



Child, home and institutional predictors of preschool vocabulary growth



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ABSTRACT

This study examines vocabulary growth and stability over time in 385 young children (two to four years of age) who attended a preschool. The relation between child, family, and institutional factors (i.e. gender, age, socioeconomic status (SES), family background (native/non-native), teacher education, teacher experience, and preschool quality) and vocabulary development was studied. Structural Equation Modeling revealed that initial vocabulary level was mainly predicted by child and family factors, such as age, SES and family background, and that later vocabulary and vocabulary growth were additionally predicted by preschool factors. Interactions between preschool factors and family background indicated that with a highly educated teacher non-native children had higher vocabulary scores, and that using an Early Childhood Education (ECE) program resulted in higher vocabulary scores for children from a native Dutch background.

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1. Introduction

Vocabulary development is an important component of children's literacy development. A below average preschool vocabulary might have negative consequences for learning to read and write (Sénéchal, Ouellette, & Rodney, 2006). As Marulis and Neuman (2010) have observed, research on vocabulary development has focused more on children in the early stages of reading education than on children in the preschool age group (from 2 to 4 years of age).

Children in Grade 1 show consistency in vocabulary size (Verhoeven, van Leeuwe, & Vermeer, 2011), meaning that their earlier vocabulary scores predict later vocabulary knowledge. However, studies suggest that preschool vocabulary scores are not yet as consistent over time (Feldman et al., 2000). Significant variability in preschool¹ children's vocabulary size has been shown (Fenson et al., 1994). Similarly, a study by Le Normand, Parisse, and Cohen (2008) showed a large variation of productive vocabulary knowledge among 3-year-old girls. This might indicate that, at a young age, vocabulary does not predict later vocabulary scores as strongly as it does in older children. Because preschool vocabulary scores may be less predictable, context factors may have a greater impact on vocabulary development for preschoolers than for older children. In the present study we focus specifically on the role of child, home and institutional predictors of preschool Dutch vocabulary growth.

Individual differences in vocabulary development can, for example, be explained by children's age (Fenson et al., 1994) and gender, with girls outperforming boys (Stokes & Klee, 2009), although effect sizes for gender are usually found to be small (Driessen & van Langen, 2007). Besides individual child characteristics, such as age and gender, family context may also affect vocabulary development, through factors such as socioeconomic status (SES) and family background. Numerous studies have shown that children from low SES families have a smaller vocabulary than children from middle to high SES families (Hoff, 2003; Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009). Social Capital Theory would entail that the impact of SES is due to a lack of opportunity for parents to provide their children with a stimulating language environment (Bourdieu, 1986). Hart and Risley (1995, 2003) showed that children in low SES families hear fewer different words than those in high SES families, which influences their vocabulary acquisition rate and size. Parents also varied in quality of language input. This may result in a higher risk of vocabulary delay at primary school (Dickinson, Darrow, & Tinubu, 2008).

In addition, family background may impact children's second language (L2) vocabulary development (Leseman, 2000; Puma et al., 2010). Many children from families with a non-native Dutch background in The Netherlands are sequential bilinguals, learning their mother tongue first, and Dutch at (pre)school entry. Learning two languages, either sequentially or simultaneously, poses challenges for the child. In many non-native families, the minority language is spoken more often, leaving children with fewer opportunities to encounter, use and practice the L2 language (Scheele, Leseman, & Mayo, 2010). According to the interdependency hypothesis (Cummins, 1979) a good L1 proficiency can be beneficial in learning the second language. Indeed, research shows positive effects of being

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¹ Although Fenson et al. (1994) did not use the term preschoolers, we synchronized the terminology in this manuscript and use 'preschoolers' to capture all children between 24 and 48 months.

bilingual (Scheffner-Hammer, Lawrence, & Miccio, 2007). However, studies do point out smaller L2 vocabulary sizes as a consequence of limited L2 exposure (Mancilla-Martinez & Vagh, 2013). This lower L2 vocabulary is hard to compensate for during primary school (Verhoeven, 2000) and may prove problematic, because the child needs particular L2 vocabulary to communicate with the teacher, and to learn to read and write. A further challenge for non-native children in learning both L1 and L2 vocabulary is that they often have a low SES background which itself is a factor in reduced vocabulary.

Another influential factor is the institutional setting children experience. In The Netherlands children attend preschool from two to four years of age, where qualified teachers encourage and supervise educational play. Children attend Kindergarten from four to six years of age before progressing to Grade 1. Once children attend (pre)school, contextual factors outside the family have an additional influence on vocabulary acquisition. Tavecchio (2008) argued that preschool education quality is an important predictor of vocabulary growth. Also, higher quality child care is found to be related to higher verbal scores in young children (Burchinal, 2000). Sylva, Melhuish, Sammons, Siraj-Blatchford, and Taggart (2011) concluded that average and high education quality had a positive impact on children's educational attainment at 11 years of age.

Educational quality within a preschool group improves, among others, when teachers are more educated and have more experience (Darling-Hammond & Youngs, 2002; Pianta et al., 2005). The quality of preschool education is also increased by using an Early Childhood Education (ECE) program to enhance children's academic skill development (Burger, 2010). ECE programs enhance preschool quality by including activities such as repeated (dialogic) story book reading, providing a rich and meaningful context and provide implicit and explicit learning experiences. ECE programs aim to contribute to higher Grade 1 entry levels for children with a non-native background and/or a low SES. Studies have shown positive effects of ECE programs on vocabulary development (Gorey, 2001; Marulis & Neuman, 2010; Scheffner-Hammer et al., 2007). However, results are equivocal and effects are small (Barnett, 2008; Howes et al., 2008). Partly, this may be explained by differences between types of ECE program used. First, ECE programs vary in the amount of pre-structuring of the language stimulation activities. Less structured, child-directed ECE programs have less explicit educational content. Teachers monitor the children's interests and abilities and adjust the educational content and pace accordingly. Teacher-directed programs have a more predetermined content and lesson plans, where the program states what content will be taught, by means of what specific activities, and at what rate. With regard to stimulating language development these programs use a more scripted, direct instruction which is focused on specific skills. Second, teacher-directed ECE programs frequently use developmental tests. If children show indication of a delay, the ECE content is adapted. Child-directed programs have a more informal monitoring system, which is less invasive, but makes it more difficult to assess whether the child is developing at a typical rate (Veen, Roeleveld, & Leseman, 2000). Studies suggest that structured, i.e. more teacher directed, ECE programs are more beneficial to children's language development (Barnett, 2011).

Although differences in early vocabulary development are associated with multiple factors at child, family and institutional care levels, a multiple-factor approach in explaining individual variation in vocabulary growth in preschoolers is generally lacking. A recent study by Ebert et al. (2013) included several influential components of young children's vocabulary development, such as working memory, preschool promotion of language, preschool class size, and mothers' education. This study showed that child, family, and preschool characteristics play a role in initial vocabulary level and development, but that language promotion did not show a significant effect on vocabulary level and development. Preschool language promotion was operationalized by Ebert and colleagues as *whether* a preschool provided some sort of language

promotion, not *how* language promotion was executed within the preschool (for example by means of an ECE program). This limits consideration of why there was no significant effect of language promotion on vocabulary. Therefore, this study aims to provide a multi-factor analyses of Dutch preschool vocabulary development at three years of age in relation to child, family and institutional factors. As SES and family background are often confounded this study aimed to map the separate influence of these factors on vocabulary development. Furthermore, this study focused on the educational content through ECE programs, as using an ECE program fosters language development by means of a clear well-considered curriculum for a considerable amount of time. Different types of ECE program, teacher-directed and child-directed programs, were taken into account as these programs have some differences in their language stimulation approach.

The questions addressed were:

- (1) What is the effect of SES and non-native background on preschool vocabulary growth?
- (2) To what extent does early preschool vocabulary predict later preschool vocabulary development?
- (3) To what extent do child characteristics, family context, and preschool context predict vocabulary growth?

It was expected that children from high SES and/or native Dutch background families would have higher vocabulary scores than children from low to middle SES and/or non-native background families (Hart & Risley, 1995; Feldman et al., 2000; Pan, Rowe, Spier, & Tamis-Lemonda, 2004). We further expected initial preschool vocabulary scores to be moderately predictive of later preschool vocabulary scores (Fenson et al., 2000). Finally, we expected preschool context factors, through an increased preschool quality, to have an additional effect on preschool vocabulary, with a higher teacher education, more teacher experience and use of an ECE program being predictive of higher vocabulary scores (Tavecchio, 2008).

2. Method

2.1. Participants

Dutch preschool organizations were approached for participation in the study, of which 46 preschools (64 preschool groups) agreed. Children were selected based on their age (from 2.5 to 3.5 years of age) at first testing and the children had to attend preschool for at least the following nine months, resulting in a total of 385 preschool children (mean age = 35.8 months, SD = 3.6 months, 48.3% girls). We followed the Dutch Central Bureau for Statistics (Centraal Bureau voor de Statistiek [CBS], 2009) in their definition of children from a non-native background family as those of whom one or both parents were born in a country other than The Netherlands. Accordingly, 119 children (30.9%) were from non-native background families. Children's home languages vary. Differences in their prior experiences with the Dutch language, either as L1 or L2, are reflected in the first vocabulary measurement. SES was based on parent's highest, self-reported educational level. If the highest educational level was primary school or lower general secondary education, the SES was classed as low (19.5%). When the highest educational level was vocational training or higher general secondary education, the SES was classed as medium (37.1%). When the highest educational level was college or university education, the SES was classed as high (43.4%).

The participating preschools were situated in average sized cities in various parts of The Netherlands. The average adult-child ratio in a preschool group was 2:15. Group size varied from 12 to 18 children. Number of adults per group varied from two to three; on average 1.7 were qualified preschool teachers (ranging from one to three teachers). The majority of the teachers received vocational training (76.6%), the

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