

# KINDERGARTEN STUDY:

## Full-Day versus Half-Day Kindergarten

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## **BACKGROUND**

### *Brief History of Full-day Kindergarten*

The idea for kindergarten programs was birthed by Freidrich Froebel in 1837 (Lee et al., 2006). Over the years, kindergarten education in the United States has been growing and experiencing tremendous transformations. In the 1950s, mostly all kindergarten programs employed the half-day kindergarten schedule (Puelo, 1988). Today, full-day kindergarten programs are quickly replacing the traditional half-day kindergarten schedules. In the U.S., about 98% of children attend at least a half-day kindergarten program, and about 60% of children attend full-day kindergarten programs (Education Commission of the States. (September 2004). However, only nine states “require districts to offer full-day kindergarten programs.” This trend is rapidly progressing although only the states of Alabama, Arkansas, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, and West Virginia have mandatory full-day kindergarten programs (Education Commission of the States, 2004b). Moreover, traditionally, more private schools have offered full-day kindergarten programs than public schools. However, data from the Early Childhood Longitudinal Study-Kindergarten Class of 1998-1999 (ECLS-K) show that about 57% of all public schools now have full-day kindergarten schedules (Walston & West, 2004).

### *Factors Influencing the Growth of Full-Day Kindergarten Programs*

Several demographic and socio-cultural indicators can explain the growth of full-day kindergarten programs:

1. Approximately 60% of mothers who work outside the home have children of kindergarten age (Children’s Defense Fund, 1996). Given this current trend, schools needed to provide full-day kindergarten programs to accommodate parents’ child-care and scheduling needs. Moreover, given that the numbers of non-kindergarten programs were steadily declining resulting in a surplus of physical plants and school staffs in some locales, extra resources were created which could be diverted to full-day kindergarten programs (Lee et al., 2006).
2. Full-day kindergarten serves as a good transition from pre-kindergarten to elementary school (Olsen & Zigler, 1989).
3. Given the recent pressure for better scientific, technological, and economic advancement in order to receive a competitive edge in the global market, policy makers are pushing for better academic success, especially in literacy and numeracy skills among students. This pressure is quickly trickling down the academic ladder to kindergarteners (Lee et al., 2006).

### *The Full-Day Kindergarten Classroom*

1. Full-day kindergarten schedules run for four and one-half to six hours per day, five days per week.
2. Full-day kindergarten follows the same school calendar as the early primary school grades.
3. In contrast, half-day kindergarten programs usually meet for two or three hours per day, five days a week.
4. This means that children enrolled in full-day kindergarten programs are in school approximately 32 hours per week, whereas half-day students are in school only 16 hours per week (Lee et al, 2004).

### *Activities in Full and Half-Day Kindergarten*

1. Gamoran and Milesi (2003) found that children who are enrolled in full-day programs get an average of twice as much instructional time as do half-day programs. However, this extra instructional time will only be beneficial to students if teachers engaged in activities that promote learning and development (Lee et al, 2004).
2. But as a matter of fact, teachers in full-day kindergarten programs spend more time on academic activities and students enrolled in these programs spend more time in self-selected activities.
3. Research suggests that self-selected activities promote greater and long-term learning outcomes for students (Graue et al., 2004; Huffman & Speer, 2000; Schweinhart & Weikart, 1997).

### *Time Spent in Academic Activities in Full and Half-Day Kindergarten Programs*

1. Students spend most of their time on reading, language arts, and mathematics activities in both programs but the total number of time spent on specific subjects differ in full and half-day programs (Ackerman, Barnett, & Robin, 2005).
2. Sixty-eight percent of full-day classes spent more than an hour per day on reading instruction as compared to 37% of half-day classes (National Center for Education Statistics, 2004).
3. Children who attend full-day kindergarten end up with “slightly more than one month of extra literacy learning” compared with children who attend half-day kindergarten; in math, the advantage “is slightly less than one month” (Lee, et al., 2001; 2002).
4. Full-day classes were more likely than half-day classes to spend time every day on math, social studies, and science ((National Center for Education Statistics, 2004).
5. Walston and West (2004) found that about 80% of full-day kindergarten programs spend more than 30 minutes a day on mathematics whereas only 50% of half-day programs devote more than 30 minutes to math. They also noted that 60% of full-day programs but only 37% of half-day classrooms spend at least 60 minutes on reading each day. Moreover, 79% of teachers in full-day kindergarten programs

- actually read aloud to their students every day, but only 62% of half-day teachers do.
6. With research (e.g. Xue & Meisels, 2004) showing that reading aloud is an important factor in boosting students' reading skills, this is particularly important for educators focused on kindergarten program impact.

### *Time Spent in Teacher-Directed Versus Self-Selected Activities*

Research also suggests that students enrolled in full-day kindergarten programs spend more time in self-selected activities (e.g. Graue et al., 2004; Huffman & Speer, 2000; & Schweinhart & Weikart, 1997). For instance, Walston and West (2004) found that students in full-day kindergarten programs spend 57 minutes in self-selected programs while their counterparts in half-day programs spend only 32 minutes on these activities. Elicker and Mathur (1997) also found that students in full-day kindergarten programs spend an average of seven percent more time in self-selected activities.

## **RELEVANT RESEARCH FINDINGS ON FULL-DAY KINDERGARTEN AND ITS IMPACT ON STUDENT OUTCOMES**

### *Do Full-Day Kindergarten Programs Actually Provide Benefits to Students?*

Results from short-term and longitudinal research focusing on the benefits of full-day kindergarten are definitely mixed, but the data generally favor full-day kindergarten programs over half-day programs (Ackerman, Barnett, & Robin, 2005).

### *Short-Term Academic Outcomes*

Researchers investigating children's short-term academic outcomes after participating in full-day kindergarten have found mixed results. However, most of the evidence indicates that full-day kindergarten garners more positive short-term academic effects. The following studies are examples:

1. Lee et al (2006) used data collected by the ECLS-K data, sponsored by the National Center for Education Statistics (NCES) (U.S. Department of Education, 2000) to examine whether half or full-day kindergarten influence students' math and literacy achievement. Results show that children enrolled in full-day kindergarten performed better in math and reading than their half-day counterparts. In fact, Lee et al (2006) suggested....“ favorable findings for kindergarten are not confined to disadvantaged children or to low-income or urban schools – all children benefit, in terms of learning more, when they attend kindergarten as a full-day program” (p. 197).
2. Walston, West, and Rathbun (2005) also found that after they controlled for student differences in fall scores, family risk factors (primary home language, household poverty level, mother's education level, and household type),

- race/ethnicity and sex, children in full-day kindergarten still outperformed their half-day counterparts in reading and mathematics.
3. Hough and Bryde (1996) found that students who were enrolled in full-day kindergarten classrooms received better report card grades in literacy, math, and general learning skills.
  4. Da Costa and Bell (2001) also found statistically significant differences in the literacy development of full-day kindergarten students relative to students in half-day programs.
  5. “Children in full-day kindergarten classes learned more during the year in both reading and mathematics compared to those in half-day classes after adjusting for learning differences associated with race/ethnicity, poverty status, fall achievement level, sex, class size, relative amount of time for subject area instruction, and the presence of an instructional aide” (National Center for Education Statistics, 2004).
  6. Children attending full-day kindergarten programs not only had “higher scores on math and reading achievement tests” but also had “greater language abilities” (Lynch, 2005).
  7. Beyond these differences in literacy and math learning and in language development, children attending full-day kindergarten spend more instructional time in math, science, social studies, art, and music than children attending half-day kindergarten (Miller, 2001).
  8. While earlier findings indicated that full-day kindergarten was most beneficial academically for low income children, recent findings confirm that full-day kindergarten is “equally effective” and “advantageous” academically for children from all social and economic backgrounds (Lee et al., 2001; rev. 2002).
  9. Moreover, participation in full-day kindergarten produces the largest academic effects (i.e., mean gain scores from the beginning of the kindergarten year to the end) when class sizes are under 17 and the smallest academic effects when class sizes are over 24 (Coley, 2002).

### *Long-Term Academic Outcomes*

Research suggests that full-day kindergarten also has strong positive long-term effects on students' academic outcomes beyond their kindergarten years.

1. The Evansville-Vanburgh (Indiana) School Corporation (1988) conducted a longitudinal study of students from kindergarten through Grade 8. The results indicated that students enrolled in full-day kindergarten performed better than the half-day kindergarten peers in reading, mathematics, hand-writing, spelling and English through Grade 3. Students who were enrolled in full-day kindergarten performed better on every category of the Comprehensive Test of Basic Skills in Grades 3, 5, and 7. Full-day kindergarten students earned higher GPAs than their half-day kindergarten peers in Grades 6 - 8.
2. A longitudinal study that tracked students from kindergarten into fourth grade in the Philadelphia School District also demonstrated that students enrolled in full-day kindergarten classrooms received higher report card grades and better

- reading, math, and science scores on standardized test during their time in third grade than students in half-day kindergarten classrooms. These students continued to earn higher standardized science scores through the fourth grade (Del Gaudio & Offenber, 2002, n.d.).
3. Anchorage (Alaska) School District conducted a longitudinal study on students enrolled in kindergarten through Grade 11. When full-day kindergarten effects were examined, results indicated that full-day kindergarten students showed greater improvement in GPA between Grades 7 and 8 than students who were on the half-day kindergarten schedule (Stofflet, 1998).
  4. In addition, Cryan et al. (1992) found that full-day kindergarten students scored an average of seven percentile points more on standardized tests.
  5. District 191 in Minnesota examined the results of the Gates-MacGinitie Reading Tests on students enrolled in different kindergarten schedules in one school. Results indicated that full-day kindergarten provided students with a higher baseline reading score in first grade compared to students who were enrolled in the other kindergarten programs (Wahlstrom & Hansen, 2005).
  6. Elicker and Mathur (1997) also found that students who were enrolled in full-day kindergarten were perceived as more ready for first grade than their half-day kindergarten peers.
  7. Baskett, Bryant, White and Kyle (2005) conducted a study in the Auburn School District. They found that all-day kindergarten students had better reading and literacy skills and performed better on tests for letter sounds and story sequence.
  8. Gullo (2000) found that by second grade, students who were enrolled in full-day kindergarten scored four to five points higher on the reading and math section of the Iowa Test of Basic Skill than students who were in half-day programs.
  9. Moreover, McAuliffe (2003) found that first grade students who were in full-day kindergarten performed better in reading than the half-day counterparts.

### *Teacher and Parent Perceptions of Full-Day Kindergarten*

Short-term and longitudinal research demonstrate that both teachers and parents feel there are numerous benefits for children both academically and socially enrolled in full-day kindergarten programs.

1. Martinez and Snider (2001) indicated that teachers in a full-day kindergarten program felt that the schedule afforded them the opportunity to get to know students and parents better, engage in more individualized instruction, and expand the curriculum.
2. Elicker and Mathur (1997) also noted that parents and teachers expressed increasing satisfaction for full-day kindergarten schedules over half-day schedules. Elicker and Mathur (1997) indicated that teachers favored the full-day program and their views became even more elaborate in the second year of the program. Moreover, the half-day teachers expressed increased support for the full-day program in the second year. Parents of children enrolled in full-day classes expressed uniformly more positive views of the full-day program in the second year than parents of children on a half-day schedule.

3. In a study conducted by Alber-Kelsay (1998), the results indicated that most teachers perceived full-day kindergarten superior to half-day kindergarten. Teachers felt that full-day kindergarten programs provided students more time to develop basic listening and language skills. Moreover, in a full-day kindergarten classroom, teachers believed that students were not bored, experienced a more in-depth skill building program, and students were creating better social bonds with their peers.
4. Similarly, Saylor and Phillips (2003) found that teachers perceived students in full-day kindergarten as more literate than their half-day counterparts. Furthermore, teachers believed that the pace in a full-day kindergarten program was more relaxed and appropriately paced for students.
5. Rothenberg (1984) found that parents favored full-day kindergarten over half-day programs because it eliminated their child care problems and provided their children with a comprehensive, developmentally-appropriate program.
6. Moreover, Alber-Kelsay (1998), found that parents believed that their children learned more in the full-day program; were more ready for first grade; were more self-controlled; were more social; became more self-confident; became better listeners; were better able to follow directions; learned to enjoy music; had improved handwriting, cutting and coloring skills; were better prepared for reading and mathematics; developed better body coordination and had better home-school relationships (p.14).

#### *Short Term Social and Behavior Effects*

Research studies document that students enrolled in a full-day kindergarten program have not only academic benefits but social benefits as well (Alber-Kelsey, 1998).

1. Plucker et al (2004) in the review of national and Indiana data found that students who participated in full-day kindergarten classes had better work habits. More than half of the teachers in the study felt that students who were in full-day kindergarten were more independent than students in half-day classes.
2. According to Carter, Creswell, and deAlba (2004) attendance is a critical factor in a child's ability to improve social and behavioral skills. Given this, Hough and Byrde (1996) found that students in full-day kindergarten programs attended 40 more hours of classes than their half-day counterparts.

#### *Long Term Social and Behavior Effects*

Research also shows *long-term adaptive social and behavioral outcomes* for students who attended full-day kindergarten.

1. Cryan et al. (1992) conducted a longitudinal study to investigate the effects of kindergarten schedules (half-day, alternate day and full-day) on elementary children's success: achievement, incidence of grade retention, provision of special education services, and classroom behavior. The results indicated that teachers rated children in full-day classrooms higher on dimensions of classroom adaptive

- behaviors than children in half-day classes. That is, children enrolled in full-day kindergarten classes were perceived as more original, more independent in learning, more involved in classroom activities, more productive with peers, less intellectually dependent, less prone to failure anxiety, less unreflective, less withdrawn, less blaming, and more willing to approach the teacher than were children enrolled in half-day classes. Cryan et al. (1992) also found that full-day programs engender the development of pro-social characteristics in students.
2. Elicker and Mathur (1997) also conducted a two-year longitudinal experiment of four full-day and eight half-day kindergarten classrooms in Wisconsin. They found that children in full-day classes initiated more learning activities and received more one-to-one teacher instruction, while spending less time in teacher-directed groups. They also found a greater degree of active engagement among students who had attended full-day kindergarten.
  3. Several longitudinal research studies investigating pro-social development favor full-day over half-day programs. Results from the Philadelphia School District study indicated that students who attended full-day kindergarten were 26% more likely to be promoted through Grade 2 and 22% more likely to be promoted through Grade 4 without being retained than their peers who attended half-day kindergarten (Del Gaudio & Offenber, 2002).
  4. In addition, Plucker et al (2004) found that students in first grade who were enrolled in both full and half-day kindergarten received equivalent satisfactory percentage marks. However, full-day kindergarten students had a smaller percentage of unsatisfactory marks than their half-day students. Students who were enrolled in full-day kindergarten had higher satisfactory and lower unsatisfactory percentage marks in second grade than those who were enrolled in half-day programs. By the third grade, students who attended full-day kindergarten had also received satisfactory marks more often than half-day students.

#### *Grade Retention and Placement in Special Education Classes*

1. Cryan et al. (1992) found evidence that students enrolled in kindergarten classes had 17% - 55% fewer grade retentions.
2. Stofflet (1998) found that students who had attended full-day kindergarten were less likely to repeat first grade than students who had attended half-day kindergarten.
3. An eight-year longitudinal study conducted by Nieman and Gastright (1981a, 1981b) favored full-day kindergarten. They found that both special education referrals and grade retention levels were lower among students who had attended the full-day kindergarten program.
4. Gullo (2000) found that students who had attended full-day kindergarten were retained in grade less frequently through kindergarten to second grade than those who had attended a half-day program. Although, retention rates for both groups remained high, only 25% of full-day students were retained whereas 34% of half-day students were held back.



5. Children who attend full-day kindergarten programs have lower rates of special education placement and grade retention than children who attend half-day kindergarten programs (Gilliam & Zigler, 2001)

#### *Reduction of Long-Term Costs for Both Remedial and Special Education*

1. In a study of third and fourth graders conducted in Philadelphia, researchers found that former full-day kindergartners were 26% more likely than former half-day kindergartners to have reached those grades without repeating a grade, leading to “savings of \$2 million for every 1,000 kindergartners in improved retention rates.”(Gilliam & Zigler, 2001)

#### *Long-Term Cognitive Growth and Development*

1. The period from birth to age five is crucial to children’s development. As The Final Report of the NGA Task Force on School Readiness states: “Children are born learning. The first years of life are a period of extraordinary growth and development... Children whose development is obstructed by the lack of such formative experiences, including . . . attending full-day kindergarten programs with small class sizes taught by qualified teachers, are ‘at higher risk for developmental delays that, absent early intervention, can result [not only] in long-term deficits in school achievement [but also] in incarceration, teen pregnancy, welfare dependency, or other socially undesirable outcomes’” (NGA Taskforce, 2005).

#### *Long-Term Engagement and Affect*

1. Research also demonstrated that full-day kindergarten programs tend to foster long-term engagement and affect in students. For example, Elicker and Mathur (1997) found high classroom engagement in both the half-day and full-day classrooms; however children in full-day classrooms showed relatively more active engagement than those in half-day classes. Moreover, children in full-day classes displayed slightly higher proportions of positive affect and lower levels of neutral affect than children in half-day classrooms.

#### *Short-Term and Long-Term Effects on Specific Student Groups*

Full-day kindergarten has not only provided significant positive outcomes for all students, specific groups of students such as students of low social economic status have also especially benefited from full-day kindergarten schedules.

1. Bridges-Cline, Hoffer-Riddick, and Gross (cited in Fifield and Shepperson, 2004) found that students from low socioeconomic or non-English proficient households benefit most academically from full-day kindergarten.
2. De Costa (2000) also found that students from lower socioeconomic areas benefited most from full-day kindergarten.

3. Similarly, De Costa (2001) found that the full-day kindergarten enabled students from low socioeconomic or educationally disadvantaged backgrounds came to par or even perform better than their counterparts from higher socioeconomic or educationally more advantaged backgrounds.
4. Moreover, Kaplan (2002) found that children who had poor reading skills made significant improvement during their full-day kindergarten experience, more than their half-day counterparts.
5. Walston, West, and Rathbun (2005) also found that full-day kindergarten engendered better math performance for Hispanic children through third grade.

**Research also indicates that African-American children benefit particularly from full-day kindergarten programs, though English Language Learners are now beginning to show the same benefits.**

6. African-American children in full-day kindergarten programs “significantly outperformed their peers in half-day kindergarten programs” (Montgomery County (MD) Public Schools, 2004).
7. African-American children benefit most from attendance in full-day kindergarten classes in which there is an instructional aide as well as a qualified teacher. (Education Commission of the States, 2004).
8. A study conducted by the Montgomery County (MD) Public Schools concluded that, by 2003, 56% of English Language Learners in full-day kindergarten programs had met the established reading skill benchmark as compared to only 29% who attended half-day kindergarten in 2001 (Montgomery County (MD) Public Schools, 2004).

*Full-Day Kindergarten Programs Have the Most Significant and Sustained Academic and Social Effects When Class Size Is 17 or Less and Each Classroom Has an Instructional Aide*

1. All children benefit most from attendance in full-day kindergarten programs when the class size is 17 or fewer, though lower income and minority children benefit more than higher income, non-minority children.
2. All children show some benefits from attendance in full-day kindergarten when the class size is 17-24.
3. When class sizes are 25 or larger, children attending full-day kindergarten show few or no benefits compared with children attending half-day classes of 25 or larger.
4. The academic and social benefits for all children are even greater when they attend full-day kindergarten programs with class sizes of 17 or smaller followed by attendance in first grade classes with class sizes of 17 or smaller. The research evidence is clear: two consecutive years of small class size (i.e., 17 or less) in kindergarten and first grade have the most significant short and long-term benefits for children.

## CONCLUSIONS AND RECOMMENDATIONS

### *Conclusions*

There are no negative outcomes commonly associated with children's attendance in full-day kindergarten programs (Plucker et al, 2004).

Based on studies suggesting that achievement gaps may widen again for low income and minority children during the summer months between full-day kindergarten and first grade, some districts have initiated programs designed to engage children in summer activities that effectively reinforce school learning: e.g., "reading, attending library programs, and visiting museums." (National Center for Education Statistics, 2004)

### *Recommendations*

1. Full-day kindergarten is clearly "a promising tool in the policy-maker's arsenal for improving schools and closing academic achievement gaps." (Education Commission of the States, September 2004).
2. Full-day kindergarten programs should be planned and implemented for all districts and all schools (California Education Dialogue, 2001).
3. Each district's plan for implementing full-day kindergarten should emphasize those schools with larger populations of students whom the research shows will benefit most from these programs: low income, minority, and English Language Learner students.
4. Each district's plan should include a component which focuses on the full alignment of preschool and kindergarten standards, curricula, and services.
5. Each district's plan should include a component for conducting a systematic, ongoing, longitudinal evaluation of the academic, social, and behavioral effects of attendance in full-day kindergarten programs.
6. The resources necessary to help districts plan, implement, evaluate, revise, and maintain full-day kindergarten programs for all children should be invested.
7. The provision of adequate classroom space and the recruiting and retaining qualified teachers are needs that should be addressed as part of the investment of resources in full-day kindergarten.

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