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Improving the Odds: Identifying Language Activities that Support the Language Development of Preschoolers with Poorer Vocabulary Skills

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ABSTRACT

The aim of the current study is to determine what language activities Norwegian preschool children took part in, and to examine whether these language activities predict children's language comprehension. We tested children ($n = 134$) with language measures at age 4/5 and age 5/6 and interviewed their teachers ($n = 71$) about the kinds of language activities the children engaged in during that school year. Teachers reported a variety of classroom language activities, ranging from informal language stimulation of everyday situations to more explicit language activities such as book reading, language games, vocabulary training and school preparation groups. Book reading every day significantly predicted children's language comprehension.

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Introduction

Researchers and practitioners recognize that language skills in the preschool years are important predictors of later reading and academic success (e.g., Bloom, 1964; National Early Literacy Panel (NELP), 2008). The decision to screen all Norwegian four-year-olds with the language test Language4 (SPRÅK4) (Horn & Dalin, 2003) is based, in part, on this well-established research finding. However, our understanding of how to boost young children's language development in preschool does not match our understanding of the correlations between language development of young children and school readiness. Previous studies suggest that language activities such as book reading and vocabulary training correlate with higher verbal outcomes for young children, but most of these studies were conducted in countries with highly structured preschool environments (e.g., Coyne et al., 2010; Marulis & Neuman, 2010; NELP, 2008; Swanson et al., 2011) or with typically developing children (e.g., Fricke, Bowyer-Crane, Haley, Hulme, & Snowling, 2013; Gonzalez et al., 2014). We know virtually nothing about what Norwegian teachers can do to support children who have been identified as having language problems so that these children might avoid difficulties with reading comprehension later.

The language activities that children experience in classrooms vary across sites (Barnett, 1995; Connor, Morrison, & Slominski, 2006; Nelson, Benner, & Gonzalez, 2003; Pelatti, Piasta, Justice, & O'Connell, 2014), often as a function of preschool quality. Whereas some preschool classrooms have little or no focus on language and emergent literacy, other classrooms fill the entire day with opportunities for children to engage with text and language (e.g., Connor et al., 2006). For example, Connor et al. found that time spent on language and literacy activities, including play, ranged from 4

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min to 90 min a day in the classrooms included in their study. The current study describes the language activities Norwegian preschool children engage in, and tests if these activities predict children's language comprehension.

The Importance of Preschool Skills for Later Reading Success

According to “the Simple View of Reading,” reading comprehension is the product of decoding and language comprehension (Hoover & Gough, 1990). Skilled decoding refers to “the ability to rapidly derive a representation from printed input that allows access to the appropriate entry in the mental lexicon” (p. 130). That requires a phonological representation of the word, strong phonemic awareness, and knowledge of the sound-symbol correspondence in the target orthography. Language comprehension involves readers' understanding of the words and texts they encounter. Although not a strictly “bottom-up” model, the simple model suggests that decoding skills may be more important in explaining differences in skills at the early grades, but that oral language skills become increasingly important. Indeed, in the original cross-sectional data set that Hoover and Gough presented, listening comprehension correlated with reading much higher in grade four ($r = .79$) than it did in grade one ($r = .5$). The few longitudinal studies that have traced children from kindergarten and into later grade levels indicate that reading comprehension depends on decoding skills in the early years. For instance, Schatschneider, Fletcher, Francis, Carlson, and Foorman (2004) showed that phonological awareness, letter knowledge and rapid naming in kindergarten were the strongest predictors of reading (decoding and comprehension) in first and second grade. Third and fourth graders can decode automatically, and there is not much variation in their ability in this highly constrained skill (Paris, 2005). As a result, measures of language ability (such as vocabulary or oral cloze assessments) explain most of the variation in older children's reading comprehension (e.g., Lesaux, Rupp, & Siegel, 2007; Storch & Whitehurst, 2002). Consistent with this, evidence suggests that although vocabulary knowledge develops relatively independently from beginning reading skills such as decoding in the early grades, it becomes increasingly predictive of reading comprehension over time (Snow, Porche, Tabors, & Harris, 2007; Storch & Whitehurst, 2002; Vellutino, Tunmer, Jaccard, & Chen, 2007). Moreover, vocabulary knowledge in the early grades continues to predict reading comprehension in third grade and beyond (Cunningham & Stanovich, 1997).

This review is based on data from English speaking children learning to read English. Compared to most other European languages, English has an atypical orthography with an inconsistent letter/sound relationship (Seymour, Aro, & Erskine, 2003). In more transparent languages decoding and phonological awareness are achieved more quickly (Seymour et al., 2003). Language comprehension skills may be implicated in reading comprehension earlier when children are learning relatively transparent languages. In a longitudinal study of Norwegian first and second language learners, Lervåg and Aukrust (2010) found that individual differences in second grade students' decoding and oral language predicted reading comprehension skills. In contrast to the English studies, Lervåg and Aukrust (2010) found that language comprehension measures predicted reading comprehension already in second grade. This supports the notion that decoding skills of a transparent language such as Norwegian are mastered more quickly, and that language comprehension explains more variance in reading comprehension at an earlier stage.

These findings indicate that activities targeting phonological awareness and decoding will have an effect first and foremost at the onset of reading instruction, whereas language comprehension activities will be important also for later reading comprehension. For this reason, language comprehension skills were the focus of this study.

Evidence of Beneficial Language Activities

Research has shown that a variety of activities may be beneficial for children's language development. For example, book reading (Dickinson & Tabors, 2001; Lonigan & Whitehurst, 1998; NELP, 2008;

Swanson et al., 2011), cognitively challenging talk (Cabell, Justice, McGinty, DeCoster, & Forston, 2015; Dickinson & Porche, 2011; Dickinson & Tabors, 2001; Rydland, Grøver, & Lawrence, 2014; Smith & Dickinson, 1994), direct vocabulary training (Coyne et al., 2010; Elleman, Lindo, Morphy, & Compton, 2009) and play (Conner, Kelly-Vance, Ryalls, & Friehe 2014; Craig-Unkefer & Kaiser, 2002, 2003) are shown to be positive for children's language and early reading skills.

During the last few decades, studies have shown that shared book reading can foster children's language and reading development; it is well documented that children who are being read to frequently, who have a number of books in their homes and who have parents who reads a lot, have a bigger vocabulary and better developed comprehension skills compared to their peers who have less reading and print exposure (e.g., NELP, 2008; Swanson et al., 2011; Whitehurst & Lonigan, 1998). As a result, book reading has become one of the most used and recommended methods for supporting children's language and reading comprehension. In a research synthesis, Mol and Bus (2011) found that print exposure explained significant variance in preschool and kindergarten children's oral language skills. Moreover, the explained variance increased with age. Blok (1999) found that book-reading interventions implemented by teachers had a medium to large effect ($d = .63$) on children's oral language skills. Other systematic reviews have shown that shared book reading has a positive effect on children's oral language skills (NELP, 2008). Swanson et al. (2011) found that book reading predicted vocabulary and comprehension of at-risk children in preschool through third grade.

Not all book reading is created equal. Dialogic book reading emphasizes teaching adults to ask questions of children during reading, for instance by asking "who," "what," and "when" questions instead of "yes," "no," or "where" questions (Whitehurst et al., 1988). Adult readers are taught to be sensitive to, and provide feedback on, the child's initiative during reading. A meta-analysis of intervention studies that test programs in which parents were trained to read to children based on these principles demonstrated a small effect of dialogic book reading on children's receptive vocabulary ($d = .22$) and a medium effect on expressive language ($d = .59$) (Mol, Bus, de Jong, & Smeets, 2008). Another meta-analysis that included many shared book reading or dialogic reading studies, found especially large effects for interventions done in preschool (Marulis & Neuman, 2010). Moderator analyses indicated a large effect of the intervention on vocabulary measured with tests developed for the study ($d = 1.08$), and medium to large effect on vocabulary measured with standardized tests ($d = .71$). Importantly, children at risk for language delays benefited more than other participants. Gonzalez et al. (2014) investigated preschool teachers talk before, during, and after book reading. They found that the frequency and duration of teachers' talk in relation to book reading was important to children's vocabulary. More specifically, teachers' time spent on talk about vocabulary in the books after reading was related to children's vocabulary.

The way preschool teachers talk to and with their students is of importance. Challenging talk or engaging children in decontextualized conversation have been shown to be beneficial to children's language development (Cabell et al., 2015; Dickinson & Porche, 2011; Dickinson & Tabors, 2001; Rydland et al., 2014; Smith & Dickinson, 1994). Dickinson and Porche (2011) found that teachers' analytic talk about books during shared book reading predicted fourth grade vocabulary, as mediated through kindergarten receptive vocabulary. Moreover, teachers' use of sophisticated language during free play predicted reading comprehension in fourth grade, mediated through kindergarten language. In line with this, Huttenlocher, Vasilyeva, Cymerman, and Levine (2002) reported that preschool teachers' grammar was related to their students' comprehension of grammar. Specifically, the complexity of the teachers' syntax predicted growth in 4-year-old children's grammatical comprehension. It is worth noting that when adults talk to children one-on-one, they can more easily adjust their language and the information they give to the child's needs and language development (Dickinson & Porche, 2011). Thus, language acquisition is fostered when adults are present, tuned in, listen, and respond to what children are saying. This is most easily facilitated when teachers interact with only one or a few children in small groups.

Direct training of vocabulary skills has also been studied as a form of support for language development. A meta-analysis by Elleman et al. (2009) indicates that vocabulary training can

be facilitative of language development and reading comprehension and intervention effects are greater for children with weaker language skills (Elleman et al., 2009). Coyne et al. (2010) conducted an intervention study with 5–6-year-old children who received direct and extended vocabulary instruction. Results suggested that vocabulary instruction had an effect on both target word measures and measures of generalized language and literacy (receptive vocabulary and listening comprehension). It is not surprising that the children performed better than controls on tests of the words they had been taught, but the fact that the trained students also scored higher on generalized language measures indicates a transfer effect of the intervention. This suggests that vocabulary training can be beneficial to children's language comprehension. It seems especially promising when combined with other language activities, such as shared book reading (Marulis & Neuman, 2010).

Children spend a lot of time playing. Children find play enjoyable and play is important for their development of language and more general cognitive skills (e.g., Piaget, 1962; Vygotsky, 1978). Using play as a way or method to stimulate language development may therefore be motivating and beneficial. Language and play are related (Craig-Unkefer & Kaiser, 2002; Conner et al., 2014; Rescorla & Goossens, 1992) and from approximately two years of age, both language and play become increasingly complex (Conner et al., 2014; Rescorla & Goossens, 1992). Tamis-LeMonda and Bornstein (1994) found that symbolic play was related to language comprehension at the age of 13 months and to semantic diversity in language by age 20 months. Symbolic play at age 13 months was also found to predict semantic diversity in language at 20 months in their study. Connor et al. (2006) suggest that play may also be related to preschoolers' emergent literacy skills through growth of vocabulary. They found that the amount of time children spent playing predicted growth of vocabulary. A few interventions focusing on both language and play have been conducted with young children (Conner et al., 2014; Craig-Unkefer & Kaiser, 2002, 2003). Generally, these studies suggest that it may be possible to boost young children's (i.e., age two and up) development of play and development of language by working intensively with these areas for a longer period. For instance, Conner et al. (2014) implemented an intervention with 2-year-olds over a four-week period and included components of reading, modeling, and positive reinforcement of language and play. The results indicated that the trained children played more, and also increased their comprehension and expressive language skills, compared to the control group.

Taken together, there seems to be considerable support to the view that shared book reading is of importance to children's language development. In addition, the way preschool teachers talk to and with their students is likely to make a difference. There is also some evidence that vocabulary training can be beneficial to children's language and reading comprehension. Finally, research suggests that the development of play and language are related and that children's play may therefore be important for the development of their language skills. At least, it seems that play may be an efficient arena for preschool teachers to stimulate children's language development (e.g., Dickinson & Porche, 2011).

Language Learning Opportunities in Preschool Classrooms

There is a large variation in the quality of preschool support for language development across preschool classrooms. Pelatti et al. (2014) examined what kind of language activities young children participated in. They found that, on average, the children in their study spent 18 minutes per day in key language and literacy domains such as oral language/discussion, vocabulary, print and concepts, alphabet knowledge, phonological awareness, word identification, comprehension, writing, and text reading. Thus, time spent within each of these domains or activities ranged from less than half a minute to approximately five minutes per day. Researchers found variation both between and within classrooms in how time was allocated. This is consistent with other studies that also show a large variation in preschool quality (Barnett, 1995; Connor et al., 2006; Nelson et al., 2003). These studies were all done in American schools. To date, there is little research

documenting what kind of language activities Norwegian or Scandinavian preschool children experience. Although some have pointed out that there is increasingly downward pressure to teach academic subjects to young children (e.g., Einarsdottir, 2006), at this point Scandinavian preschools still have little formal instruction, and instead emphasize play. For instance, free play seems to be valued more in Scandinavian preschools and is seen as important for children's development and learning (Johansson & Pramling-Samuelsson, 2006). Thus, incidental and informal learning is probably emphasized more in Norwegian than in US preschool classrooms. Brostöm (1998) compared one Danish classroom and one US classroom and found that the Danish classroom contained more child-initiated activities and play, whereas the US classroom had more teacher-led activities and reading-, writing-, and arithmetic-related tasks. Brostöm (1998) concluded that the Danish children developed better social competence, but had little motivation for learning. The US children, on the other hand, had more motivation for learning, but were "egocentric and had difficulties participating in group activities" (Brostöm, 1998, p. 109). Hoot, Parmar, and Hujala-Huttonen (1996) found pronounced differences between Finnish and US preschool teachers' beliefs about teaching strategies. Their results revealed that the US preschool teachers believed in a more structured approach to instruction; they believed in more teacher-directed methods and provided children with more drill and practice on language skills compared to the Finnish preschool teachers.

Although international intervention research has provided ideas about how to foster children's language comprehension, we need to know more about typical preschool activities in Norway and how these relate to children's development. Without knowledge about the current practices, it is challenging to provide recommendations and customize materials and methods for policy makers and practitioners.

The Present Study

The purpose of this study was to examine preschool teachers' naturalistic language practices, and to determine which language activities in preschool predict improvement in children's language comprehension. Several studies indicate that the ranking between children with respect to vocabulary skills is stable, implying that the less skilled children tend to remain the less skilled as time passes (e.g., Lervåg & Aukrust, 2010; Melby-Lervåg, Lervåg, Lyster, Klem, & Hagtvedt, 2012). In Melby-Lervåg et al.'s (2012) study, for instance, the children who had poorer vocabulary skills at the age of four were also among the lowest scoring at the measure of vocabulary at age five, six, and seven. Moreover, research suggests that preschool children with vocabulary difficulties are at a higher risk for later reading difficulties (Blatchford, Burke, Farquhar, Plewis, & Tizard, 1987; Scarborough, 1990). Thus, it seems especially important to identify children who struggle in preschool and provide opportunities for them to build and extend their vocabulary. Also, high-quality preschool experiences seem to be particularly important for children at risk for academic underachievement (Campbell, Pungello, Miller-Johnson, Burchinal, & Ramey, 2001; Connor et al., 2006; Nelson et al., 2003). The participants in this study were therefore children with weaker vocabulary skills.

Specifically, two research questions were asked: (1) What kind of teacher-reported language activities are present in preschool classrooms? (2) How are these language activities related to children's language comprehension?

In this study, we measured children's language comprehension at age four/five and at age five/six before they entered elementary school. We interviewed the children's preschool teachers to find out what language activities the children participated in during their last year of preschool. The goal of the study was thus to investigate what kind of language activities the children took part in and whether these language activities could predict the language comprehension of children who might be at risk for later reading comprehension difficulties.

Methods

Participants

The participants ($n = 134$) were a sub-sample of a larger sample in a longitudinal study of children with poor vocabulary skills, that is, they were among the 35% lowest scoring on a vocabulary screening measure.¹ The children attended preschools in two municipalities in Norway. The children attended 71 classrooms in 50 different preschools; there were two children per classroom on average. Some classrooms had only one child participating in the study ($n = 26$), whereas others had three ($n = 9$) or four ($n = 6$). One classroom had five children participating. Around half of the participants (49%) were female and their mean age was 58.23 months ($SD = 3.39$) when the first wave of testing was conducted. The second wave of assessment was administered a year later, when children were in the final year of preschool.

Procedure

The children were tested twice individually with the language comprehension measures; the first time at the end of their second-to-last year of preschool and the second time at the end of their last year of preschool. All testing was conducted in the children's school in a separate room without disturbances. The testing lasted a maximum of 45 min per time and the children had breaks when necessary.

At the end of the last year, all teachers were interviewed about language activities for these children during the past year. The author and a research assistant conducted the interviews and each interview lasted for approximately ten minutes. We wanted to avoid guiding or constraining the teachers' answers about language activities, therefore an open question was asked and each teacher was asked the same questions: What kind of language activities did this child/these children [they were given the names of the children that participated in the study] participate in during the fall semester last year? And how much/how often? What kind of language activities did this child/these children participate in during the spring semester this year? And how much/how often? The teachers' answers were then analyzed qualitatively before transformed into variables.

Interview Coding Procedure

First, an explorative and open process was employed; emergent themes were searched. Key words were noted while going through the transcripts. Second, the material as a whole was returned to. The aim now was to identify mutual and individual descriptions of language activities. Several themes emerged during this analysis. Themes were grouped into categories. For instance, many reported reading books to children, but they varied somewhat in how often they did that activity. Another example is that several teachers reported playing language games with the children on a regular basis. Some of the activities were reported by all teachers; however, the frequency in which they arranged these activities varied. Therefore, cut-offs were made regarding how much or how often children engaged in some of the activities. Each of the categories were transformed into dummy variables such that each classroom received "1" if their children participated in that activity or "0" if they did not report doing that activity in their classroom. For example, a teacher

¹The children were screened with a measure consisting of 29 items from the British Picture Vocabulary Scale II (BPVS-II) (Dunn et al., 1997) and 12 items from the subtest picture naming of the Wechsler Preschool and Primary Scale of Intelligence-III (Wechsler, 1989). The measure was designed to assess children's receptive and expressive vocabulary and took on average 5 min per child. The reliability of the screening measure, Cronbach's alpha, was .67. Although this reliability estimate was lower than desirable, it can be argued that it is sufficient for research purposes. According to several methodologists (e.g. Kerlinger & Lee, 2000; Nunnally, 1978), whether a reliability estimate is acceptable or not depends on how the measure is used and what conclusions are drawn based on it. Thus, because the screening measure in this study is not used for diagnostic purposes, an estimate of .67 seems adequate.

reporting that they were reading to the children every day received “1” for the daily book reading category. A teacher who reported reading books to the children “a few times per week” received “0” for the same category. It is worth noting that the analysis of the interview data was low inference since the teachers gave clear and easily comparable answers. A random selection of 10 interviews was selected for double coding by an independent rater: a 100% inter-rater agreement was obtained.

Measures

Language comprehension was assessed using six different measures: First, children’s *verbal comprehension of syntax* was assessed using the Test for Reception of Grammar, version 2, (TROG-2) (Bishop, 2003). This test was translated and adapted to Norwegian conditions by Lyster, Horn, and Rygvold (2010). The internal consistencies for TROG-2 measured by Cronbach’s alphas were .96 for time point 1 (t1) and .95 for time point 2 (t2). Second, children’s use of *grammatical morphology* was assessed with the Grammatic Closure subtest of the Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk, McCarthy, & Kirk, 1968). The ITPA has been adapted to Norwegian conditions and was translated into Norwegian by Gjessing and colleagues (e.g., Gjessing & Nygaard, 1975). Cronbach’s alphas for the Grammatic Closure were .76 (t1) and .75 (t2). Third, The Renfrew Bus Story test (Renfrew, 1997) was used to assess children’s *narrative skills*. In this test, the child is told a story while looking at illustrative pictures, followed by instructions to retell it. The children’s retellings were transcribed verbatim and scores were given based on the vocabulary/key words and story structure. Reliability was acceptably high at .76 (t1) and .79 (t2). The Renfrew Bus Story test has been translated to Norwegian by researchers at the Department of Special Needs Education at the University of Oslo. Fourth, *word definition skills* were measured by a selection of words from the vocabulary tests of the Wechsler Preschool and Primary Scale of Intelligence-III (WPPSI-III) (Wechsler, 2008) and the Wechsler Intelligence Scale for Children-III (WISC-III) (Wechsler, 2003). Cronbach’s alphas were .79 (t1) and .86 (t2). Both the WPPSI-III and the WISC-III are translated and adapted for Norwegian conditions (Wechsler, 2003, 2008). Fifth, the first 144 words of the British Picture Vocabulary Scale II (BPVS-II) (Dunn, Dunn, Whetton, & Burley, 1997) were used to assess children’s *receptive vocabulary*. The BPVS-II has been translated and adapted to Norwegian conditions (Lyster & Horn, 2009). In this test, the children had to choose a picture among four pictures that matched a word spoken by the tester. Because the participants were expected to have poorer vocabulary skills, everyone started at the lowest level (item 1 in set 1) and was stopped after at least eight wrong items in two sets in a row, which differs from the instructions provided in the administration manual. Cronbach’s alphas were .92 for t1 and .88 for t2. Finally, *listening comprehension* was measured using a researcher-developed test. The listening comprehension test consisted of short stories with questions. The adult read a story to the child and then asked questions about the story. Questions were a combination of recall and inference. The test had 10 stories with between three and five questions each for t1. The total number of items was 36. At the second time point, another story and six more difficult questions were added to the test to ensure students did not reach ceiling on the assessment. The number of items at t2 was therefore 42. Cronbach’s alphas were .84 and .78, respectively.

Principal component analyses with the six different measures of language comprehension at the two time points were conducted. The factor analyses yielded a one-factor solution with an eigenvalue greater than one, both for measures at t1 and for the measures at t2. The eigenvalue was 3.025 for the t1 and 2.806 for t2. The factors explained 50.41 and 46.76% of the total variance, respectively. The factor loadings and Cronbach’s alphas are presented in Table 1. The factors were labeled language comprehension t1 and language comprehension t2.

Results

Coding revealed six categories of language activities that were identified across the 71 interviews:

Table 1. Factor analyses.

Variable	Factor loading	
	Language compr. t1 ($\alpha = .74$)	Language compr. t2 ($\alpha = .72$)
Comprehension of syntax	.74	.66
Grammatical morphology	.70	.77
Narrative skills	.72	.68
Word definition	.72	.58
Receptive vocabulary	.66	.72
Listening comprehension	.72	.69

- (1) Daily book reading. Many ($n = 42$) teachers mentioned reading books to children as one of their language activities, but time allotted to the activity varied greatly. The category therefore included those that reported reading books to the children every day throughout the year. There were 20 teachers that reported reading books to the children every day. See [Table 2](#) for descriptive statistics about language activities.
- (2) Stimulating language in everyday situations. Some preschool teachers reported that in their classroom, they were concerned about stimulating language in everyday situations, including free play, during meals, while getting dressed, while preparing food and so on. Some said that this is more important to them than doing teacher-led and structured activities. One example is a teacher who said that “we do not have any structured language activities; we believe it is more important to stimulate language all the time, every day”. There were 21 teachers who reported that they were stimulating language in everyday situations.
- (3) Small play groups with adult support. Small group play with an adult (teacher or assistant) present on a regular basis was widely reported. Groups usually consisted of 3–5 children and one adult who were playing or working on a project together. Several teachers reported that this enabled them to stimulate children’s language because they were closer to the children and had fewer children to focus on at a time. One teacher said that “most language stimulation happens during play”. In all, 22 teachers reported arranging play groups with adult support between a few times per month and several times per week.
- (4) Regular use of language games. Several games, such as board games, have been developed to stimulate children’s language development. Some of these games have become popular in preschools, especially a game called *Alias*, a word explanation game. A total of 16 teachers reported using language stimulating games.
- (5) Vocabulary training. Two Norwegian educational psychologists have developed a vocabulary teaching method called *Grasp on Concepts* (*Grep om begreper*) (Grove, 2012). This program is being used by several of the preschools in this study. Teachers reported using the program twice a week ($n = 1$), once a week ($n = 4$), a couple of times per month ($n = 2$), a couple of times per year ($n = 7$) and not regularly ($n = 3$).
- (6) School preparation groups. All preschool classrooms reported arranging separate activities for groups of children that were preceding entry to school. In these school preparation groups, teachers focused both on teaching social skills, pre-mathematical skills, phonological skills and language comprehension. Many also took the children on trips outside the school during this

Table 2. Descriptive statistics for language activities.

Language activity	Number of classrooms	Number of children
Every day book reading	20	36
Stimulating language in everyday situations	21	35
Small play groups with adult support	22	46
Regular use of language games	16	35
Vocabulary training	17	33
School preparation groups	19	37

time, for instance to the library, to see a live theater, or to visit a farm. These groups also sometimes included play or games. Although all preschool classrooms reported arranging some form of school preparation activities, there was a huge variation in the frequency. Some reported arranging these groups once or twice a month, for an hour or two each time ($n = 14$). Many reported having groups for 60 or 90 min per week ($n = 38$), while others reported having these groups for half a day (approximately 3 hours) or one full day per week ($n = 18$). Therefore, a cut-off was made regarding the frequency of school preparation activities. Because it seemed to be a leap from 90 min per week to at least half a day, the cut-off was made at two hours per week. Thus, this category included classrooms where they had at least two hours per week of school preparation activities for the children included in the study. In all, 19 teachers reported arranging school preparation activities with children from their classrooms for at least two hours per week.

As can be seen in Table 2, the number of classrooms within each category was pretty evenly distributed, ranging from 16 to 22. There was some, but not much, overlap between reporting of the different language activities. That is, 1 teacher reported using 5 of the activities, 3 teachers reported using 4 of the activities, 9 teachers reported using 3 of the activities, 22 teachers reported using 2 of the activities, 22 teachers reported using 1 of the activities and 12 teachers did not report using any of the activities.

The second research question asked about the relation between language activities in preschool and children's language comprehension. To answer this question, language comprehension (t2) was regressed on each of the language activities controlling for language comprehension t1. Both language comprehension t1 ($\beta = .648$, $p < .001$) and everyday book reading ($\beta = .221$, $p < .001$) explained significant variance in language comprehension t2 $R^2 = .551$, $F(2, 117)$, $p < .001$. Children in classrooms with daily book reading had better language comprehension after a year than children in other classrooms, controlling for baseline scores. None of the other language activities explained differences in children's language comprehension at t2. There were no differences in language comprehension between children that participated in play groups, played language games, received vocabulary instruction, participated in school preparation groups, or attended classrooms that reported stimulating language in everyday situations and those that did not.

Discussion and Conclusion

The main purpose of the present study was to investigate language activities in preschool classrooms and relate those to children's language comprehension. The first research question concerned what kind of language activities children experienced in preschool. Six language activities were reported in teacher interviews: shared book reading, stimulating language in everyday situations, small play groups, regular use of language games, use of a vocabulary training program, and school preparation groups. Earlier research (e.g., Brostöm, 1998; Einarsdottir, 2006; Hoot et al., 1996) indicates that Scandinavian or European preschool classrooms have little formal instruction and value play more than, for instance, US classrooms. In line with this, teacher's interview data in the current study suggest that it is fairly common among the preschool classrooms to value informal and incidental learning. Twenty-one teachers reported that they cared about stimulating language in everyday situations. In fact, some of them expressed that they believe it is more important than doing teacher-led and more structured activities. Moreover, many teachers reported arranging smaller play groups on a regular basis. The belief that engaging in play is important for children's development, including their language development, seems to be widely accepted among preschool teachers. This is also supported in literature (e.g., Fischer, 1992; Piaget, 1962; Vygotsky, 1978). Thus, the finding that teachers report both stimulating language in everyday situations and arranging play groups as essential language activities is consistent with prior studies that suggest that Scandinavian preschools have little formal instruction.

Regarding the small play groups, many teachers ($n = 22$) stated that there was always an active adult present. Some of the teachers explained that the reason why they consider such play groups important for children's language development is that it provides more opportunities for the teacher (or assistant) to stimulate children's language. There is a research base to support this notion; when adults interact with one or a few children at a time, they have more opportunities to tune in on the children's needs and level, they can adjust their speech and the information they give and generally give more support (Dickinson & Porche, 2011).

The preschool teachers also reported some more formal activities. For instance, the use of a vocabulary training program was reported by 17 teachers. However, the frequency varied across those classrooms. Whereas five classrooms reported using the program every week, seven classrooms reported using it only a few or a couple of times per year, and three classrooms said they did not use it on a regular basis. It seems like the activity closest to formal instruction in the preschools was the school preparation groups. In school preparation groups the focus can be on social skills, pre-mathematical skills, phonological skills, and language comprehension. Moreover, this activity often contains a variety of different activities, including trips and play. This was the most reported activity in the current study. All teachers reported that their students took part in some form of school preparation during their last year of preschool; however, there was variation in how often these groups were arranged. Some classrooms arranged such groups a couple of hours per month, whereas others as much as a full day per week. Nineteen classrooms arranged school preparation groups more than two hours per week.

Shared book reading was also quite common across classrooms, yet only 20 classrooms reported reading to the children every day. Twelve classrooms were not included in any of the six categories generated from the interview data. This does not mean, however, that they did not report doing any language activities. For instance, all of them reported arranging school preparation groups, but these 12 classrooms were among those who did not make the cut-off because this activity happened less than two hours per week. Some of them also reported reading books to the children, but not as often as every day.

The second research question concerned whether the language activities were related to children's language comprehension. Results of the regression analyses suggested that children in classrooms with daily book reading had better language comprehension after a year than children in classrooms that did not report reading books every day. Although empirical findings speak for the importance of book reading for children's language development, this study is unique in that it mapped spontaneous language activities in a relatively large number of classrooms and demonstrated that everyday book reading was an independent predictor of preschool children's language comprehension. The finding that shared book reading is important for children's language comprehension is in line with previous studies (NELP, 2008; Swanson et al., 2011; Whitehurst & Lonigan, 1998). A possible explanation for this is that shared book reading provides opportunities for children to be exposed to a rich language and encounter novel words in meaningful contexts. A body of research indicates that what books you read and how you read them impacts language and literacy more than book reading *per se* (Gonzalez et al., 2014; Teale, 2003). That is, how adults use the book reading situation to actively stimulate children's language by asking questions and engaging children in extra textual talk about the words and the topic in the book. The present study cannot address the issue of quality; however, the results suggest that shared book reading may be valuable, at least when participated in daily. Consistent with this, Walsh and Blewitt (2006) found that the type of questions put to children during reading did not matter, but the sheer frequency of shared reading predicted children's vocabulary growth. Further research is needed to determine whether it is teachers' deliberate behavior aimed at boosting children's language and literacy during reading that makes a difference.

Although this study failed to show any relationship between other language activities than everyday book reading and children's language, this does not mean that other reported activities are not important. Children's language development probably depends on a variety and combination of

activities (e.g., Connor et al., 2006). There may be several reasons why the other activities did not predict language comprehension. For instance, it might be the case that these activities were not systematic or explicit enough. The sample in this study consisted of children with weaker vocabulary skills. These children may be at risk for later reading comprehension problems. Research suggests that at-risk students need language activities that are more explicit, systematic and comprehensive compared to students who are not at risk (Marulis & Neuman, 2013). One explanation for the lack of statistically significant results may be that most of the activities reported in the current study did not happen frequently enough. Compared to the book reading that happened on a daily basis, it could be the case that the other activities did not occur as often and therefore did not contribute enough to boost the children's language development. On the other hand, we do not have data on how long the daily book reading sessions were. Thus, it is possible that they lasted for only 5 or 10 minutes per day. In that case, that would provide the children with between 25 and 50 minutes of reading per week, thus less than an hour. In comparison, several of the other reported activities lasted for at least an hour per week. This question, however, will have to await more in-depth research using observational methods.

It seems especially surprising that the use of vocabulary training and school preparation groups did not predict language comprehension. Regarding the vocabulary training program, it may be the case that it was not comprehensive enough to make a difference. Even though some classrooms reported using the program every week, several of these reported that they worked on only one word per week. Children with weaker vocabulary skills probably need more intensive interventions with more frequent encounters with unfamiliar words. At the same time, previous research on direct vocabulary training has shown mixed results. Whereas some studies report benefits associated with vocabulary training (e.g., Beck, Perfetti, & McKeown, 1982), others show little or no significant benefits for student's comprehension (e.g., Baumann et al., 2002). The meta-analysis by Elleman et al. (2009) showed that the mixed results were partially explained by differences in measures used. When measures were designed for that particular study, the effects were bigger than when standardized measures were used. In this study, no measures of taught words were used. It is therefore possible that the language program used in the preschools had effects on targeted vocabulary.

The reason why the school preparation groups did not predict children's language comprehension may be that they were too heterogeneous, as pointed out above. Apart from the vocabulary training program, this category was probably the one closest to formal instruction of all the language activities reported in this study. On the one hand, it seems surprising that this activity did not relate to children's language comprehension. On the other hand, considering that the activity included a variety of instructions and activities, ranging from trips to math, phonology, social skills and more general language skills, it is not so surprising. Even though the classrooms that had this type of activity less than two hours per week were excluded, it was probably still not much time spent on pure language comprehension per week. Also, several of the teachers reported that they did not first and foremost focus on stimulating language in these groups, even though they did report it as a language activity during the interviews.

This study does not come without limitations. First, the study design does not allow causal inferences. Teachers' reports of naturally occurring language activities and students' characteristics were used to identify relationships between classroom activities and students' outcomes. Other unmeasured variables may have been responsible for the effects documented. For example, other child characteristics like parents' education and home literacy environments may have been responsible for their language development. Rigorous intervention studies with random assignment of participants to treatment and control are needed to make strong causal claims.

Second, there is no data on preschool teachers' background or age; teachers' experience may have influenced both teacher practices and overall quality. Although challenging to investigate, there is some evidence that teachers' experience matters for students' academic outcomes. For

instance, Papay and Kraft (2015) found that teachers improved their ability to boost students' test scores by 40% between their 10th and 30th year on the job. These were both reading and math teachers. An alternative explanation for the effects found in the current study could therefore be that the teachers reporting reading books to the children daily were the teachers with most experience on the job. In future studies, teachers' age and experience should be controlled for.

Third, this study does not include any observational data of language activities in classrooms, and results should be interpreted in light of the limitations of the method used to map the language activities: interviews. According to Kvale (1983, p. 174), the qualitative research interview is "an interview, whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena." Thus, interviewing the teachers provided their interpretation of what a language activity is. This may result in underreporting of activities simply because the teachers did not think of those activities as relevant to language development. Therefore, it cannot be ruled out that more classrooms, for instance, read books on a daily basis or supported language development in other everyday situations than reported. It could also be the case that they did not report it simply because they did not come to think of it during the interview. Using other methods like observation could give different results and would provide opportunities to know more about the specific features of preschool classrooms that contribute to language acquisition. Yet, gaining insight into what teachers themselves see as important for language comprehension seems valuable in itself. This can provide fruitful guidance to policy makers as well as support designing teacher education and research interventions.

Fourth, the questions asked were open-ended. This means the teachers' answers depended on their conceptions of what language development involves and what kind of activities may be beneficial for children's language comprehension. If we had asked more specific questions, the results may have been different. On the other hand, leaving the questions open ended allowed us to understand what aspect of their practice they valued as leading to language relevant outcomes. In future research, it would be interesting to map teachers' beliefs or knowledge about language development and language activities.

Although this study points to the importance of frequent book reading for the development of children's language comprehension, only 20 classrooms out of 71 reported reading books to the children every day. Preschool teachers are faced with the challenging task of targeting many aspects of children's development, yet these findings are in contrast to recommendations that children should be exposed to book reading every day, for at least 10 to 20 minutes (e.g., Whitehurst & Lonigan, 1998). The finding that daily book reading could possibly make a difference is still encouraging because the experiences preschool children participate in can be modified and improved when they read books together in supportive ways (e.g., De Jong & Bus, 2002; Gonzalez et al., 2014; Teale, 2003). It might not take too much reorganizing to "sneak in" a few minutes of daily book reading in preschool.

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