

Examining the Quality of Part-Day and Full-Day Kindergartens in Looking at Children's Academic Outcomes

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Abstract

While the popularity of full-day kindergarten has increased in recent years in the United States, extant research yields inconclusive evidence as to whether full-day kindergarten is more beneficial to children as compared to part-day kindergarten. Previous studies have primarily focused on the quantity, rather than the quality, of instruction. In this study, we examine the quality of instruction and teacher interaction in both full-day and part-day kindergarten classrooms and its relationship to child outcomes at the end of the kindergarten and first grade. Our findings indicate that different aspects of classroom quality may be more salient than the length of the day when examining variance in children's outcomes. Looking more closely at what actually takes place during the school day will help policymakers and other stakeholders make better-informed decisions when to come to determining policies around children's instruction.

Keywords : academic outcomes, full-day kindergarten, kindergarten quality, part-day kindergarten

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In recent years, the popularity of full-day kindergarten in the United States has increased among both families and the school system. Considered to be the first year of formal education for most children in the United States, kindergarten is commonly defined as a year-long formal program in a school or school-like setting which takes place the year prior to entering first grade (Cooper, Allen, Patall, & Dent, 2010; Tomlinson, 2009). While in 1977, children who were enrolled in kindergarten were more likely to be enrolled in a part-day program (73%) as opposed to a full-day program (27%), by 2001 the converse was true, with 40% of children in kindergarten enrolled in a part-day program and 60% in a full-day program (Wirt et al., 2004). According to the 2009 U.S. Census Bureau Current Population Survey (U.S. Census Bureau, 2009) there were approximately 4.1 million children enrolled in kindergarten with 1,079,000 in part day and 3,023,000 in full day programming, creating approximately a 3 to 1 ratio of full-day versus part-day attendance. This increase in enrollment is related to policies that support full-day kindergarten as an educational option. As of 2007, all 50 states had enacted some sort of policy allowing school districts to offer full-day kindergarten to students (Zvoch, Reynolds, & Parker, 2008). Per the National Center for Educational Statistics (NCES), nine states mandate that school districts offer full-day kindergarten, with Oklahoma mandating all districts to offer full day kindergarten in 2011-2012 school year. Of these, six mandate that age-eligible children (Arkansas – 5 years of age, Georgia – 6 years, Louisiana³⁾ – 7 years, Maryland – 6 years, South Carolina – 5 years, West Virginia-6 years) attend full-day kindergarten (NCES, 2011).

Yet, wherefore full-day kindergarten? The research on the efficacy of full-day kindergarten remains inconclusive, with research demonstrating positive, negative, and sometimes no effects of full-day programs as compared to their part-day counterparts in terms of proximal and distal outcomes (Ackerman, Barnett, & Robin, 2005; Cooper et al., 2010; Holmes & McConnell, 1990; Lee, Burkham, Ready, Honigman, & Meisels, 2006; Puelo, 1988; Walston & West, 2004). Unfortunately, little extant research has offered an in-depth analysis of the *quality* of full-day kindergarten. Generally, full-day versus part-day kindergarten has been treated as a dichotomous variable, with length of the school day being the primary focus without paying much attention to what happens during the school day. This has resulted in a

³⁾ Children must attend kindergarten before attending first grade unless they have satisfactorily passed an academic screening administered by the city or parish school system (LA R.S. 17:151.3).

loss of information on differences between full-day and part-day programming and eliminating entirely the within-group variance of both kinds of programming. This reductionist approach to assessing the efficacy of full-day kindergarten has resulted in policies being made based on mixed research findings that have not taken into consideration what *actually* takes place during the kindergarten school day. For instance, characteristics related to the quality of the program and/or the quality of instruction may bear more significance on children's outcomes, rather than the length of the school day alone. An examination of kindergarten quality becomes especially important given that funding for full-day kindergarten is in fact dwindling (Kauerz, 2010). Thus, this current study is designed to examine the quality both within and between part-day and full-day kindergarten classrooms in order to see whether the quality of the children's day plays a role in children's academic outcomes, in addition to the effects of the length of the kindergarten day.

Pros and Cons of Full-Day Kindergarten

With an increased emphasis on high-stakes testing and ensuring that all children are meeting state and federal benchmarks for learning, kindergarten has been discussed as an important mechanism to both support academic success and ameliorate achievement disparities. On the surface, the push for full-day kindergarten appears logical: if children are given more time in school, they will hopefully have more opportunities for learning (Elicker & Mathur, 1997; Kauerz, 2010). Therefore, lengthening the kindergarten day would seem to be a viable and relatively easy strategy for boosting school achievement. Allowing time for more developmentally-appropriate practice and an integrated curriculum, as well as increasing instructional time for teachers may allow children to meet the higher demands for student performance and its trickle-down effects to kindergarten (Elicker & Mathur, 1997; Kauerz, 2010). Proponents of full-day kindergarten also cite benefits such as easing child care burden and reducing initial achievement gaps (Ackerman, Barnett, & Robin, 2005; Elicker & Mathur, 1997; Gullo, 1990; Kauerz, 2010; Villegas, 2005)

For critics of full-day kindergartens, there are just as many reasons as to why full-day kindergarten is not any more beneficial than part-day kindergarten for children. Commonly cited issues include that children may be more tired by lengthening the school day, and thus

may not be able to focus and learn for an extended period of time (Elicker & Mathur, 1997). Following from this is the argument that because children would not be ready for a six-hour instructional day, kindergartens would be in the position of providing child care (Elicker & Mathur, 1997). Others point out that lengthening the school day does not necessarily mean the quality of instruction is changed for the better (Burts et al., 1992; Elkind, 2006). In fact, those concerned by the developmentally inappropriate programming found in some kindergarten classrooms, fear that the stress of already-inappropriate curriculum approaches may be increased in lengthening the school day (Burts et al., 1992; Elkind, 2006). A final argument is that full-day kindergartens cost more money to run (Lee, et al., 2006; Plucker et al., 2004; Walston & West, 2002).

Whether supportive of full-day kindergarten or detracting from it, much of the writing about full- versus part-day kindergarten is based on beliefs rather than actual research evidence. When the extant research looking at this issue is examined, however, it focuses primarily on the length of the school day, with mixed outcomes for student achievement, which we will discuss in the following section.

Outcomes for Students Attending Full-Day Kindergarten

One way to consider the effectiveness of full-day kindergarten is to look at students' outcomes, both proximally and distally. When examined in this way, there appears to be a range of results for the effects of full-day kindergarten on children's academic outcomes. Some research reports no differences in some academic outcomes between children enrolled in full-day kindergarten and part-day kindergarten (Hall-Kenyon, Bingham, & Korth, 2009; Holmes & McConnell, 1990). However, other studies report generally positive findings in a variety of academic domains by the end of the kindergarten year, including in literacy and language arts (Ackerman et al., 2005; Cannon, Jacknowitz, & Painter, 2006, 2011; Da Costa & Bell, 2000; Hall-Kenyon, Bingham, & Korth, 2009; Lee et al., 2006; Votruba-Drzal, Li-Grining, & Maldonado-Carreño, 2008; Walston & West, 2004; Woglemuth, Cobb, Winokur, Leech, & Ellerby, 2006; Zvoch et al., 2008), and math (Ackerman et al., 2005; Cannon et al., 2006; Holmes & McConnell, 1990; Hough & Bryde, 1996; Lee et al., 2006; Votruba-Drzal et al., 2008; Walston & West, 2004; Woglemuth et al., 2006). In some cases, the benefit of full

day kindergarten was seen primarily for children from disadvantaged backgrounds (Ackerman et al., 2005; Schroeder, 2007), while other studies report no such differences between children (Cannon et al., 2006; Lee et al., 2006; Walston, West, & Rathbun, 2005).

When considering the distal effects of full-day kindergarten, many of the initial academic benefits seen for students at the end of kindergarten partially disappear by first grade (Cannon et al., 2006; DeCicca, 2007; Votruba-Drzal et al., 2008; Woglemuth et al., 2006), and were largely eliminated by third grade (Cannon et al., 2006). Other studies (e.g. Walston et al., 2005) only found longitudinal differences for children whose family's primary home language was not English, while other research (e.g. Cannon et al., 2011) has indicated that any benefits for such children was found only at the end of the kindergarten year, but not at the end of first or second grade. Some studies did report longitudinal findings in the positive direction, with girls having increased math scores that persisted through third grade (Cannon et al., 2006), while some others reported longitudinal findings in the negative direction, with both boys and girls showing poorer math performance in fifth grade (Le, Kirby, Barney, Setodji, & Gershwin, 2006).

This mixed bag of findings may be explained in part by understanding that there is a great deal of variety within kindergarten programs. For instance, when the instructional content of full-day kindergartens was examined, researchers found a variety of programming. Some full-day programs offered proportionally more child-initiated learning activity, more teacher-directed individual activity, more one-to-one instruction, and less time in teacher-directed groups than was found in part day programming (Elicker & Mathur, 1997; Hough & Bryde, 1996). On the other hand, some researchers found that lengthening the school day just meant lengthening the amount of instructional time, and that the proportion of time spent in various activities remained the same between full-day and part-day kindergartens (Walston & West, 2002). Thus, simply considering the length of the school day is not enough when assessing the effectiveness, or lack thereof, of full-day kindergarten.

Kindergarten Quality

Kindergarten is often considered to be a transition into formal schooling for young children. As such, it marks a change in school experiences for these children, with a shift towards

increased academic demands and more structured school days (Entwisle & Alexander, 1993; Pianta & Cox, 1999), as would be expected in elementary schools. However, children attending kindergarten still need programming that will meet the needs of five- and six-year-olds. Developmentally appropriate practice refers to those practices which are the most appropriate for promoting young children's development and learning (Copple & Bredekamp, 2009). Suggestions for developmentally appropriate practice in the kindergarten year include making sure that there is a balance between play, child choice, and verbal interaction as well as adult-guided activities that are adaptable to children's varying readiness levels while preparing them for more rigorous academic expectations in elementary school (Tomlinson, 2009). While kindergarten is often considered to be the first formal year of schooling for children, it is important to remain cognizant of the developmental readiness of these children and to structure classroom activities in a way that enhances children's positive approaches to learning, rather than discouraging it (Tomlinson, 2009).

There is little research looking at kindergarten classroom quality, in particular as it applies to the full-day versus part-day debate. Extant research addressing specifically addressing quality with regards to duration of kindergarten day has found no difference in instructional quality between full-day and part-day kindergarten classrooms (Hall-Kenyon et al., 2009). Other research examining kindergarten in general has found that classrooms with higher scores on indicators associated with quality, including classroom quality and teacher interactional quality, have been shown to be associated with higher academic outcomes for children (Entwisle & Alexander, 1999; Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008; Pianta, La Paro, Payne, Cox, & Bradley, 2002).

With the lack of data on kindergarten quality, some information on what may constitute quality in kindergarten is available from research on pre-kindergarten programs. Extensive research on quality in pre-kindergarten classrooms has been conducted in order to identify indicators related to positive child outcomes both in terms of academic skills and social-emotional development and hence represent quality programming (e.g. Early et al., 2007; Peisner-Feinberg et al., 2003). In general, these indicators focus on the daily instructional content (such as group size and daily schedule) and various sorts of teachers and children interactions.

Many of the indicators associated with quality, such as group size and curriculum fall under

the control of local and state legislation. Therefore, examining the quality of interactions is important given that this is an area over which teachers have direct control.

There has been extensive research in pre-kindergarten classrooms demonstrating that children learn better when instruction is somewhat individualized. In preschool classrooms, more individualized instruction in the form of actual one-on-one instruction or instruction in small groups has been shown to be more effective in terms of children's academic outcomes. Looking at instructional and emotional aspects of the classroom has been shown to explain much of the variance in children's success (e.g. Eccles & Gootman, 2002; Downer, Sabol, & Hamre, 2010; Hamre & Pianta, 2006). Thus, considering both instructional and interactional indicators of quality is important in order to gain a fuller sense of what actually takes place during the school day in order to determine whether any of these factors has an impact on student outcomes.

The Current Study

The current study, therefore, seeks to examine the instructional and interactional indicators of quality in full-day and part-day kindergarten classrooms to determine whether there are differences in instructional or interactional patterns between full-day and part-day kindergarten classrooms. We were also interested in whether any differences between full-day and part-day kindergarten classroom quality were associated with their performance on outcome measures at the end of the kindergarten year. Finally, we followed children enrolled in full-day kindergarten into first grade in order to examine whether kindergarten classroom quality predicted academic outcomes one year later.

Methods

Participants

Kindergarten classroom demographics. Data from seventeen kindergarten classrooms in a mid-Atlantic state in the United States were used in this research. Kindergartens were

defined as programs or classes for five-to-six-year-old children that served as an introduction to school and met five days per week. Full-day kindergartens met for at least five hours per day, while part-day kindergartens met for up to three hours per day, either in the morning or afternoon. We observed ten full-day kindergarten classrooms and seven part-day kindergarten classrooms. In our study, full-day kindergartens met on average for six hours per day (range = 5.2-6.7 hours) with an average class size of 20 students (range = 17-28), of whom an average of 4 students received special education services (range = 0-7) and an average of 10 were eligible for free or reduced lunch (range = 6-14). One to two teachers were assigned per classroom. Part-day kindergartens met for an average of 2.5 hours per day (range = 2.5-3.0) and had an average class size of 18 students (range = 15-24), of whom an average of 2 students received special education services (range = 0-10) and an average of 4 were eligible for free or reduced lunch (range = 0-10). One teacher was assigned to each classroom. Of the full-day kindergartens, seven of the classrooms were located in public elementary schools, two in separate early childhood centers, and one was located in a charter school. Each school was located in a different school district. Three of the districts were located in urban areas while the remaining seven were located in rural school districts. The part-day programs were similar in urban and rural dispersment.

Student demographics. There were a total of 167 students enrolled in the full-day kindergarten classrooms and 123 students enrolled in part-day kindergarten classrooms. Of the students enrolled in full-day classrooms, 92 (51.7%) were Caucasian, 50 (28.1%) were African-American, 24 (13.5%) were Hispanic, and 1 (.6%) was Asian/Pacific Islander. Eighty-seven (48.9%) students were female and 91 (51.1%) male. Seventy-seven (43.3%) students were eligible for free/reduced lunch. Of the students enrolled in part-day classrooms, 78 (62.9%) were Caucasian, 24 (19.4%) were African-American, 18 (14.5%) were Hispanic, and 3 (2.4%) were Asian/Pacific Islander. Sixty-seven (54.0%) students were female and 56 (45.2%) were male. Twenty-two (17.7%) students were eligible for free/reduced lunch.

Measures

This study used observational time sampling data in order to capture data on instructional

and interactional quality that took place during the school day. Classrooms were observed using a modified version of the Emerging Academic Snapshot (Snapshot: Ritchie, Howes, Kraft-Sayre, & Weiser, 2002) an observational tool developed by a group of researchers at the University of California-Los Angeles and subsequently used by the National Center for Early Development & Learning (NCEDL) in their multi-state study of pre-K and State Wide Early Education Programs (NCEDL, 2005). Observers were trained on the Snapshot in two training sessions, each lasting about 7 hours. Following the initial group training, observers conducted pilot observations in pairs. Then the second training was to establish inter-rater reliability. All observers achieved above 86% agreement on using the snapshot tool.

In kindergarten, students' academic outcomes in literacy development were assessed at the end of kindergarten. Children in full-day kindergarten classrooms were also assessed a year later at the end of first grade in terms of literacy development as well as general academic outcomes.

Classroom observations. Data regarding instructional and interactional content were collected using a modified version of the Emerging Academics Snapshot (Snapshot: Ritchie, Howes, Kraft-Sayre, & Weiser, 2001), which measures children's classroom engagement in capturing their moment-to-moment activities. Five children were randomly chosen from each classroom for observation purposes. Each Snapshot observation cycle consisted of watching one child at a time for 20 seconds, followed by a 60-second coding period. After completion of this observation cycle with the first child, the observer would move on to the following children one at a time. After one observation cycle was completed on each child, the observer re-commenced the observation cycles with the first child. Observations were repeated for the duration of the instructional day for three different days for each classroom, resulting in a total of 4462 observations (PDK: $N_{observations} = 2102$, FDK: $N_{observations} = 2360$). For this study, we focused on *Group Size* and *Classroom Activity* as indicators of instructional quality and *Adult Interaction* and *Cognitive Complexity* as indicators of interactional quality, given that these map onto measures of interactional and instructional quality most often examined in preschool classrooms.

The observers were a group of teachers and administrators with experience in public school settings. They were all trained on the use of the Snapshot instrument at a one day training

session provided by one of the authors and all observers were paired and field tested on site. They then attended the follow up training with the field test data and obtained at least an .80 reliability when compared with a second observer.

Instructional quality. Two categories on the Snapshot, *Classroom Activity* and *Group Size*, were selected for use as measures of instructional quality. Each of these categories was mutually exclusive, in that only one code, namely the one seen for the majority of the observation period, could be applied to each category during each 20-second observation period.

Classroom Activity reflected the period of time in the daily schedule that the child was experiencing during the observation. Codes in this category include: 1) Basics, if the child was engaged in toileting, standing in line, clean-up time, waiting time between activities, and/or waiting for materials to be passed out; 2) Meals-Snacks, if the child was engaged in eating lunch, breakfast, or snacks; 3) Circle Time, if the child was engaged with other students in a teacher-initiated activity (with the child's focus on the teacher); and 4) Center-Based Free Choice, if the child was engaged in free choice activities prepared or made available by the teacher that the child selected.

Group Size reflected the size of the peer group in which the target child was. Codes in this category include: 1) Individual Student, when the target child was not interacting with any other children (including working with multiple students at a table or in an area of the classroom in close proximity with other children but working individually); 2) Small Group, involving two to six children interacting with one another; 3) Large Group, when six or more children, but fewer than the full classroom, were interacting with each other; and 4) Full Group, when all of the students in the classroom group were interacting with each other.

Instructional quality was defined by looking at the percentage of time in Circle Time for Classroom Activity and either Large Group or Full Group size for Group Size. The average percentages of instructional time spent in either Classroom Activity or Large Group/Full Group size across all classrooms for these two codes were calculated. While it is to be noted that none of the classrooms met suggestions for developmentally-appropriate practice (Copple & Bredekamp, 2009), we categorized classrooms as to whether their individual percentages of observations were both higher than the mean percentage in both Circle Time and Large

Group/Full Group size, for only one of the two codes, or for neither code.

Interactional quality. In order to examine a classroom's interactional quality, we selected two different categories on the Snapshot: *Adult Interaction* and *Cognitive Complexity*. Both of these categories were hierarchical; that is, the item scored was the highest level of behavior displayed during the observation period.

Adult Interaction addresses the behavior of the interactions of the teacher closest to the target child at the time of observation, and reflected the level of complexity of the teacher's interaction with the target child and all other children. The five levels of Adult Interaction, ordered in increasing complexity, are as follows: 1) Ignore, when the teacher and target child are within three feet of each other and the teacher is unaware of children, ignores children, or does not notice or attempt to engage children who are clearly not paying attention during whole group activities; 2) Routine, when the teacher interacts with children during routine activities but does not verbally interact with the children; 3) Minimal, when the teacher responds to the children's direct requests for help or gives verbal directives with no reply from the student expected or encouraged; 4) Simple, when the teacher answers the children's verbal inquiries but does not elaborate on the topic, asks the student simple questions, responds to the student with short sentences, or provides simple instructions about how to begin an activity; and 5) Elaborated, when the teacher engages the students in physical contact, engages in reciprocal conversation that either validates the students' feelings or demonstrates teacher interest in what the children are saying, or plays interactively with the students.

Cognitive Complexity addresses the complexity of teacher-elicited information and instruction occurring in the classroom. The four levels of Cognitive Complexity, ordered in increasing complexity, are as follows: 1) Knowledge, when the teacher and child are engaged in defining, labeling, listing, memorizing, naming, recognizing, recalling, repeating, translating, and/or stating information; 2) Understanding, when the teacher and child are engaged in describing, discussing, and/or explaining information; 3) Applying, when the teacher and child are engaged in using/employing information to solve problems or create activities; and 4) Analyzing/Synthesizing/Evaluating, when the teacher and child are engaged in categorizing/classifying, comparing, contrasting, discriminating, experimenting with, questioning, testing, planning with, proposing with defending, estimating about, judging

information, and/or predicting based on information. These four levels are adapted from Bloom's Taxonomy (Anderson & Krathwohl, 2001).

In order to define interactional quality, we looked at the percentage of time Elaborated was coded for Adult Interaction and Analyzing/Synthesizing/Evaluating was coded for Cognitive Complexity. These codes were the highest level of behavior possible for both aspects of interactional quality. The average percentages of interactions across all classrooms for these two codes were calculated. Classrooms were then categorized as to whether their individual percentages of observations were both higher than the mean percentage in both Elaborated and Analyzing/Synthesizing/Evaluating, for only one of the two codes, or for neither code.

Children's academic outcomes. All children were administered the Dynamic Indicators of Basic Literacy Skills (DIBELS) at the end of kindergarten. Children enrolled in full-day kindergartens who we were able to follow into first grade were also administered three subscales from the Woodcock-Johnson III at the end of the first grade year in addition to being administered the DIBELS again.

Outcomes at the end of kindergarten. Kindergarten programs administered the Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) to children in their classrooms, the scores of which we used as a means of looking at student outcomes at the end of the year. The DIBELS has been shown to be useful for identifying children in kindergarten and first grade who are at-risk for reading failure (Elliott, Lee, & Tollefson, 2001; Fuchs, Fuchs, & Compton, 2004; Rouse & Fantuzzo, 2006).

The DIBELS assesses students' acquisition of early literacy skills and are predictive of later reading proficiency. Three of the DIBELS subscales were used in this study. The *Letter Naming Fluency* subscale measures the student's abilities to verbally name as many letters as possible that are presented within one minute. The *Initial Sound Fluency* subscale measures the student's ability to recognize and produce the initial sound in an orally presented word. The *Phonemic Segmentation Fluency* subscale measures phonological awareness in words of three or four phonemes.

Each of the DIBELS subscales has recommended periods of time for administration to students and recommended cutoff scores to indicate if a student is likely to be a reader or to

possibly have a problem reading (Good & Kaminski, 2002). Studies of the technical characteristics of the DIBELS (e.g., Good, Kaminski, Shinn, Bratten, & Laimon, 2004) indicated acceptable levels of reliability and predictive validity for the scales. For administration in kindergarten, the Letter Naming Fluency subscale has a reliability of .96 and concurrent validity of .70 with the Woodcock-Johnson III (WJ-III; Woodcock, McGrew, & Mather, 2001). The Initial Sound Fluency subscale has a reliability of .89 and concurrent validity of .36 with the WJ-III. The Phonemic Segmentation Fluency subscale has a reliability of .90 and concurrent validity of .54 with the WJ-III (Good et al., 2004).

Using the criteria established by the authors of the DIBELS, each student's subscale scores were categorized into one of three categories: 1) deficit/at risk; 2) emerging/some risk; and 3) established/low-risk. Students whose scores placed them in the deficit/at-risk category had only a 20% likelihood of being readers by the end of second grade. For example, a student categorized as deficit/at-risk on the Letter Naming Fluency subscale would have a hard time reaching the established/low-risk Letter Naming Fluency goal at the next assessment point. Students whose scores placed them in the emerging/some risk category had a 50% likelihood of being readers by the end of second grade. Students whose scores placed them in the established/low-risk category had at least an 80% chance of being readers by the end of second grade (Good & Kaminski, 2002).

In addition to having scores categorized for each subtest, at the end of the school year, each child was given an Instructional Recommendation that was determined from a combination of scores on the three subtests. There are three Instructional Recommendation categories: 1) intensive; 2) strategic; and 3) at benchmark. A student with scores well below the cut point for risk would need *intensive* support in order to meet future benchmark goals. A student who has scores below the benchmark goals yet above the cut point for risk would need *strategic* support in order to meet future benchmark goals. A student *at benchmark* meets or surpasses benchmark goals and would be believed to be able to achieve subsequent goals without additional assistance (Good, Simmons, Kame'enui, Kaminski, & Wallin, 2002)

First grade follow-up. At the end of their first grade year, data on several dimensions of academic skills was again collected on children who had been enrolled in full-day kindergarten the previous year. We again collected the results of the DIBELS and additionally

added subtests from the Woodcock-Johnson III Tests of Achievement (WJ-III; Woodcock et al., 2001) to gather a detailed assessment of the students' literacy achievement as well as broader assessment of academic achievement.

With regards to DIBELS, we again used results from the Initial Sound Fluency subscale as well as the Phonemic Segmentation Fluency subscale. Additionally, the *Oral Reading Fluency* subscale was included at this time point, as the end-of-year Instructional Recommendation is based on this subscale in first grade (Good & Kaminski, 2002). The Oral Language Fluency subscale assesses a student's skill of reading connect text in grade-level material. We followed the same method of categorizing scores on these subscales as described above in the kindergarten years.

The WJ-III is based on large normative sampling data, with age-based norms by month from 24 months to 19 years. Its subscales show a range of reliabilities, all above .80. Three of the WJ-III subtests were used in this study. The *Understanding Directions* subtest assesses listening comprehension in asking children to follow oral directions to point to different parts of pictures. The *Picture Vocabulary* subtest measures expressive and receptive vocabulary scores in asking children to point to named pictures or to name pictures themselves. Finally, the *Academic Knowledge* subtest measures factual knowledge of science, social studies, and humanities. We used age-equivalent scores derived from students' raw scores on these subtests for ensuing analyses.

Findings

Examining Kindergarten Classroom Quality

In terms of instructional quality, 0 classrooms met both quality indicators, 3 met one, and 14 met none, with no statistical differences between the number of classrooms at each level between PDK and FDK ($\chi^2 (1, N = 17) = .09, p = \text{n.s.}$). In terms of interactional quality, 4 classrooms met both higher quality indicators, 6 met one, and 7 met none. There were no statistical differences between the number of classrooms at each level between PDK and FDK ($\chi^2 (2, N = 17) = 1.32, p = \text{n.s.}$). When both interactional and instructional quality were

combined, 0 classrooms met all four quality indicators, 2 met three, 2 met two, 7 met one, and 6 met no indicators. There were no statistically significant differences between PDK and FDK classrooms in terms of overall quality ($\chi^2(3, N = 17) = 3.53, p = \text{n.s.}$) (See Table 1). In order to present a more descriptive picture of what took place in the classrooms, Table 2 presents the average number of observations in each of the categories of each of the four quality indicators in full-day and part-day classrooms.

Table 1. *Kindergarten Classroom Quality*

	Full-Day (<i>N</i>)	Part-Day (<i>N</i>)	χ^2
Instructional Quality			.09
0 indicators	6	8	
1 indicator	1	2	
2 indicators	0	0	
Interactional Quality			1.32
0 indicators	4	3	
1 indicator	2	4	
2 indicators	1	3	
All Quality Combined			3.53
0 indicators	4	2	
1 indicator	2	5	
2 indicators	0	2	
3 indicators	1	1	

Academic Outcomes at the End of Kindergarten

By length of program. Chi-square analyses were conducted in order to examine whether the length of the program was associated with DIBELS outcome scores. Results indicate that children in full-day programs were more likely to be categorized as established in Initial Sound Fluency ($\chi^2(2, N = 285) = 15.19, p < .01$) and Phonemic Segmentation Fluency ($\chi^2(2, N = 285) = 13.65, p < .01$) while children in part-day programs were more likely to be categorized as either deficit or emerging in these categories. Additionally, children in full-day

Table 2. *Profile of the Average Full-Day and Part-Day Classroom*

	Full-Day		Part-Day	
	<i>N</i>	%	<i>N</i>	%
Instructional Quality				
Classroom Activity				
Basics	26	11.45	12	9.64
Meals-Snacks	6	2.54	3	2.79
Circle Time	129	56.52	84	68.06
Center-based free choice	67	29.17	24	19.86
Group Size				
Individual Student	12	5.56	6	5.03
Small Group	66	29.37	23	18.74
Large Group	24	10.76	40	31.89
Full Group	121	54.39	55	44.0
Interactional Quality				
Adult Interaction				
Ignore	9	4.23	10	7.78
Routine	25	11.08	13	10.34
Minimal	44	19.82	31	24.97
Simple	74	33.33	42	34.26
Elaborated	70	31.67	28	23.0
Cognitive Complexity				
Knowledge	145	52.17	69	50.57
Understanding	49	17.62	31	22.63
Applying	71	25.56	36	26.49
Analyzing/Synthesizing/Evaluating	13	4.51	0	0

programs were more likely to meet their benchmark goals at the end of kindergarten, as opposed to their counterparts in part-day programs who were more likely to be recommended for either intensive or strategic support ($\chi^2 (N = 285) = 14.38, p < .01$) (see Table 3).

Table 3. *Academic Outcomes at the End of Kindergarten by Length of Program*

	Full-Day	Part-Day	χ^2
Letter Naming Fluency			4.27
At risk	4	7	
Some risk	10	12	
Low risk	153	99	
Initial Sound Fluency			15.19**
Deficit	4	6	
Emerging	42	58	
Established	121	65	
Phonemic Segmentation Fluency			13.65**
Deficit	31	36	
Emerging	10	17	
Established	126	65	
Instructional Recommendation			14.38**
Intensive	10	12	
Strategic	26	38	
Benchmark	131	68	

** $p < .01$.

By length and quality of program. Chi-square analyses were conducted in order to examine whether the length and the quality of the kindergarten program was associated with DIBELS outcome scores. Results indicate that in kindergarten, interactional and instructional quality combined was not associated with DIBELS outcomes for children in part-day kindergarten classrooms. However, overall quality was associated with DIBELS outcomes for children in full-day kindergarten classrooms, namely in the categories of initial sound fluency ($\chi^2 (6, N = 167) = 27.79, p < .01$), phoneme segmentation ($\chi^2 (6, N = 167) = 19.00, p < .01$), and the end-of-year benchmark assessment ($\chi^2 (6, N = 167) = 15.85, p < .05$). That is, for children in part-day programs, the quality of the interaction was not related to their scores on this discreet measure of reading skills, but it was related for children in the full day classrooms, higher-quality classroom interactions (see Table 4).

Table 4. *Academic Outcomes at the End of Kindergarten by Length and Quality of Program*

	Full-Day				χ^2	Part-Day				χ^2	
	0	1	2	3		0	1	2	3		
Letter Naming Fluency											3.55
At risk	1	2	1	0	6.00	2	5	0	0		
Some risk	1	4	2	3		5	5	0	2		
Low risk	38	72	30	13		46	37	0	16		
Initial Sound Fluency											5.81
Deficit	1	2	0	1	27.79**	3	3	0	0		
Emerging	3	16	16	7		36	16	0	6		
Established	36	60	17	8		29	23	0	13		
Phonemic Segmentation Fluency											9.33
Deficit	3	12	9	7	19.00**	19	16	0	1		
Emerging	1	3	4	2		4	8	0	5		
Established	36	63	20	7		30	23	0	12		
Instructional Recommendation											5.09
Intensive	1	5	2	2	15.85*	5	7	0	0		
Strategic	2	9	10	5		14	16	0	8		
Benchmark	37	64	21	9		34	24	0	10		

* $p < .05$, ** $p < .01$

Academic Outcomes at the End of First Grade

Chi-square analyses were again conducted in order to examine whether kindergarten classroom quality was associated with DIBELS outcome scores for children who had been enrolled in full-day kindergarten classrooms one year later at the end of first grade. Additionally, analyses of variance (ANOVAS) were conducted in order to examine whether kindergarten classroom quality was associated with WJ-III subtest scores. In most of the analyses, first grade scores were not related to kindergarten classroom quality. However, children's performance on the Academic Knowledge subtest of the WJ-III showed a relationship with the quality of the kindergarten classroom, with children's age equivalency scores being approximately six months higher for those who were in FDK classrooms with higher levels of instructional quality ($F(1, 121) = 4.47, p < .05$; No indicators of instructional quality: $M(SD) = 77.17 (14.49)$; one indicator of instructional quality: $M(SD) = 83.71 (14.12)$). In addition, both interactional and instructional quality were associated with whether or not a student was recommended for instructional support resulting from the DIBELS ($\chi^2 (6, N = 132) = 12.901, p < .05$), with higher levels of quality being associated with children meeting benchmark standards while lower levels of quality were associated with children needing intensive or strategic support in terms of literacy development.

Discussion

Our findings shed light on the complexity surrounding questions on the efficacy of full day kindergarten. In the United States, the policy decision for full-day kindergarten was based on the premise that an extended kindergarten day would give teachers more of a chance to meet children's needs. However, our results provide a more detailed analysis of the dimensions of full-day kindergarten that are important to consider beyond the more reductionist approach of simply comparing a part-day to a full-day model in terms of the length of the day. While there might be other factors besides classroom quality and length of the classroom, which we have not considered in this study, the findings presented demonstrate that the quality of interactions and instruction in the classroom may be more relevant than the length of the day when

examining the variance in children's outcomes. For instance, our data suggests that interactional quality used by the teachers were mostly low-level interactions such as routine, minimal, or simple verbal interaction. Research (e.g. Kontos, Howes, Shinn, & Calinsky, 1995; Whitebook, Howes, & Phillips, 1989) has suggested that when teachers are interacting with children at higher levels of involvement, this involvement is positively related to children's attachment security and higher score on language development assessments. Unfortunately, we did not find such level of high quality interaction in our data. As seen in our findings, different aspects of quality are associated with different outcomes. Therefore, researchers must work with the public and policy makers to broaden the perspective beyond the questions of the efficacy of full or part day kindergarten and focus on the more salient questions of what aspects of full or part day kindergarten provide children with a more beneficial learning experience.

Unfortunately, using the guidelines of developmentally appropriate practice (Copple & Bredekamp, 2009) these kindergarten classrooms would be considered of low quality, as most classrooms did not display more than three indicators of quality and also did not differ on a statistically significant level in terms of quality indicators. In general, all of the classrooms in this sample spent the majority of their day engaged in whole group, largely circle time-type activities, far different from the recommendations for developmentally-appropriate practice (Copple & Bredekamp, 2009). When adults interacted with children, they generally did not do so on an elaborated or complex level. In fact, the majority of the time, teacher-child interactions remained on the perfunctory side. While the intent of this study was not to determine whether or whether not classrooms differed in terms of quality, it is nonetheless important to point out that none of these classrooms exemplify best practices.

When looking at programs by length alone (i.e., full-day programs versus part-day programs), our findings replicated those of previous studies in demonstrating that children in full-day kindergartens performed better than their part-day counterparts in terms of literacy outcomes (Ackerman et al., 2005; Cannon, Jacknowitz, & Painter, 2005; Da Costa & Bell, 2000; Lee et al., 2006; Votruba-Drzal, Li-Grining, & Maldonado-Carreño, 2008; Walston & West, 2004; Woglemuth, Cobb, & Winokur, 2006; Zvoch et al., 2008), suggesting that some academic skills may be easier to improve with extended instructional time but that other skills may require more than just additional time.

However, combining both quality and length of the program yielded a more nuanced look at children's academic outcomes. In part-day programs, children's outcome scores did not seem to differ based on the quality of the program. This is contrasted with full-day programs, where quality did play a role in children's outcomes. Children in higher quality full-day kindergartens have better literacy outcomes than those in lower quality full-day programs. These findings echo previous studies looking at overall kindergarten quality, with higher quality kindergarten classrooms being associated with higher academic outcomes (Entwisle & Alexander, 1999; Pianta et al., 2002). This points to the importance of assessing classroom quality when looking at the impact programmatic changes have on child outcomes. In this case, a focus solely on the length of the school day, in the absence of considering quality yielded resulted in an incomplete analysis.

Providing more hours of instruction does not necessarily ensure that children are receiving better instruction. In fact, being in a lower-quality program for a whole day as opposed to part of the day may actually be detrimental to children. We need to take a closer look at what actually takes place during the classroom day to make better-informed decisions when it comes to determining policies around curriculum practices in order to maximize their developmental potential.

Limitations

This study has relied on descriptive methods to determine what was happening in the kindergartens and use this information as a basis for determining quality. This was necessary in order to have comparability between the full- and part-day classrooms in terms of amount of activities with regard to portion of time. As such, our indicators of quality compare kindergarten classrooms to each other rather than comparing them to an outside metric of quality. We have, however, identified areas of quality that have been used in previous research studies when considering instructional and interactional quality.

A limitation of this study is the use of the DIBELS as the only child outcome measure gathered at the kindergarten level. The DIBELS is not norm-referenced and is limited to a fairly narrow set of early literacy skills. Data on children's cognitive development or social-emotional adjustment may have yielded results from which very different conclusions could

be drawn. Furthermore there is always some concern with using teacher-collected assessment data, despite the fact that the teachers were trained on administering the measure. On the other hand, this is the same assessment data that the school districts use to make decisions about annual yearly progress and teacher effectiveness, so from a policy perspective this data is considered valid and is used to make staffing and personnel decisions for teachers and placement decisions for children.

Some limitations of the Snapshot include that it is a time-consuming measure and it highly depends on observers' knowledge and skill. However, we believe that the Snapshot was an excellent tool to capture what is going on throughout the day in the classroom at a more detailed level than some observational tools which examine quality at a more global level.

Much more research is needed on the effect of teaching practices and classroom quality in kindergarten classrooms looking at a range of child skills and outcomes. Additionally it will be important for longitudinal data to be conducted where researchers follow those children who were in full- and part-day classrooms to make judgments about the long term effects of the quality of the classrooms beyond the first grade.

Implications for Policy

From a policy perspective two themes emerged. The first is that the debate about whether or not children should be offered full-day kindergarten must be expanded to discuss the *kinds* of kindergarten programming rather than only the timing options available to children. This would be applicable to any sort of new programming, such as afterschool programs or pre-kindergarten programming. The salient issue is not whether or not the program is effective but rather what types of programming are effective. The second policy implication stems from the first. As our study suggests, the quality of program is more important in longer day programs, which naturally draw attention to the resources and support. Currently, there is a trend towards decreased funding for full-day kindergartens (Kauerz, 2010). In a situation of reduced resources, a focus on the quality of the program cannot be lost.

Clearly, providing more hours of instruction does not ensure that children are receiving better instruction. It could be the case that longer days in low-quality programs may in fact be detrimental to children's academic development. Policy makers must at least consider this a

possibility as they make decisions about how to spend limited public dollars.

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