 shows the number of types and tokens in the dialogues. More words



(tokens) were produced by the langMAJ dyads compared to the langMIN dyads: The children in the langMAJ dyads, on average, produced more than twice as many words per dialogue than the children in the langMIN dyads ( $M = 236.57$ ;  $SD = 117.68$  and  $M = 104.00$ ;  $SD = 78.75$ , respectively), and the difference was significant ( $t = 2.477$ ;  $p = 0.029$ ) and large ( $d = 1.32$ ). The teachers in the langMAJ dyads also produced more words than the teachers in the langMIN dyads ( $M = 688.57$ ;  $SD = 344.80$  and  $M = 536.14$ ;  $SD = 287.52$ , respectively). This difference was not significant, and the effect size was moderate ( $d = 0.48$ ). The teachers produced significantly more words than the children in both the langMin and langMAJ dyads ( $t = 3.835$ ;  $p = 0.002$ ,  $d = 1.75$  and  $t = 3.282$ ;  $p = 0.007$ ,  $d = 2.05$ , respectively).

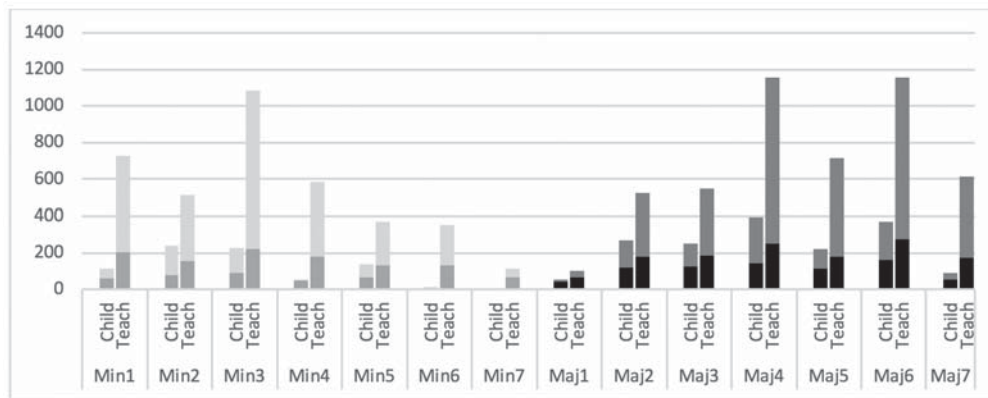


Figure 1. Number of types (lower and darker area in all columns) and tokens (lower, darker +upper, lighter area in all columns) in langMIN dyads (Min1-Min7, to the left) and langMAJ dyads (Maj1-Maj7, to the right).

Furthermore, and not surprisingly, the teachers used a greater number of different word types than the children in both the langMIN dyads (teacher:  $M = 156.71$ ;  $SD = 48.88$ ; child;  $M = 50.14$ ;  $SD = 33.0$ ;  $t = 4.781$ ;  $p = 0.000$ ,  $d = 2.56$ ) and the langMAJ dyads (teacher:  $M = 188.14$ ,  $SD = 61.18$ ; child:  $M = 109.43$ ,  $SD = 41.35$ ;  $t = 2.82$ ,  $p = 0.0155$ ,  $d = 1.51$ ). Moreover, the subsample of children in the langMAJ dyads produced significantly more word types than the children in the langMIN subsample ( $t = 2.965$ ,  $p = 0.012$ ,  $d = 1.58$ ). The difference in types between the teachers was of medium size, but not significant ( $t = 0.983$ ,  $p = 0.345$ ,  $d = 0.56$ ). The correlation between types and tokens in all four subsamples was  $> r = .895$ .

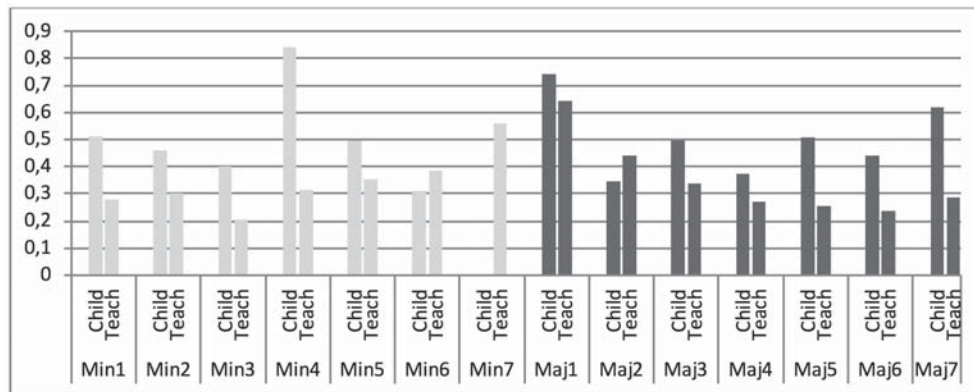


Figure 2. Type/token ratios in langMIN dyads (Min1-Min7, to the left) and langMAJ dyads (Maj1-Maj7, to the right).

The type/token ratios of the children and teachers is presented in Figure 3. The type/token values for the teachers in the langMAJ dyads were not normally distributed, and a non-parametric test was used (*Mann-Whitney U*) to compare the means. The differences between the teachers and children in the langMAJ dyads (teachers:  $M = 33.10$ ;  $SD = 13.40$ , children:  $M = 51.70$ ;  $SD = 11.50$ ,  $U = 6,0$ ,  $Z = -2,364$ ,  $r = -0,63$ ) and the teachers and children in langMIN dyads (teachers:  $M = 34.20$ ;  $SD = 20.30$ , children:  $M = 43.10$ ;  $SD = 23.40$   $t = 848$ ,  $p = ,413$ ,  $d = 0,46$ ) were moderate and non-significant in favour of the children. The ratios indicate that the teachers used a relatively less-varied vocabulary than the children and that the children in the langMAJ subsample used the most varied vocabulary. There was a moderate, non-significant difference between the teachers in the langMIN and the langMAJ dyads ( $d = 0.64$ ).

## 7. 2 Density of content words

To address the lexical density, we calculated the proportion of content words for each dialogue participant. The proportion of content words varied among the dyads, as shown in Figure 4.

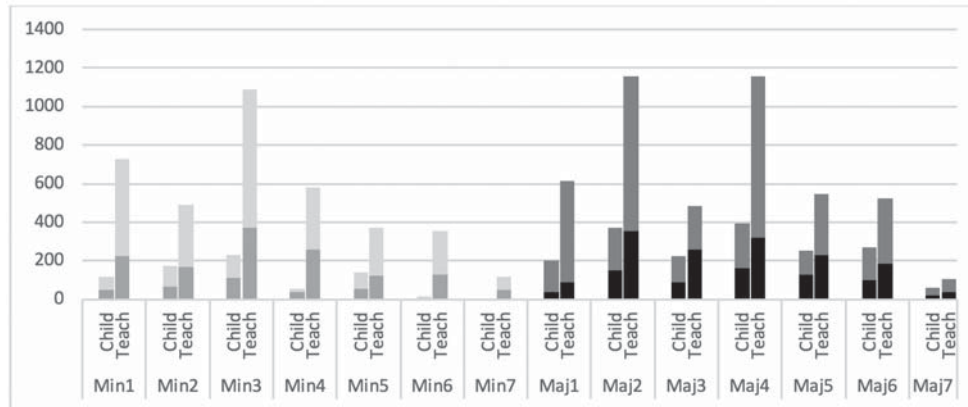


Figure 3. Proportion of content words (lower and darker area in all columns) related to the total number of words (lower, darker + upper, lighter area in all columns) produced in langMIN dyads (Min1-Min7, to the left) and langMAJ dyads (Maj1-Maj7, to the right).

The mean proportion of content words used by the children in the langMAJ dyads was significantly higher than that of the teachers ( $M = 41.68$ ;  $SD = 3.68$  and  $M = 34.21$ ;  $SD = 5.11$ , respectively,  $t = 3.139$ ,  $p = 0.009$ ,  $d = 1.68$ ). The difference between the children's and the teachers' mean proportions of content words in the langMIN dyads was small ( $d = 0.25$ ), and the variation in the children's proportion of content words was greater than that in the other subsamples ( $M = 36.67$ ;  $SD = 19.65$  and  $M = 36.31$ ;  $SD = 4.28$  for children and teachers, respectively). When we excluded one dyad that included a child who made only nonverbal contributions, the difference approached significance ( $M = 42.79$ ;  $SD = 13.75$ ;  $t = 2.849$ ;  $p = 0.016$ ). The difference in the proportion of content words between the teachers in the langMAJ and langMIN dyads was not significant but was moderate in size ( $d = 0.45$ ).

## 8. Discussion

In the current study, we aimed to identify similarities and differences in how Norwegian preschool teachers and children with diverse language backgrounds (minority vs. majority language) used words when interacting during book reading. We examined the number of words, the diversity of words and the density of content words in the dialogues. In addressing the research questions, we identified three main findings: First, we observed some similarities across the subsamples; the teachers in both subsamples produced more word tokens and more word types than the children. Second, we observed some differences; compared with the langMIN dyads, the langMAJ dyads used a larger number of words. Additionally, the children in the langMAJ dyads produced more tokens and more types than the children in the langMIN dyads. While the children in the langMAJ dyads produced a significantly higher proportion of content

words, the children and teachers in the langMIN dyads produced an equal proportion of content words. Third, we observed some differences that did not achieve significance but were still interesting: the teachers in the langMAJ dyads produced more different words and more word types and had a higher type/token ratio and a higher proportion of content words compared to the teachers in the langMIN dyads. Lastly, the within-group variation among the children in the langMIN subsample was larger for most variables compared with the langMAJ subsample. Taken together, these findings suggest that there are differences in the amount of language that children from majority and minority backgrounds hear and use during book reading dialogues.

It is not surprising that the teachers talked more than the children during the shared book reading dialogues. Teachers have better language skills, and they often take responsibility during learning dialogues (Linell & Gustavsson 1987). This finding is also in line with the results from our previous study (Karlsen et al. 2018) and the study by Hølland (2017). Additionally, both the teachers and children talked more in the langMAJ dyads compared to the langMIN dyads. Based on the differences in language skills between the children in the two samples, this is not surprising either. Perhaps more interesting are the differences we found between the two samples in the teachers' use of words. Although these differences were not significant, the effect sizes were moderate, indicating that they might obtain significance in larger samples. These differences were present in all our measures and were consistent with the results of Aarts and colleagues (2015): The langMAJ children were exposed to more words, more different words and more content words during book reading. Because quality indicators such as proportion of types (diversity) and content words (lexical density) are relative to the amount of language produced, increased quantity would also lead to more quality features. A correlation between quantity and diversity has also been found in previous studies (e.g., Hart & Risley 1995; Hoff & Naigles 2002), indicating that these factors are difficult to untangle. Consequently, it is possible that the relationship between word learning and tokens found in a recent meta-analysis (Flack et al. 2018) could also be related to quality, such as variation in types.

Quality features presumably facilitate language development (Dickinson & Porche 2001; Dickinson 2011; Jonas & Rowland 2017; Paradis 2011; Rowe 2012; Weizman & Snow 2001) but may not be equally important at all stages of development. For speakers who are in the process of acquiring an L2, a large amount of language exposure may be even more important than a great diversity of words, as suggested in previous studies (Bowers & Vasilyeva 2011; Grøver et al. 2018; Rydland et al. 2014). Thus, the finding that both the teachers and children talked more during the langMAJ dialogues than during the langMIN dialogues indicates that the children with the greatest need for language exposure and use – children from a language-minority background – might get the least exposure. Actually, the children in the langMAJ dyads heard an average of 150 words more than the children in the langMIN dyads during the book reading dialogues, and they used more than twice as many words on average. Thus, one could question whether the children in the langMIN dyads are exposed to a sufficient amount of language to allow them to develop satisfactory L2 skills before they enter school, as is the ambition of the Norwegian educational policy (St. Meld 19 2015-2016). Another interpretation of these results is related to the responsiveness of the teachers. Because the langMIN children had poorer vo-

cabularies compared to the langMAJ children (see also Karlsen et al. 2017; Lervåg & Aukrust 2010), it could be that the teachers adapted their language to the proficiency level of the children. Lexical density is one of the factors related to L2 learners' comprehension (Révész & Brunfaut 2013); thus, lowering the proportion of content words could be a way of individually adapting the linguistic input. This would be in line with the patterns observed in the mothers in the study by Rowe and colleagues (2005). It could also be why the teachers and children in the langMIN dyads produced an equal proportion of content words; the teachers used language that matched the proficiency level of the children. Thus, the difference between the dyads in the two subsamples might be understood in terms of the mutual impact of both interactional partners in a dialogue (de Houwer 2016, Fillmore 1989): when a child says little, it may impact the way the teacher addresses the child, and vice versa, when the teacher asks close-ended questions, it will affect the language used by the child. The difference between the children and teachers in the number of words produced is in line with the dialogic asymmetry we identified in our previous study (Karlsen et al. 2018). Moreover, the difference in the number of words produced by teachers and children in the langMIN dyads was probably related to the many questions asked by the teachers and the short verbal or nonverbal answers given by the children (Karlsen et al. 2018); a dialogical pattern characterized by many close-ended questions from the teachers could lead to short answers using content words (e.g., naming) from the children and, conversely, more function words in the teachers' utterances. The use of questions is in line with the results of Aarts and colleagues (2015), who found that preschool teachers asked many questions to facilitate language use. Although we only examined the number of words, the number of different words and the proportion of content words used in the dialogues, our results also appear to be in line with the pattern found by Palludan (2005), namely, that preschool children with a language-minority background were often more quiet than children with a language-majority background and that teachers more often used an instructional tone when interacting with children from language-minority backgrounds. Palludan (2005) does not explicitly describe teachers' use of questions, but it seems reasonable to assume that close-ended questions more often occur when teachers use an instructional tone.

Additionally, the children in the langMIN dyads talked less and used a less varied vocabulary compared to their peers in the langMAJ dyads. Previous studies have found that language use affects the language development of L2 learners (Bohman et al. 2010; Keller et al. 2013; Paradis 2011; Strand et al. 2011; Ribot et al. 2018). Bohman and colleagues argue that after the first stages of learning an L2, children need to practice it to further develop the language (2010). Using this same line of argument, it might be of particular importance for these children to actively *use* language.

## 9. Implications and limitations

Taken together, these findings regarding the amount and variation of words used during shared book reading in preschool suggest that children from language-minority backgrounds hear and use fewer words than monolingual children from a language majority background when read-

ing with preschool teachers. The extent to which these differences affect language learning and the aspects of shared book reading dialogues that best facilitate language learning in L2 learners are uncertain.

The great variation in the dialogic contributions of and the language used by the children in the langMIN subsample should also be commented on. Some of these contributions are comparable with those of the children the langMAJ subsample, yet a few children talked very little and did not participate actively in the dialogue. Why they talked so little should be investigated further, and appropriate support should be offered to these children to provide them the best possible opportunities to succeed in school. For preschoolers, an L2 preschool is the major arena for L2 experiences. Consequently, variations in the quantity and quality of the language experiences these children obtain through conversational interaction with preschool teachers could be crucial for their L2 development.

Some limitations might hamper the findings of the current study. One is the diverse backgrounds of the children. One could argue that the two subsamples are not comparable because of differences in both language background and socioeconomic background. However, even though the children in the langMIN dyads came from an area with lower-than-average educational levels and incomes and a higher level of immigrants, the educational levels of the parents varied: while the main pattern was that the educational level was higher among the parents of the children in the langMAJ dyads, there were exceptions in both subsamples. Moreover, all of these children take part in the education offered in Norwegian preschools, and our aim was to study the here-and-now interaction during book sharing. We therefore argue that within this frame, the background of the children is of less relevance. It is, however, of utmost educational relevance to our findings that more than 90% of all children in Norway are enrolled in preschool (Statistics Norway 2018b); this includes children with a language-minority background, who are expected to learn to speak Norwegian before they start school. Usually, preschool is their main arena for doing so. However, future studies should aspire to include samples that are matched on socioeconomic background variables.

Another limitation is that we only examined a limited aspect of the dialogic contributions of children and teachers during one learning situation: book reading dialogues ( $N = 14$  dyads). Even though the volume of the dataset leaned towards the small, some interesting findings regarding the similarities and differences in teacher-child dialogues were found. Together with a few previous studies (Aarts et al. 2005; Palludan 2005), the current study can be considered a first step toward other, more comprehensive studies aiming to identify the characteristics of teacher-child dialogues in samples of children from diverse backgrounds. Future studies should include measures of quality and quantity other than types and tokens, as most such measures have been found to be sensitive to amount of talk (Koizumi & In'nami 2012). Moreover, it should be an aim to gather more extensive data and examine various aspects of teacher-child dialogues among different samples and in different situations to continue to deepen our insight into these dialogues and to better identify the dialogical situations that contribute to increased exposure and the use of rich and stimulating language. Such insight could increase our knowledge of how to facilitate language use in children, which could be beneficial for the L2 development of children with a language-minority background.

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