Peer effects on the development of language skills in Norwegian childcare centers

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Abstract
Few studies have focused on the importance of peers for child language development in the preschool years. The aim of this study was to assess whether peer expressive language skills predict language ability of preschool-aged children attending Norwegian Early Childhood Education and Care (ECEC) centers. Data from the Behavior Outlook Norwegian Developmental Study (BONDS) were used, including 539 children in 57 centers. Peer expressive language at age two was not, on average, associated with child’s language ability at age four. However, belonging to a peer group with better language skills seemed to attenuate language differences due to educational background. Implications for researchers and policy makers are discussed, namely with regards to the importance of mixed ability classes and instruction strategies aimed at raising the overall competence in the peer group and not only of the less skilled students.

1. Introduction
There is a sizable empirical literature focused on both process and structural quality indicators of early childhood education and care (ECEC), including quality of instruction and features such as child:teacher ratio (e.g., Hamre, 2014; NICHD Early Childcare Network, 2002). Recently, this area of study has benefited from growing interest in peers as an important element of ECEC, a valuable addition to the cumulative knowledge given that ECEC offers many children their first experiences with peers. Among these studies investigating the roles of peers in ECEC settings, most are focused on peers’ potential effects on behavioral outcomes. Fewer studies consider how peers in ECEC influence academic and intellectual achievement, with studies of peer effects on child language being particularly scarce. With this in mind, the aim of the present study was to assess whether peer expressive language skills predict language ability of preschool-aged children attending ECEC centers in Norway, where public ECEC is nearly universally attended.

1.1. The role of peers in child development
There is a growing body of research on the importance of peers, peer culture and impact of peer relations on children’s social and cognitive development in the preschool years. Some of these studies focus on the effects of the quality of the relationship and emphasize the importance of positive interactions with peers for socio-emotional adjustment (e.g., Deynoot-Schaub & Riksen-Walraven, 2006) and early social and academic skills (e.g., Bulotsky-Shearer, Manz, Mendez, McWayne, Sekino, & Fantuzzo, 2012). There has been also emphasis on the effects of negative peer play on externalizing behavior (e.g., Silver, Messele, Armstrong, & Essex, 2010) lack of motivation, passivity, and inattention (e.g., Coolahan, Fantuzzo, Mendez, & McDermott, 2000) and difficulties in literacy and language (e.g., Bulotsky-Shearer, Bell, Carter, & Dietrich, 2014). The quality of play with peers has also been investigated as a mediator, for example in the relation between problem behavior and academic outcomes (e.g., Bulotsky-Shearer, Bell, Romero, & Carter, 2012; Bulotsky-Shearer, Bell, Romero, & Carter, 2014).

Another line of research has focused on the impact of the characteristics of peers themselves (peer effects). Peer effects have been demonstrated in several domains such as intellectual ability and preschool competency (e.g., DeLay, Hanish, Martin, Lynn, & Fabes, 2015). Hanushek, Kain, and Rivkin, (2003) found that peer achievement has a positive effect on children’s achievement growth. Zimmer and Toma (2000) corroborated the finding that peer effects are a significant determinant of educational achievement, and that this effect appears to be greater for low-ability students. Evidence has also been
gathering that exposure to aggressive peers may contribute to negative behaviors (e.g., Boivin, Vitaro, & Poulin, 2005; Chung-Hall & Chen, 2010; Hanish, Martin, Fabes, Leonard, & Herzog, 2005; Yudron, Jones, & Raver, 2014). Snyder, Horsch, and Childs (1997) found that the congregation of moderate to severely aggressive peers was associated with increased aggression and multiple problem behaviors (Hanish et al., 2005). These findings have been consistent with the contagion hypothesis suggesting that the impact of peer behavior on processes of peer socialization is already happening in early friendships. Aspects such as modeling and social learning behaviors and more general peer culture have been proposed as possible pathways (e.g., Hanish et al., 2005). Peer effects on language have been less investigated, but a number of studies lend support to the importance of peers, also for language development in preschool ages.

1.2. Peer effects on language development

The development of language comprehension and expression is an important milestone in the preschool years, laying crucial foundations for reading and comprehension skills and predicting later language and academic achievement (e.g., Storch & Whitehurst, 2002). Addressing peer influences on language is an important aim due to the long-term impact of language difficulties in children’s academic and socio-emotional development. Persistent language problems are associated with difficulties in literacy and poor school achievement (e.g., Storch & Whitehurst, 2002). In addition to compromising academic achievement, language impairment may lead to peer rejection (Litva & Gleave, 2005) and is associated with increased risk of hyperactivity, depression and other mental health problems (Beitchman et al., 2001).

While intellectual and genetic factors play an important role in language acquisition, language growth is dependent on exposure to verbal inputs (Dieterich, Assel, Swank, Smith, & Landry, 2006; Hart & Risley, 1995; Hirsh-Pasek et al., 2015). Children’s linguistic environment impacts on language acquisition via exposure to language quantity, lexical richness, and syntactic complexity (Hoff & Naigles, 2002; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). In fact, home environment and associated variables such as maternal education and SES explain substantial amounts of variance in children’s language achievement (Hart & Risley, 1995; Hoff, 2006). Moreover, language inputs provided by school teachers have been found to influence children’s language skills (e.g., Wasik, Bond, & Hindman, 2006). Beyond adults, peers may play an important role in the early language environment as well and are important aspects in understanding children’s social and cognitive development (Cekalte, Blum-Kulka, Grover, & Teubal, 2014). Peers’ expressive language, in particular, is regarded as crucial in acquiring language skills. Evidence comes from observation studies and from the field of second language learning from countries like the US where it is common that immigrant children acquire English exclusively from exposure to the new language in the preschool (Blum-Kulka & Snow, 2004).

Children in ECEC settings spend considerable time interacting with their peers during free-play and through instructional methods that deemphasize teacher-directed instruction (Henry & Rickman, 2007). There are a number of possible paths through which peer skills can influence achievement, and more specifically language development. Peer effects can operate either directly, when peers stimulate skill development by providing linguistic inputs, or indirectly when the peer group is comprised of children who behave better and who are more motivated. This fosters a classroom environment more favorable to learning since it allows teachers to focus their attention on stimulating activities. In the same way, classes where children are linguistically more advanced allow for increased standard and quality of teaching and teacher linguistic inputs (e.g., Wilkinson & Fung, 2002).

Some studies have documented significant peer effects on language skills. Henry and Rickman (2007) examined a sample of Head Start four-year-olds and found that the ability of the peers in the child’s classroom had direct positive effects on the child’s cognitive skills, pre-reading skills, and expressive language. The evidence is similar when using more generalized peer ability measures as the exposure variable. For example, peers’ self-regulation skills have been associated with students’ academic gains, with peer effects predicting children’s growth in passage comprehension as well as vocabulary growth (Skibbe, Phillips, Day, Brophy, & Connor, 2012).

Another important aspect to be taken into account in peer research is that peer effects on language may vary according to initial level of language ability. Although results are somewhat mixed, the most common finding is that preschoolers with weaker skills benefit most from exposure to competent peers, whereas highly skilled students have been reported to be less responsive to the effects of peer achievement (e.g., Hanushek et al., 2003). For language in particular, studies have found that children with lower language skills benefit more from exposure to peers with better expressive language when compared to children with higher language skills (Hanushek et al., 2003; Justice, Petcher, Schatschneider, & Mashburn, 2011). In a similar study, peer effects specific to language growth were assessed in a sample of preschoolers, with 55% of the children having disabilities. The average language skills of classmates assessed in the fall of the academic year significantly predicted children’s language skills in the spring. Moreover, peers’ language skills were more consequential for children with disabilities (Justice, Logan, Lin, & Kaderavek, 2014). However, the opposite effect, that children with relatively advanced language skills may benefit more from sharing a classroom with other advanced peers (Mathew Effect) has also been found (Mashburn, Justice, Downer, & Pianta, 2009).

The effect of standing in relation to peers can also have an impact on language outcome, with differential effects for children who start off with lower versus higher language skills (e.g., Justice et al., 2011). This effect is somewhat akin to the well-studied phenomenon of the big-fish-little-pond-effect often used to illustrate the relation between self-concept and peers’ skills in educational research. Equally competent students have lower academic self-concepts when attending schools where average ability is high (e.g., Marsh & Hau, 2003). In the same way it has been found that children might be affected differently by their peers dependent upon children’s language status in the group. For example Justice et al. (2011) found that children whose language skills were relatively high compared to their classmates in the beginning of the academic year, had higher language skills in the spring evaluation term when compared to those children whose language skills were relatively poorer. However, this difference was more consequential for children with initial lower language skills.

1.3. The compensatory role of childcare

Several programs have been developed in the US targeting groups of children from disadvantaged backgrounds (e.g, Head Start). The aim is to deliver quality preschool programs to help bridge the gap between low and high SES families. However, in the face of emerging evidence of positive peer effects, there has been a recent debate on whether it would be more advantageous to allow mixed groups where disadvantaged children could benefit from exposure to competent peers, instead of developing programs targeting solely children from disadvantaged backgrounds or forming classes based on cognitive ability (Barnett, 2010; van Ewijk & Sleegers, 2010). Less work has been done with childcare and preschool children but some evidence is emerging supporting the importance of peer groups and the compensatory effects of competent peers on child’s cognitive skills, pre-reading skills and expressive language after controlling for center care quality, family characteristics and child’s previous skills (Henry & Rickman, 2007).

The compensatory effects of high quality early education programs for children from low SES background have been demonstrated in multiple studies (e.g., Dearing, McCartney, & Taylor, 2009; Geoffroy
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