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Activity settings in full-day kindergarten classrooms and children's early learning

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ABSTRACT

Using data from the Early Childhood Longitudinal Study Kindergarten Class of 2010–2011 (n = 10,620), we examined the diversity in full-day kindergarten activity settings across the nation. Recognizing that patterns of activity use may be more important than any single activity, we used person-centered modeling to identify five activity profiles: high whole group, high small group, high individual, distributed activities, and high child selected. Children enrolled in the high whole group classrooms demonstrated the greatest gains in literacy skills during kindergarten, whereas for mathematics, children in both the high small group and high whole group classrooms demonstrated greater gains. Classrooms that had more opportunities for child-selected activities, however, promoted greater improvements in children's cognitive flexibility. These findings point to the potential of person-centered methods in identifying different groups of classrooms that share common practices.

1. Introduction

The kindergarten year is increasingly viewed as a critical developmental period for shaping children's short- and long-term well-being (Duncan et al., 2007; Entwisle & Alexander, 1989). In recent decades, the proportion of children enrolled in kindergarten, particularly full-day programs, has dramatically increased—from 10% in 1967 to 77% in 2011 (Davis & Bauman, 2013). Not only have there been changes in the number of children enrolled in full-day programs, but the goals of kindergarten have also shifted from promoting children's natural development and serving as a transition from play to school, to facilitating children's academic learning (Bassok, Latham, & Rorem, 2016; Dombkowski, 2001). Despite the groundswell of research on kindergarten education, much of the focus has remained on the full- versus part-day dichotomy (e.g., Votruba-Drzal, Li-Grining, & Maldonado-Carreño, 2008) and on different structural and process features of classrooms (e.g., Engel, Claessens, & Finch, 2013; Hamre & Pianta, 2005), with less attention paid to the ways in which children spend their time at school. Given the large number of children enrolled in kindergarten and the changes in the emphasis of kindergarten education, identifying classroom processes within full-day programs is critical to enhancing children's prospects of success in elementary school and beyond.

The goal of this study is to examine one such aspect of kindergarten that has received little attention, namely, the different ways in which teachers structure their school days and how children spend their time engaging in different forms of activity settings. Using nationally representative data from the Early Childhood Longitudinal Study Kindergarten (ECLS-K) Class of 2010–2011, we begin by documenting how much time per day children in full-day kindergarten classrooms spend in different types of activity settings that have been central to the discourse on children's education. Next, we use person-centered techniques to document different *patterns* of kindergarten activity settings. Third, we examine whether these patterns of classroom activity settings facilitate children's early learning. Finally, we consider how other classroom processes, such as instructional time and achievement groupings, map onto our typologies of classrooms. Taken together, this study can inform educational policies on kindergarten and illustrate the benefits of person-centered techniques in empirically identifying different typologies of kindergarten classrooms that share common practices.

1.1. Kindergarten activity settings

Although there are a variety of ways in which children can spend time in classrooms, there has been limited guidance on how much

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time children in kindergarten classrooms should spend in different types of activities, which are generally split into six domains: (a) teacher-directed whole class activities; (b) teacher-directed small group activities; (c) teacher-directed individual activities; (d) child-selected activities; (e) meal time; and (f) outdoor time (Chang, 2008; Chien et al., 2010; Early et al., 2010; Fuligni, Howes, Huang, Hong, & Lara-Cinisomo, 2012). While there is not a consensus as to how long children should spend in these daily activities or how teachers should design their instructional practices to create an optimal mix of activities for children, there is a stronger agreement that teachers should use a variety of strategies that are developmentally appropriate (Heroman & Copple, 2006). Despite the lack of evidence-based guidance, there have been significant shifts in kindergarten activity settings over the last 20 years, such that children are spending less time in child-selected activities and outdoors, and more time in whole class instruction (Bassok et al., 2016; Miller and Almon, 2009). The lack of guidance on the optimal amount of time children should spend in different activity settings coupled with the increased emphasis on academics and reliance on teacher-directed instruction in kindergarten, necessitates a closer inspection of how teachers structure their kindergarten classrooms.

Whole class activities are generally teacher-initiated and can encompass a variety of activities such as story time, singing songs, and classroom discussions that are designed to engage all students in the same activity. A few prior studies have found that teachers often view large group settings as time for academic instruction (Cabell, DeCoster, LoCasale-Crouch, Hamre, & Pianta, 2013; Early et al., 2010; Winton & Bussye, 2005). In contrast, teacher-directed small group activities, in which the teacher is typically interacting with only a few children, allow teachers more opportunities to be responsive to children's specialized needs and for children to be more engaged in the classroom (Camilli, Vargas, Ryan, & Barnett, 2010). Across both sets of activities, peer interactions are less frequent (Vitiello, Booren, Downer, & Williford, 2012). The empirical evidence behind the academic benefits accrued from small group and whole group instruction is equally mixed. For example, some scholars have found positive impacts of time spent in small group instruction on children's early learning (Camilli et al., 2010; Lou et al., 1996; Piasta & Wagner, 2010), whereas others have documented no differences across the two methods of instruction (Milesi & Gamoran, 2006; Wrabel, Gottfried, & Polikoff, 2015). These differences across studies likely reflect the different purposes and advantages of small group (e.g., scaffolded and individualized learning opportunities) and whole group instruction (e.g., the introduction of new topics) and suggest that continued effort is necessary to address some of these inconsistencies. The third type of teacher-directed instruction is individual activities, whereby children work independently on projects and teachers can assist children individually. Children who spend more time in individual activities can make greater gains in areas of academics, possibly because these activities allow children to work at their own pace and skill level (Chien et al., 2010). However, one study found that structured teacher-directed activities (whole group, small group, and individual time) during the early elementary school years resulted in higher levels of behavior problems (NICHD Network, 2003).

Unlike teacher-directed activities, child-selected activities (also referred to as free choice) are rooted in educational philosophies that underscore children as active, rather than passive, learners (Miller & Almon, 2009). During child-selected activities, children are allowed to choose what activities to be involved in with less direct input from teachers; thus, teachers are facilitators rather than instructors. Despite of the underlying educational philosophies in support of child-selected activities, prior research has shown that children who experience more time in these settings have lower test scores at the end of preschool and kindergarten when compared with children who spend more time in whole group activities and children who experience more frequent individual instruction (Chien et al., 2010; Fuligni et al., 2012; Goble & Pianta, 2016; Wrabel et al., 2015). Work by Winton and Bussye (2005) with preschool-aged children suggests that these differences may be attributed to the fact that teachers do not maximize the opportunities during free choice to interact with children and foster enriched learning. However, when teachers do maximize these opportunities during free choice and show adequate instructional and emotional support, children have been found to demonstrate strong gains in areas of language and literacy (Goble & Pianta, 2016).

Unlike the other types of activities, the implications of child-selected activities for children's social-emotional development have not been as rigorously tested. Furthermore, children's executive functioning and self-regulation has largely been excluded from the literature on classroom time use. Executive functioning is a set of cognitive skills—which refers to inhibitory control, focused attention, working memory, and cognitive flexibility—that enables goal-directed behavior, contributes to self-regulation and has been linked to children's school readiness and achievement (Blair & Razza, 2007; Blair, 2002; Welsh, Friedman, & Slieker, 2011). The active nature of child-selected activities may provide opportunities for practicing, and potentially developing executive functioning skills, across the school year. Indeed, the one study to examine classroom time use and children's executive functioning found that children who spent more time in free choice (child-selected) activities made greater gains in inhibitory control across the school year (Goble & Pianta, 2016).

The value of outdoor time has also been contested, particularly in the current era of heightened accountability (Henley, McBride, Milligan, & Nichols, 2007). Despite these debates, there is a growing body of evidence to suggest that outdoor time does not harm children's academic achievement (Ansari, Pettit, & Gershoff, 2015; Dills, Morgan, & Rotthoff, 2011) and, in some cases, can be beneficial for children's development of language and literacy skills potentially because children become less attentive after exposure to long-periods of instruction (Yesil Dagli, 2012). Moreover, children who spend less time outdoors during the school day may demonstrate increased behavior problems (Ridgway, Northup, Pellegrin, LaRue, & Hightsoe, 2003). In comparison, children's time spent at lunch has received little attention and its relations to children's early learning and social emotional development remain unexplored. This lack of empirical inquiry is likely due to the limited learning activities that occur during mealtime (Early et al., 2010).

1.2. Person-centered methods in identifying classroom typologies

Much of the existing empirical inquiry into classroom activity settings, including those discussed above, have often relied on variable-centered techniques, with scholars examining how different aspects of the classroom environment individually shape children's development (e.g., Goble & Pianta, 2016; Milesi & Gamoran, 2006; Wrabel et al., 2015; Yesil Dagli, 2012). Yet, the way in which children spend their time in classrooms across different activity settings can (and do) vary systematically, and often substantially, beyond sample averages. That is, teachers couple different sets of instructional activities together to facilitate children's early learning, and the ways in which teachers' mix these activities can vary from one teacher to the next. Person-centered procedures offer a window of opportunity to capture such heterogeneity with respect to the overall differences in children's experiences as opposed to differences in any one given factor (Hoff & Laursen, 2006; Lanza & Cooper, 2016; Magnusson, 2003). Indeed, one of the goals of person-centered techniques is to identify gen-