



## Full-day kindergarten and children's later reading: The role of early word reading



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### ABSTRACT

Full-day kindergarten is one means to improve the academic skills of children, particularly those at risk for academic difficulties. Full-day children generally earn higher end-of-kindergarten reading scores than those in half-day. Unfortunately, the benefit of full-day programs fades shortly after kindergarten. Research, however, has not considered whether the specific reading skills children attain in kindergarten help sustain the full-day kindergarten benefit. This study examined full- and half-day kindergarten children's early word reading attainment (composite of letter knowledge, beginning sounds, ending sounds, and sight words) and its association with reading in elementary school. Full-day children were more likely to attain early word reading by the end of kindergarten which, in turn, predicted higher reading scores in first, third, and fifth grades. Early word reading attainment was associated with decreased SES-related reading gaps in elementary school.

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Far too many children in the United States, particularly those from low income, racial/ethnic minority, or non-native English speaking backgrounds, go through school lacking the necessary reading skills to be successful in later life (Lesaux, 2012; Reardon & Galindo, 2009; Reardon, Valentino, & Shores, 2012). According to the National Assessment of Educational Progress (National Center for Education Statistics, 2013), 32% of 4th graders and 22% of 8th graders scored below basic reading levels in 2013. Black and Hispanic<sup>1</sup> children generally score lower in reading than White and Asian children, and children from low SES backgrounds score lower than those from middle/high SES backgrounds (Reardon et al., 2012). These group-related differences are evident at the start of kindergarten (Arnold & Doctoroff, 2003; Snow, Burns, & Griffin, 1998; Waldfogel, 2012) and tend to increase over time (Reardon et al., 2012; Snow et al., 1998). Thus, researchers and educators have stressed the importance of addressing children's foundational reading skills during preschool and the start of formal schooling (e.g., Neuman, 2006; Snow et al., 1998) to decrease group-related differences and improve later reading skills.

Full-day kindergarten is one means educators have used to attempt to improve the early reading skills of children, especially those considered at risk for academic difficulties (DeCicca, 2007; Lee, Burkam, Ready, Honigman, & Meisels, 2006). As of 2013, 77% of kindergarten-aged children were enrolled in full-day kindergarten programs (Child Trends Data Bank, 2015). School districts generally have targeted low-

income and racial/ethnic minority children for enrollment in full-day programs; thus, children who are low-income, Black, or English Language Learners (ELL) have been more likely than other children to attend full-day kindergarten programs (Lee et al., 2006; Walston & West, 2004). Although studies consistently find higher achievement of full-day kindergarten children relative to half-day counterparts, it is unclear whether the benefits extend beyond kindergarten and, if so, for how long (e.g., DeCicca, 2007).

Research on full-day kindergarten has focused primarily on children's overall reading performance during the kindergarten year (Walston & West, 2004; Zvoch, Reynolds, & Parker, 2008). However, this research does not typically address the reading skills that children acquire during kindergarten, particularly as it relates to full- and half-day students' later reading (Cannon, Jackowitz, & Painter, 2006; Votruba-Drzal, Li-Grining, & Maldonado-Carreño, 2008). Documenting the reading skills learned in kindergarten is pertinent for understanding children's subsequent reading development. Is attaining certain foundational reading-related skills associated with decoding and word recognition in kindergarten positively related to full-day attendance? And, if so, is attainment of these foundational reading skills during kindergarten associated with subsequent reading skills in elementary school? The present study focuses on the reading skills that full- and half-day children acquire during kindergarten and their association with reading performance in the elementary grades. Data come from the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K), a nationally representative dataset (Tourangeau et al., 2009). Our review begins with a brief history of kindergarten in the United States followed by a review of skills pertinent to children's reading development. Finally, we discuss the relation between full-day kindergarten and children's reading development.

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<sup>1</sup> The term Hispanic is used rather than Latino to be consistent with ECLS-K and U.S. Census designations.

### *The importance of kindergarten*

The role kindergarten should play in children's education has been debated for almost two hundred years (Lee et al., 2006; Zvoch et al., 2008). A commonly debated issue is the extent to which kindergarten programs should focus on social/emotional and/or academic development (Cannon et al., 2006). Another issue is whether all children or only those considered at risk for academic difficulty should attend full-day kindergarten.

Kindergarten in the U.S. began as an opportunity for children to develop social skills (Lee et al., 2006). The original programs were full-day but were changed to half-day during World War II due to teacher shortages. Since the 1970s, there has been an increasing emphasis on fostering children's academic development during kindergarten. This, of course, leads to questions of what kind of instruction, and how much (full vs. half-day kindergarten) is optimal for children's learning? Are the benefits of instruction equally optimal for all children?

Although there has been extensive research on the effects of kindergarten (see Lee et al., 2006; Votruba-Drzal et al., 2008 for reviews), we still lack sufficient evidence to fully determine whether there is a long lasting academic benefit for full-day kindergarten and, if so, whether it varies across demographic groups (Lee et al., 2006). Nevertheless, educational jurisdictions are increasingly adopting full-day kindergarten programs (Cannon et al., 2006; Clark & Kirk, 2000; Votruba-Drzal et al., 2008). The percentage of children enrolled in full-day kindergarten increased from 28% in 1977 to 77% in 2013 (Child Trends Data Bank, 2015). In 2012, eighty-three percent of children in the South and 80% in the Midwest were enrolled in full-day kindergarten compared to 71% in the Northeast and 63% in the West. Differences in enrollment in full-day programs as a function of demographic background (parents' education, race/ethnicity) have decreased (Child Trends Data Bank, 2015). Given that so many jurisdictions now implement full-day kindergarten, a clearer understanding about its effectiveness is needed.

With an increasing focus on academic development in recent years, much of the research on the effectiveness of full-day kindergarten programs has focused on children's reading development (Lee et al., 2006; Votruba-Drzal et al., 2008; Zvoch et al., 2008). Understanding the nature of early reading skills and how they develop over time will lend insight into the long-term reading achievement of full- and half-day kindergartners.

### *Children's reading development*

Learning to read requires mastery of a range of skills including oral language, decoding and word recognition, and vocabulary and conceptual knowledge (Ehri & Roberts, 2006; NICHD-ECCRN, 2005a; Snow et al., 1998; Whitehurst & Lonigan, 2001). Research on reading has shown the importance of letter knowledge, phonological awareness, and print knowledge for subsequent decoding and word recognition skills (Adams, 1990; Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012; Kaplan & Walpole, 2005; Morris, Bloodgood, & Perney, 2003; National Early Literacy Panel, 2008; National Reading Panel, 2000; Shapiro, Carroll, & Solity, 2013; Snow et al., 1998; Stanovich, 1986).

Although learning to read requires more than just acquisition of decoding-related skills (Snow et al., 1998), reading difficulties in early elementary school often can be traced back to difficulties acquiring these early reading-related skills (Hulme et al., 2012; Juel, 1988; Serpell, Baker, & Sonnenschein, 2005; Snow et al., 1998). Thus, Snow et al. (1998), in their seminal book, as well as others, have stressed the importance of children in kindergarten developing letter knowledge and phonological awareness (see also Duke & Block, 2012), key components of early word reading that are foundational for subsequent reading development.

Mastering early reading-related skills by the end of kindergarten or start of first grade predicts later word recognition and, in turn, reading comprehension (Betts et al., 2008; Kaplan & Walpole, 2005;

Morris et al., 2003; Scanlon & Vellutino, 1996). For example, Storch and Whitehurst (2002), studying low-income children, showed the relation between what they called code skills (letter knowledge, phonological awareness; Whitehurst & Lonigan, 2001) in preschool and kindergarten, and subsequent reading development (including reading comprehension) in elementary school. Phillips and Torgesen (2006) reviewed research showing the relation between phonological awareness during preschool and kindergarten and later reading fluency (see also Ding, Richardson, & Schnell, 2013; Ehri & Roberts, 2006). Kaplan and Walpole (2005) found that low-income kindergartners who were proficient in letter knowledge and phonological awareness skills and moderately proficient in recognizing simple words had comparable achievement to higher-income peers in first grade.

Given the importance of each of these early reading skills, it is particularly useful to document whether children are attaining this set of skills, or what can be considered "early word reading skills" (a combination of letter knowledge, phonological skills and some simple sight words), in kindergarten. The focus in this study was children's attainment of early word reading in kindergarten and their subsequent reading development and, in particular, differences between children in full- and half-day programs.

### *Full-day kindergarten and children's reading development*

The majority of studies on the benefits of full-day kindergarten find that children in full-day programs earn significantly higher reading scores at the end of kindergarten than those in half-day programs (Baskett, Bryant, White, & Rhoads, 2005; Gullo, 2000; Lee et al., 2006; Votruba-Drzal et al., 2008; Walston & West, 2004; Walston, West, & Rathbun, 2005; Yan & Lin, 2005; Zvoch et al., 2008). Unfortunately, however, the initial benefits for children attending full day-kindergarten do not continue through elementary school and only last, at most, through first or second grade (Gullo, 2000; Saam & Nowak, 2005; Votruba-Drzal et al., 2008; Walston et al., 2005; Wolgemuth, Cobb, & Winokur, 2006).

A meta-analysis of 655 studies comparing full-day to half-day kindergarten found that children in full-day kindergarten earned early reading scores at the end of kindergarten that were approximately one-quarter of a standard deviation above other children, even after controlling for race/ethnicity and income (Cooper, Batts Allen, Pattall, & Dent, 2010). Full-day kindergarten is beneficial even after accounting for language spoken at home, poverty status, parental education, and family structure (Cooper et al., 2010; Walston et al., 2005). Furthermore, the benefits of full-day kindergarten are apparent even though children in full-day programs start kindergarten significantly behind their half-day counterparts in terms of reading performance (Hall-Kenyon, Bingham, & Korth, 2009; Zvoch et al., 2008). Thus, not only do children in full-day programs earn significantly higher reading scores at the end of kindergarten than children in half-day programs, they also make greater gains over the course of the school year.

Some researchers have found the initial benefits of full-day kindergarten are particularly promising for children from academically at-risk groups, including Black, Hispanic, and ELL children, and children whose parents have low educational attainment and/or are low income (Walston et al., 2005; Yan & Lin, 2005). Hall-Kenyon et al. (2009) found that ELL children in full-day kindergarten had greater gains in oral language than their non-ELL peers, as well as their ELL and non-ELL peers in half-day programs. Furthermore, Walston et al. (2005) found that there was less of a difference in growth rate between ELL and native English speakers in full-day than half-day programs when examining children's trajectories from kindergarten through the elementary grades. Black and Hispanic, and lower-income full-day students generally have significantly higher achievement than their half-day counterparts, according to district, state, and national data (Education Commission of the States, 2005). Other researchers, however, find no differential benefit of full-day kindergarten, with all children benefitting from full-day programs regardless of demographic characteristics (Cannon et al., 2006;

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