

FULL-DAY KINDERGARTEN SUMMARY OF RESEARCH FINDINGS

(Prepared by Gary S. Mala, Superintendent of Schools, April 2, 2007)

Adcock, E. et al (1980). A comparison of half-day and full-day kindergarten classes on academic achievement

- The full-day program children achieved higher levels of academic skills than half-day as measured by the Survey Battery of the Metropolitan Achievement Tests.

Anderson, E (1983). Increasing school effectiveness: The full-day kindergarten. Paper presented at the annual meeting of the AERA

- The full-day program gives 5-year-olds a measurable advantage in acquisition of skills and knowledge
- Full-day program enhanced students' self-confidence, independence and cooperation
- It was suggested that the full-day program could increase enrollment by encouraging the return to district children enrolled in private full-day kindergartens, thus accommodating the needs of working moms.

Brierly, M. (1987). Writing to read and full-day kindergarten evaluation. Columbus Public Schools, OH Dept. of Evaluation Services

- Higher achievement on the Metropolitan Achievement Test was found for the full-day kindergarten students.
- Students in the half-day program showed better adjustment skills associated with personal and social growth than students in the full-day kindergarten.

Cryan, J., Sheehan, R., Wiechel, J. & Bandy-Hedden, I. (1992). Success outcomes of full-day kindergarten: More positive behavior and increased achievement in the years after. Early Childhood Quarterly, 7(2), 187-203

- Found positive relationship between full-day kindergarten and first grade school performance.
- Full-day kindergartners exhibited more independent learning, classroom involvement, productivity in work with peers and reflectiveness than half-day kindergartners.
- Full-day students were also more likely to approach the teacher and they expressed less withdrawal, anger, shyness and blaming behavior than half-day students.

Elicker, James & Mathur, Sangeeta (1997). What do they do all day? Comprehensive evaluation of a full-day kindergarten. Early Childhood Research Quarterly, 12(4), 459-480

- Compared to ½ day students, full-day students spent relatively more time in child-initiated activities and teacher-directed individual work.
- Parents and teachers cited benefits of flexibility, more time for child-initiated creative activities and less stress.
- Students exhibited higher first-grade readiness according to report card grades.
- Parents and teachers felt that the children were better prepared for first grade.

Entwisle, D. & Alexander, K. (1998). Facilitating the transition to first grade: The nature of transition and research on factors affecting it. Elementary School Journal, 98(4), 351-364

- Children attending full-day kindergarten performed better academically over the transition to first grade.

Evansville-Vanderburgh School Corp. Indiana (1983). A longitudinal study of the effectiveness of full-day kindergarten

- Children who attended full-day kindergarten, their parents and teachers had positive attitudes about the full-day program
- The full-day children tend to have higher academic and conduct report card marks, a lower rate of grade retention, and higher standardized test achievement scores.
- Full-day children's self-concepts and attitudes about school were not negatively affected by participation in the full-day program.

Fusaro, J. (1997). The effect of full-day kindergarten on student achievement: A meta-analysis. Child Study Journal, 27(4), 269-277

- Found advantages for the achievement of full-day students.
- This conclusion should be moderated due to control problems found in the reviewed studies.
- The majority of the studies meta-analyzed were not true experimental studies.

Goodwin, J. (1989). An analysis of attendance and achievement for full-day and half-day kindergarten, 1987-1988. Report No. 8911. Philadelphia School District, PA. Office of Research and Evaluation

- Average daily attendance was 86.8% for full-day kindergarten and 83.5% for half-day.
- Analyses of city-wide achievement data showed statistically significant differences in favor of full-day kindergarten in reading and math.
- In reading, 43.9% of children in full-day scored at or above the national 50th percentile compared with 34.5% in half-day.
- In math 69.8% of full-day children scored at or above the national 50th percentile compared with 58.9% in half-day.
- Fewer full-day children than half-day children scored below the 16th percentile in reading and math.

Gullo, D., Bersani, C. Clements, D. & Bayless, K. (1986). A comparative study of all day, alternate day and half-day kindergarten schedules: effects on achievement and classroom social behaviors. Journal of Research in Childhood Education, 1(2), 87-94

Holmes, C. & McConnell, B (1990). Full-day versus half-day Kindergarten: An experimental study. Paper presented at the Annual Meeting of the AERA

- No achievement differences between full and ½ day classes in spring of K year on 6 subscales of the CAT.

Hough, D & Bryde, Suzanne (1996). The effects of full-day kindergarten on student achievement and affect. Paper presented at the annual conference of the AERA

- Full-day programs utilized more small group activities.
- No significant difference in amount of fatigue experienced by full-day and half-day students.
- A greater number of social interactions by full-day students.
- Full-day students outperformed half-day students in language arts and some criteria used to measure math skills.
- Full-day students outperformed half-day students on every criterion measured by norm-referenced achievement test
- Parents of children attending full-day programs were most satisfied.
- Full-day students had most regular attendance.

Housden, T. & Kam, Rose (1992). Full-day kindergarten: A summary of the research. San Juan Unified School District, Carmichael, CA

- A developmentally appropriate full-day schedule benefits children academically and socially, especially children from low SES backgrounds.
- Teachers and parents prefer full-day to half-day scheduling.
- Start-up costs can be offset by increased state aid for full-day students, reduced transportation costs, and increases in environment.
- Full-day kindergarten may reduce long-term costs for special and remedial education.

Humphrey, Jack et al (1980). A study of the effectiveness of full-day kindergarten. Evansville-Vanderburgh School Corp. Indiana

- Full-day kindergarten students scored significantly higher on three academic tests (9CAT, Boehm test of basic concepts, Gates MacGinitie reading).
- Over 90% of parents of children who attended full-day kindergarten preferred full-day kindergarten.
- Full-day kindergarten teachers have a favorable attitude about full-day kindergarten.
- First grade teachers were undecided about full-day classes.

Karweit, N (1987). Full- or half-day kindergarten – Does it matter? Report no. 11. Center for Research on Elementary and Middle Schools, Baltimore, MD

- Underachieving and disadvantaged students benefit from additional instruction provided in full-day programs but benefits are found only on short-term measures.
- Disadvantages students receiving additional instruction were the primary source of positive effects.
- Little evidence substantiates the long-term effect of full-day kindergarten attendance.
- The added time gained in a full-day program may be valuable to disadvantaged students but the type of instructional program provided is more important.

Meyer, L., Wardrop, J., Hastings, C. and Linn, R (1993). Effects of ability and settings on kindergartners' reading performance. Journal of Educational Research, 86(3), 142-160

- Length of school day did not contribute significantly to end of the year reading performance on the Wide Range achievement Test, Woodcock reading mastery test, or the Chicago reading test.

Ohio State Legislative Office of Education Oversight – Columbus (1997). An overview of full-day kindergarten

- The positive impact of all-day kindergarten appears to be on children at risk of retention or academic failure.
- In most studies, full-day students show somewhat higher academic or social achievement than half-day students, with the effects diminishing after second grade.
- Interviews with administrators from 26 districts revealed that many parents desired full-day classes.

Olson, D. & Zigler, E (1989). An assessment of the all-day kindergarten movement. Early Childhood Research Quarterly, 4(2), 167-186

- Enthusiasm for a longer, more academically oriented kindergarten has outstripped empirical support for the movement.
- Proposes an alternative in which a half-day of kindergarten is combined with an optional half-day of day care.

Redelman, D. (1999). Full-day Kindergarten: A summary of the research on student achievement. Indiana Education Information Center

- The popularity of full-day kindergarten is clearly high among parents. The reasons for support are based mainly around issues of convenience.
- The purpose of full-day kindergarten is unclear.
- The results are inconclusive regarding the academic benefits of full-day kindergarten. Most articles identify significant questions regarding control factors.
- None of the studies provided any longitudinal evidence of academic improvement.
- The few studies focusing on non-academic outcomes did show some advantages for full time kindergarten. These outcomes were mostly social factors.
- Lack of clear evidence leaves clear doubt regarding the cost-benefit analysis of full-day kindergarten.

Rothenberg, D. (1995). Full-day kindergarten programs. ERIC Digest

- Some research studies suggest that attendance in full-day kindergarten results in academic and social benefits for students, at least in first grade.
- The issue underlying the value of full-day kindergarten programs is that of creating developmentally appropriate learning environments for all children, regardless of the length of the school day.
- In full-day programs that are developmentally appropriate we find less hectic instruction geared to student needs and appropriate assessment of student progress.

Savitz, F. & Dricker, S. (1984). Kindergarten experience and first grade reading achievement. Paper presented at the Annual meeting of the Keystone State Reading Association

- Small sample size.
- No support for the idea that participation in a full-day kindergarten would result in higher reading achievement in first grade.

Sheehan, R., Cryan, J. Wiechel, J., & Bandy, I (1991). Factors contributing to success in elementary schools. Journal of Research in Childhood Ed., 6, 66-75

- Participation in full-day kindergarten was positively related to school performance at least through 1st grade.

Stinard, T. (1982). Synopsis of research in kindergarten scheduling. Grant Wood Area Education Agency, Cedar Rapids, IA

- Findings revealed no differences in socioemotional adjustment.
- Neither full-day or half-day schedule emerged as clearly superior.
- Evidence supports the academic advantages of full-day everyday versus full-day alternate day programs.

Stofflet, F. (1998). Anchorage School District full-day kindergarten study: A follow-up of the kindergarten class of 1988, 1989, and 1990. Anchorage School District

- Factors such as student motivation, home life and educational opportunities after kindergarten influenced students' later successes more than the type of kindergarten program attended.
- The full-day program appeared to offer students an immediate pay-off in preparation for first grade.

Urley, G. (1982). Effects of length of school day on kindergarten school performance and parent satisfaction. *Psych in the Schools*, 19(2), 238-242

- No difference between full-day and every other day program on school achievement and social behavior.

WestEd, April 2005, *Policy Brief*. The weight of evidence shows that full-day kindergarten benefits children in these ways:

- Contributes to increased school readiness. *Elicker & Mathur (1997); Sheehan, Cryan, Wiechel, & Bandy (1991); Evansville-Vanderburgh School Corp. (1988)*
- Leads to higher academic achievement. *Denton, West, & Walston (2003); Weiss & Offenber (2002); Elicker & Mathur (1997); Hough & Bryde (1996); Sheehan, Cryan, Wiechel, & Bandy (1991); Evansville-Vanderburgh School Corp. (1988); Walston, West, & Rathbun (2002)*
- Improves student attendance. *Weiss & Offenber (2002); Hough & Bryde (1996)*
- Supports literacy and language development. *Denton, West, & Walston (2003); Weiss & Offenber (2002); Elicker & Mathur (1997); Hough & Bryde (1996); Walston, West, & Rathbun (2002)*
- Benefits children socially and emotionally. *Elicker & Mathur (1997)*
- Decreases costs by reducing retention and remediation rates. *Weiss & Offenber (2002); Sheehan, Cryan, Wiechel, & Bandy (1991)*

ECS Policy Brief, Early Education Legislation 2005: Overview of Trends and Issues by Mimi Howard, March 2006

- As part of the Oklahoma Achieving Classroom Excellence Act of 2005, legislation phases in universal full-day kindergarten requirements. Further, legislation defines full-day kindergarten through the requirement that districts offer “full 6-hour-day kindergarten free of tuition for every child residing in the district.
- Arizona, Nevada, Delaware and Wyoming continued to provide districts with funds to expand full-day kindergarten programs in districts.
- Nevada transferred \$9.3 million to districts to provide FDK during the 2005-06 biennium.
- Wyoming continued to assist districts offering FDK with a \$5 million increase in funding.
- Delaware approved \$3 million to continue to phase in voluntary full-day kindergarten with an additional \$13 being allocated for construction of classrooms to house new programs.
- Colorado targets low-performing schools by allowing schools with unsatisfactory ratings on the state accountability system to implement full-day kindergarten, and provides funding for those schools so they could implement full-day kindergarten. The legislation also allows districts to contract with other public/private providers to offer full-day kindergarten.
- Massachusetts approved \$25 million in grants to improve full-day kindergarten instruction and strengthen the connection between pre-K, kindergarten and 1st grade. In addition, the governor called for the development of a kindergarten readiness tool.
- The Arizona legislature passed a bill that allows for parental choice of half- of full-day programs where both options are available in a district and a requirement that half-day kindergarten programs be aligned with state academic standards.
- The Connecticut School Readiness program, launched in 1997, received additional funding from the legislature in 2005.

National Center for Education Statistics Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, June 2004

- In the 1998-99 school year, 61 percent of all U.S. schools that have a kindergarten program offer at least one full-day kindergarten class and 47 percent offer at least one half-day class.
- Among public schools, there is a strong regional difference – 84 percent of public schools in the southern region of the country provide a full-day program. Full-day kindergarten is also more prevalent in public schools located in cities (64 percent) and in small towns or rural areas (63 percent) compared with suburban or large town areas (46 percent).
- Among private schools, 77 percent of kindergartners in Catholic schools and 65 percent in other private schools attend a full-day program.
- Full-day kindergarten classes spend, on average, more time each day than half-day classes on teacher-directed whole class, small group, and individual activities and they spend more time on child-selected activities.
- A large majority of both full-day and half-day classes have reading and language arts activities every day (97 and 96 percent, respectively). Full-day kindergarten classes are more likely to spend time each day on other subjects – math, social studies and science, compared with half-day classes.
- Children enrolled in a full-day program make greater gains in reading language arts over the course of the kindergarten year compared to those in half-day classes. Additionally, full-day kindergartners make greater gains in mathematics achievement during the year compared to half-day kindergartners.
- The ECLS-K data show that in the 1998-99 school year 56 percent of all kindergarten children attended a full-day program.
- Children who have spent some of their pre-kindergarten year in nursery school classes or child care arrangements (often full-day placements) are ready for the cognitive, social and physical demands of a full day of kindergarten (*Gullo 1990*).
- A main rationale for providing full-day kindergarten is to increase the time available for learning kindergarten skills and for developing appropriate social skills necessary for school success, especially for children “at risk” for school failure. Proponents of full-day kindergarten emphasize the potential educational benefit – teachers have more time to get to know their children and individualize their instruction, and children have more time to acquire the early academic skills taught in kindergarten (*Morrow, Strickland, and Woo 1998*).
- *Galley (2002)* found that 25 states and the District of Columbia provide funds for full-day kindergarten programs in the districts that offer it. Louisiana, Mississippi, Alabama, Georgia, North Carolina, South Carolina, West Virginia, Hawaii, and the District of Columbia require some of all of their districts to provide full-day kindergarten.
- A larger percent of full-day classes have art as part of their daily activities (30 percent) compared with half-day classes (21 percent)
- Music is part of the daily routine for a smaller percent of full-day classes (30 percent) compared to half-day classes (36 percent)
- Not only do more full-day classes have mathematics daily compared to half-day classes, the amount of minutes per day spent on mathematics (on days when mathematics is taught) differs as well. Twenty-one percent of full-day classes spend more than an hour doing mathematics activities compared to 9 percent of half-day classes. Forty-nine percent of half-day classes spend less than half an hour per day compared to 19 percent of full-day classes.

National Center for Education Statistics, June 2005

- Between 1977 and 2001, the percent of children ages 4-6 enrolled in full-day kindergarten programs increase from 27 to 60 percent (*Wirt et al. 2004*).
- In the fall of 1998, some 55 percent of all kindergarten children attended a full-day program (*West, Denton, and Germino Hausken 2000*).

Center for Evaluation & Education Policy, Volume 3, number 4, spring 2005

- During the 2003-04 school year, approximately 25 percent of Indiana's kindergarten students were enrolled in full-day kindergarten)
- The CEEP report (*Plucker et al., 2004*) specifically indicated full-day kindergarten enrollment provides the opportunity for greater student academic achievement and social and behavioral development.
- Full-day kindergarten enrollment was also shown to help reduce the achievement gap for minority and low socioeconomic status students.
- *Denton, et al. (2003)*. Full-day kindergarten teachers were more likely to spend time on skills including "letter recognition, letter-sound match, conventions of print, vocabulary, making predictions based on text, using context clues for comprehension, rhyming words, reading aloud, reading multi-syllable words, and alphabetizing than half-day kindergarten teachers.
- A longitudinal study of elementary school students in the School District of Philadelphia through grade 4 indicated that students who had attended full-day kindergarten earned higher marks on their report cards and performed better on reading, math and science portions of standardized tests during grade 3 than their peers who had attended half-day kindergarten. During grade 4, students who had attended full-day kindergarten continued to outperform their peers who had attended half-day kindergarten on the science portion of a standardized test, but achievement in other areas was similar across the two groups (*Del Gaudio Weiss & Offenberg, n.d.*)
- Grade retention for full-day kindergarten student sin the School District of Philadelphia and the districts examined in Ohio was lower than for students who had attended half-day kindergarten.
- Full-day kindergarten students in the Evansville-Vanderburgh (Indiana) School Corporation outperformed their half-day kindergarten peers through grade 3 in the areas of reading, mathematics, handwriting, spelling, and English. Full-day kindergarten students earned higher grade point averages than their half-day kindergarten peers in grades 6-8, and in grades 3, 5, and 7, full-day kindergarten students scored higher than half-day kindergarten student son average in every category of the Comprehensive Tests of Basic Skills (Evansville-Vanderburgh School Corporation, 1988)
- Anchorage (Alaska) School District students studied through grade 11 revealed performance differences between half-day and full-day kindergarten students. During grades 4-11, students who had attended half-day kindergarten generally scored at expected grade level on the Iowa Test of Basic Skills at higher rates than their full-day kindergarten peers (*Stofflet, 1998*). However, although half-day kindergarten students had higher GPAs, full-day kindergarten students showed greater improvement in GPA between grades 7 and 8 than their half-day kindergarten peers (*Stofflet, 1998*).

Students participating in full-day kindergarten consistently progress further academically during the kindergarten year, as assessed by achievement tests, than students in either half-day or alternative-day programs. (*Elicker, 2000, pp.8-9*)

There is tentative evidence that full-day kindergarten has stronger, longer-lasting academic benefits for children from low-income families or others with fewer educational resources prior to kindergarten. (*Elicker, 2000, pp.8-9*)

There is not current, strong evidence that the academic achievement gains of full-day kindergarten persist beyond first grade for all students. (*Elicker, 2000, pp.8-9*)

There is no evidence for detrimental effects of full-day kindergarten. The full-day curriculum if developmentally appropriate for five- and six-year-olds, does not seem to overly stress or pressure kindergarten children. (*Elicker, 2000, pp.8-9*)

Kindergarten teachers and parents strongly value the increased flexibility and opportunities to communicate and individualize instruction for children offered by the full-day schedule. (*Elicker, 2000, pp.8-9*)

More “time and opportunity to play with language” (*Fromberg, 1995, p. 236*), as well as to explore subjects in depth (*Vecchiotti, 2001*)

A more flexible, individualized learning environment (*Vecchiotti, 2001*)

More individual and small-group interaction with the teacher than is possible in most half-day classrooms (*Porch, 2002; Vecchiotti, 2001*)

Lowered childcare costs possible (*Rothenberg, 1995*)

The opportunity for lower-income families to enroll children in a higher quality early education program than might otherwise be affordable in the private market (*Vecchiotti, 2001*)

Less difficulty scheduling childcare and transportation (*Vecchiotti, 2001*)

Increased opportunities to get involved in their children’s classroom, as well as to communicate with the teacher (no citation)

Reduced ratio of transition time to learning time (*Miller, 2002*)

More time to spend with students individually and in small groups (*Porch, 2002*)

More time to get to know and communicate with parents (*Vecchiotti, 2001*)

More time to assess students and individualize instruction to their needs and interests (*Nelson, 2000; Vecchiotti, 2001*)

Fewer total students – 20 to 25 per year as compared to 40 to 50 – than in two half-day classrooms (*Elicker, 2000*)

For students from low-income, second language, and educationally disadvantaged backgrounds, full-day kindergarten looks to be a worthwhile investment in moving students toward greater social and academic success. For students who would otherwise make multiple transitions between home, childcare, and school each day, full-day kindergarten offers a more stable, less stressful, stimulating environment in which to learn and grow (*Vecchiotti, 2001*)

Atkinson Elementary School, 5800 S.E. Division St., Portland, OR, 97206. Contact: Deborah Peterson, Principal; phone: 503-916-6333; e-mail: atkinson@pps.k12.or.us; web site: www.pps.k12.or.us/schools-c/pages/atkinson/atkinson.html; school profile page: www.pps.k12.or.us/schools-c/profiles/?id=234

- The full-day immersion program is extremely popular. Last year the program received 95 applications for only 28 openings.
- Fewer transitions for children who transfer from school to daycare.
- The principal and teachers notice a difference in readiness for first grade.

Whitman Elementary School, 7326 S.E. Flavel St., Portland, OR, 97206. Contact: Cynthia Lewis, Principal; phone: 503-916-6370; school profile page: www.pps.k12.or.us/schools-c/profiles/?id=290

- More time to work on math every day, not just two days a week.
- More time for individual reading activities: teachers can work on sounds and letters one-on-one with children, skills they need to be ready for first grade.
- More time to work on large motor skills using games and other developmentally appropriate activities.
- More time for developing themes and working on science and art projects

Cascade Elementary School, 89 SW 3rd St., Chehalis, WA, 98532. Contact: Joyce Bacoccina; Principal, Bill Blair, Kindergarten teacher; e-mail: bblair@chehalis.k12.wa.us; phone: 360-748-8853

- More continuity and time with students is available if only one class rather than two half-day classes are taught.
- As the state adds more subject areas to the assessment schedules (children are first tested in fourth grade), it is more important that the younger children “get on the right track” earlier in their schooling.
- Full-day kindergarten allows much more time for comprehensive mathematics, reading, and writing curriculum, independent reading, journal writing, and project work.
- There is more time for “cognitively guided learning.” In math children have time to ask more questions, to explore topics, and to deepen their learning and investigations. This process takes more time.
- There is more time for “thoughtful playing”. I put out particular toys and plan play activities for specific, planned purposes,” says Blair.
- Full-day kindergarten allows more flexibility for parents to volunteer during the day. Blair often has about 10 parents a week in his classroom.
- Parents have more opportunities to voice their thoughts about their child’s education.
- Full-day children entering first grade are more prepared for first-grade structure and curriculum.

Study of four full-day and eight half-day kindergarten classes in a middle-class suburb of Wisconsin found that children in full-day classrooms spent more time “engaged in child-initiated activities (especially learning centers), more time in teacher-directed individual work, and relatively less time in teacher-directed large groups. Kindergarten report card progress and readiness for first grade were rated significantly higher for full-day children” (p. 459). *Elicker, J., & Mathur, S (1997), Early Childhood Research Quarterly, 12(4), 459-480.*

Nielson, J. & Cooper-Martin, E. (2002). Evaluation of the Montgomery County Public Schools assessment Program: Kindergarten and grade 1 reading report. Rockville, MD: Montgomery Public Schools, Office of Shared Accountability. Retrieved October 24, 2002, from <http://www.mcps.k12.md.us/departments/dea/pdf/Kinder2002.pdf>

- Fifty-one percent of African American students from the full-day kindergarten class achieved first-grade benchmarks compared to 59 percent of all first-grade African American students.
- Forty-eight percent of students in free and reduced-price lunch programs from the full-day program achieved grade benchmarks as compared with 45 percent of all free and reduced-price lunch students.
- The second year of full-day kindergarten confirmed that children in free and reduced-price lunch and ESOL programs had the greatest rate of improvement compared to the half-day kindergarten program.

Weiss, A.M.D.G., & Offenber, R.J. (2002, April). Enhancing urban children’s early success in school: The power of full-day kindergarten. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA

- Students who had attended full-day kindergarten were 26 percent more likely than former half-day kindergartners to make it to third grade without repeating a grade.
- Full-day kindergarten students had “significantly higher achievement scores in reading, math, and science, higher report card marks and better attendance” by third grade (p.2) although by fourth grade they had higher achievement in science only, and higher attendance.

Welsh, J. (November 13, 2002). Full-day kindergarten a plus. Pioneer Press. Minneapolis Public Schools (2002). All-day kindergarten narrows the gap in early literacy. [News release]. Retrieved November 14, 2002, from www.mpls.k12.mn.us/news/news_release/all_day_k.shtml

- Minneapolis Public Schools released a study showing that Native American, Hispanic, and African American full-day kindergarten students have made significant gains in literacy achievement compared with their peers in half-day programs. In particular, these full-day students had accelerated performance in vocabulary, rhyming, onset phonemes, oral comprehension, letter sounds, and print concepts.