District 191 Full-Day Kindergarten Evaluation of Year 2

September 2005

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Part One: Universal Full-Day Kindergarten

Kindergarten Achievement Summary
1st Grade Achievement Results
1st Grade Teacher Feedback

Universal Full-Day Kindergarten: Student Achievement
Kindergarten and First Grade Outcomes

During the 2003-2004 school year, District 191 students participated in universal full-day kindergarten. This group of students represents a unique cohort in that all students beginning kindergarten during this year received full-day kindergarten. This universal schedule had never been applied in District 191 in the past, and was discontinued during the 2004-2005 school year. This study seeks to examine outcomes for the universal full-day cohort both in kindergarten and beyond.

KINDERGARTEN OUTCOMES

Data from all kindergarteners in District 191 were collected via teacher-made and teacher-administrated assessments of the students' learning in both fall and spring of the 2003-4 school year. These assessments ("inventories") measured student achievement in both math and language arts. In math, the following variables were assessed: numeral recognition, counting to 100, counting backward from ten, one-to-one correspondence, number concept-number symbol recognition. In language arts, the following variables were assessed: recognition of letters (upper and lower case), sounds in isolation, sight words, and word association. Each teacher collected and recorded the assessment data for their students. The data for all kindergarteners in District 191 were then shared with CAREI for analysis after the end of the school year.

In addition to the data collected in the Burnsville-Eagan-Savage district, data from the half-day and fee-based full-day kindergarteners in a comparison school district were also gathered, shared, and analyzed. These data were collected through assessment measures and procedures similar to those in District 191. Achievement in both language arts and math were assessed. Several variables were unusable for comparison with the 191 data because one or the other district did not collect the same information. However, a number of variables measuring math and language arts do provide comparative analysis including letter recognition (upper and lower case), sounds in isolation, sight words, numeral recognition, counting to 100, and one-to-one correspondence. Comparative analyses were conducted on student scores from all skills tested in both districts.

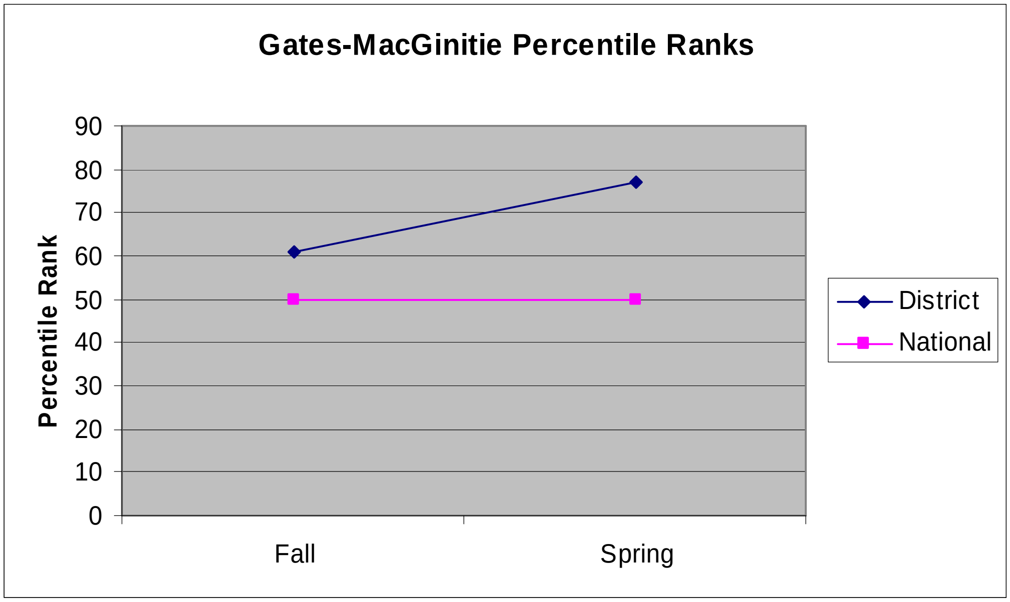
Achievement results from kindergarten indicate that students made considerable growth in all areas from fall to spring. Gaps between racial groups, language groups, and socioeconomic groups that existed in the fall were narrowed or eliminated by spring. In addition, comparison with half-day students in another district indicated that District 191 students knew significantly more upper and lower case letters on average than did comparison students at the year's end. In math assessments, more students in District 191 reached mastery levels in the subtests of counting to 100 (74.2% of students in District 191 vs. 67.9% in comparison half-day kindergarten) and numeral recognition (92.1% vs. 72.9%) when compared to the comparison district's half-day kindergarten. It should be noted that in District 191, students were required to recognize 38 numerals in order to reach mastery, while in the comparison district mastery was reached with 20 numerals. Other subtests (sight words, sounds in isolation) were less informative, as districts varied in their assessment of student achievement. When maximum numbers correct were set at the lower of the two possible numbers (21 sight words and 19 sounds in isolation; numbers used in the comparison district), District 191 students again outperformed comparison district students in terms of percent of students reaching mastery levels.

In addition to directly observable achievement outcomes, observations as well as parent and teacher feedback supported the benefits of full-day kindergarten for these students. Teacher focus groups indicated that the full day allowed for more individualization of instruction, use of more extensive curriculum, and inclusion of activities that took core content to a deeper level. Classroom observations supported teachers' reports. Observations took place in District 191 as well as two comparison districts and revealed that full-day kindergarten allowed for more time devoted to lessons, greater amount and quality of unstructured writing, more use of small learning groups, and more self-directed learning. Parents reported that the transition into full-day kindergarten was "easy" for their children. Behavioral changes in children were also noted by parents. While some changes were good (i.e., improved bedtime behavior, maturity, better at following directions), others were not as welcome (e.g., complaining about going to school, fussiness at the end of the day). Overall, parents were satisfied with their children's academic and social experience in full-day kindergarten, and believed that their children would feel more confident going into 1st grade. Please see the Year One Evaluation Report for full description of these results.

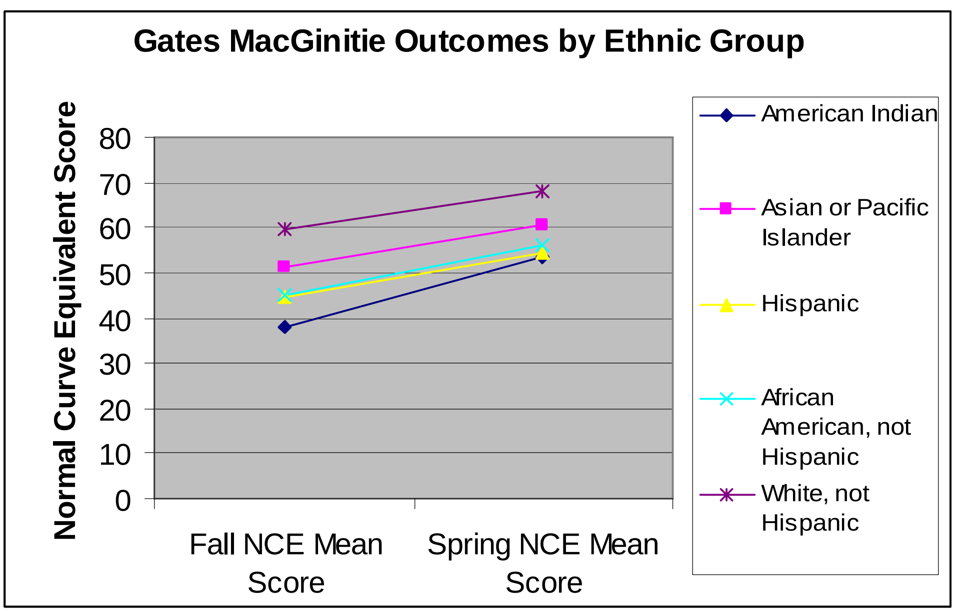
First Grade Achievement

Over a period of four years, District 191 has implemented three different kindergarten schedules. During the 2000-2001 and 2001-2002 school years, kindergarten students participated in half-day schedules. In the following year, 2002-2003, the district adopted a full day, every other day schedule. Under this program, students attended school on alternate days, for a full day each time. This allowed for the same total number of hours in kindergarten classes, but for full days at a time rather than half days. Finally, in 2003-2004, the district implemented universal full-day kindergarten. This report details the results of the Gates-MacGinitie Reading Tests for District 191 during the current (2004-2005) school year and for one school over a span of four years.

The Gates-MacGinitie Reading Tests assess early literacy skills such as initial consonants and consonant clusters, vowels, final consonants and consonant clusters, and basic story words. At the fall administration of the Gates-MacGinitie in 2004, the district average normal curve equivalent (NCE) was 56.43, which corresponds to the 61st percentile. A NCE score of 50 is considered to be normal grade-level progress, and a percentile ranking of 61 indicates that students in District 191 performed as well as or better than 61% of students nationwide. First grade students across the district made progress against the national average during the year, and produced a spring average of 65.58 (77th percentile). This demonstrates a true gain, as scores are quarter-normed to represent a student's scoring level in comparison to same-grade peers at any given point in the school year. That is, spring raw scores of an individual are compared with the national sample of scores at that same point in the school year in order to derive a normal curve equivalent and percentile rank. Had the District 191 students progressed at a rate equal to the national rate, their spring percentile rank would have remained 61. The following graph depicts the District 191 results compared to national results.



As the graph below indicates, all ethnic groups showed improvement during the 1st grade year. While some groups started somewhat below the national average, all groups finished above the national average (NCE of 50).

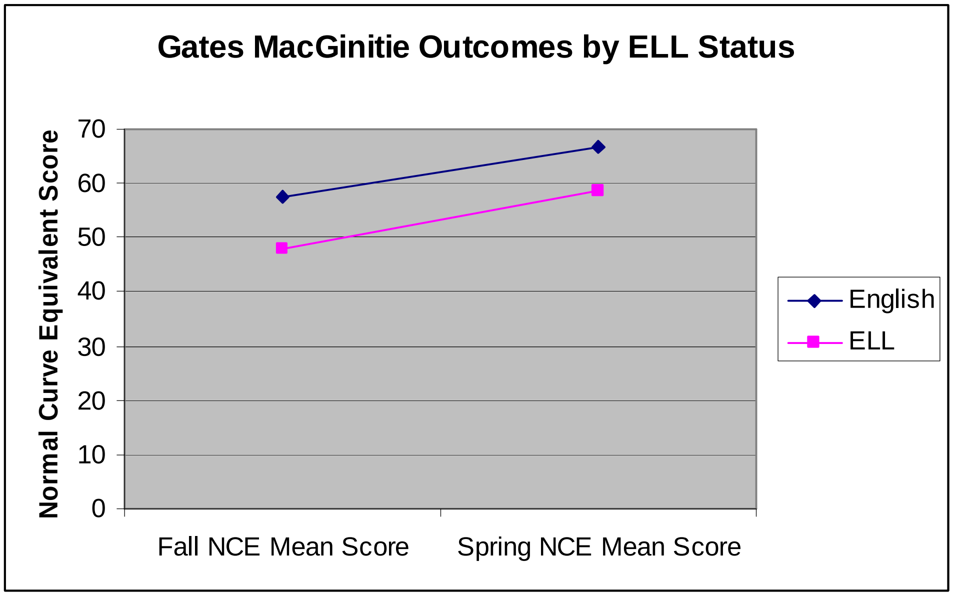


The table below lists the number and scores of students in each ethnic category. Note that some groups include a low number of students; those results should be interpreted with caution.

Gates MacGinitie outcomes by ethnic group

Ethnic Group	N	Fall NCE Mean Score	Spring NCE Mean Score
American Indian	2	38	53.5
Asian or Pacific Islander	39	51.36	60.48
Hispanic	21	44.75	54.23
African American, not Hispanic	57	45.07	56.15
White, not Hispanic	392	59.46	68.12

When scores are disaggregated by English language status, we see a similar trend.



While native English speakers tend to score higher as a group at both fall and spring administrations of the Gates-MacGinitie, both groups score near or above the national average (NCE of 50) fall and spring. The table below lists average scores for both groups, along with the number of students represented by each.

Gates MacGinitie outcomes by ELL status

ELL Status	N	Fall NCE Mean Score	Spring NCE Mean Score
English	449	57.62	66.65
ELL	58	47.91	58.54

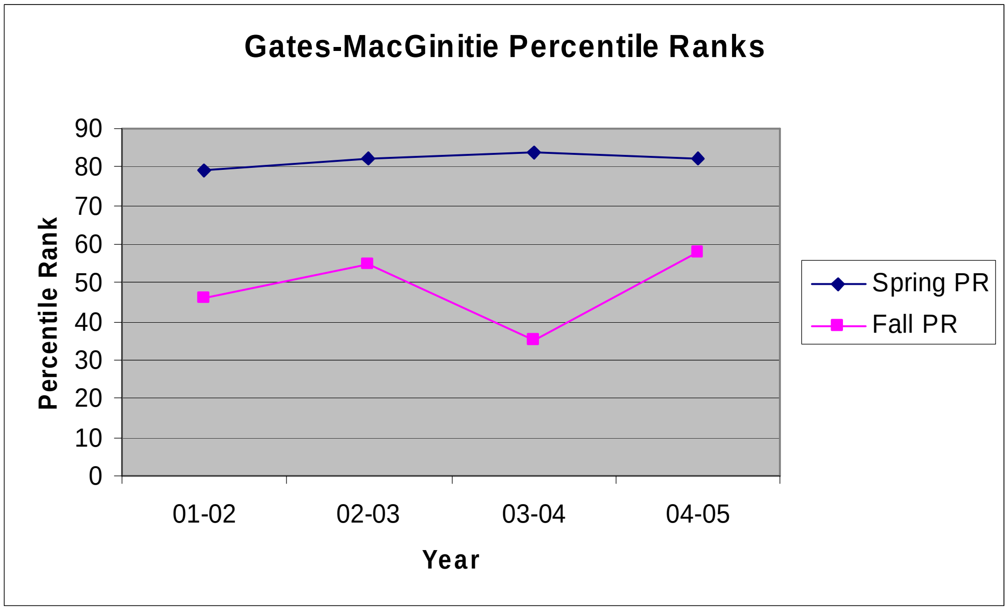
The spring scores varied by school, with one school showing significantly more growth than any other school (p<.05). The school with the greatest improvement from fall to spring was Hidden Valley Elementary, and is the school discussed in greater detail below. The number of Normal Curve Equivalent points gained by Hidden Valley students was 15 on average. The table below lists fall and spring average scores for each school, using data only from students who attended full-day kindergarten in District 191. That is, if a student did not attend kindergarten in District 191 during the previous school year, their scores were not included in the averages.

School	Fall Average NCE	Spring Average NCE
Harriet Bishop	69	71
Sky Oaks	50	60
Rahn	59	67
William Byrne	57	61
Sioux Trail	60	66
M.W. Savage	61	71
Edward Neill	48	60
Hidden Valley	54	69
Gideon Pond	54	67
Vista View	No data	70

As demonstrated by the data above, each school's students started near or above the national average (NCE of 50) and gained points against the national average by the spring administration of the Gates test.

HIDDEN VALLEY ELEMENTARY

Hidden Valley Elementary has administered the Gates-MacGinitie Reading Tests to first grade students since the 2001-2002 school year. By comparing first grade scores in the fall and spring of each school year, we were able to examine incoming reading skills as well as growth during the first grade year. This made it possible to compare starting points and growth for students who had attended each of the three kindergarten programs. The graph below depicts fall and spring test results for first grade students in each year from 2001-2002 to 2004-2005.



These results from Hidden Valley Elementary show a great gain within the 1st grade year, but also a trend in terms of changes associated with different kindergarten programs. The 1st grade classes of 2001-2002 and 2002-2003 participated in half-day kindergarten. Their scores on fall administration of the Gates-MacGinitie reading tests fell near the national average, with Normal Curve Equivalent mean scores of 48.29 and 53 (corresponding to percentile rankings of 46th and 53rd). By the spring administration of the test, students who participated in half-day kindergarten (1st grade classes of 2001-2002 and 2002-2003) were scoring at the 79th and 82nd percentile.

Students who attended 1st grade in the 2003-2004 school year participated in a kindergarten program that alternated between full-day attendance and no attendance every other day. That is, students came to school two or three days out of every five-day week, for a full day each time. Upon entering 1st grade, these students scored lower than either of the half-year cohorts on the fall administration of the Gates-MacGinitie, with a NCE of 42.42 (35th percentile rank). After a year of 1st grade education, these students' scores increased to an average of 71.62 (84th percentile) in the spring. This gain is larger than in previous years, and resulted in all three groups of students having similar spring test scores.

Students participating in the final kindergarten type, full day every day attendance, yielded the highest mean score on the Gates-MacGinitie in the fall. The mean score for this group was 54, which falls at the 58th percentile ranking nationally. Spring administration of the Gates-MacGinitie again indicated an increase in student scores, with a NCE of 69, which falls at the 82nd percentile rank.

The table below represents all NCE and PR scores from 2001 to 2004, along with corresponding kindergarten type attended:

1st Grade Year	Kindergarten Type	Fall NCE	Fall PR	Spring NCE	Spring PR
01-02	Half-Day	48.29	46th	67.31	79th
02-03	Half-Day	53.00	55th	69.28	82nd
03-04	Full-Day Every Other Day	42.42	35th	71.62	84th
04-05	Full-Day	54.00	58th	69.00	82nd

Overall, it appears that the first grade program at this particular school was effective in producing high mean scores on the Gates-MacGinitie test during spring testing. Students demonstrated growth and produced similar mean scores regardless of kindergarten programs. While students entered kindergarten with scores that varied according to kindergarten program, they finished with relatively equal mean scores. The data suggest that full-day kindergarten provides students with a higher starting point in 1st grade compared to two other kindergarten types. However, differences do not persist until the end of 1st grade.

It is important to consider the limitations of these data. First, these results may be due to the rigorous academic program offered to first grade students at Hidden Valley. A consistent gain of thirty percentile points against the national average is a remarkable result, which may speak to the power of this particular 1st grade curriculum. Unfortunately, no other schools in the district administered the Gates-MacGinitie during previous years, so comparison data is not available. Given the results from district-wide testing during the 2004-2005 school year, however, it is reasonable to believe that students in this particular school may have made larger gains than students in other schools in the district. During the 2005-2006 school year, first grade students will again complete the Gates-MacGinitie test. This will allow a district-wide comparison between students who attended universal full-day kindergarten, and students who had a choice between free half-day and fee-based full-day kindergarten.

District 191 Full-Day Kindergarten: 1st Grade Teacher Survey
Comparison Between Two Districts

During the fall of 2004, 1st grade teachers in District 191 and a comparison district were asked to complete surveys about their experiences during the first two to three weeks of school. Questions asked teachers to compare their experiences teaching students who had attended half-day kindergarten and those who had attended full-day kindergarten. In District 191, all 1st grade students who attended kindergarten in the district had attended all-day kindergarten. Conversely, in the comparison district, all-day kindergarten was provided with a fee, and many students attended half-day kindergarten instead. The survey was slightly different for each district to reflect these differences, with the comparison survey containing slightly modified versions of the District 191 survey questions in order to reflect a difference between students who attended different kindergarten programs rather than across years (e.g., instead of "much better than in previous years," the comparison district option read "compared to ½ day kindergarten students…much better"). The District 191 survey included the following questions:

1. With regard to the ***first 2-3 weeks of school***, how would you rate the children's:

   Academic readiness/preparedness? (circle one)

Much less than usual	Less than usual	No difference	Better than in previous years	Much better than in previous years
1	2	3	4	5

   Social skills? (circle one)

Much less than usual	Less than usual	No difference	Better than in previous years	Much better than in previous years
1	2	3	4	5

   Emotional adjustment to 1st grade (circle one)

Much less than usual	Less than usual	No difference	Better than in previous years	Much better than in previous years
1	2	3	4	5

2. Please describe any ***changes you have made in your teaching*** this year that relate to this year's group of students (e.g., changes in how you do small group instruction; pacing is faster/slower/more in-depth; etc.):

3. Are you using more or different curriculum materials this year due to the students' having been in an all-day setting last year? Please explain:

4. What, if anything, have parents commented to you about their child having been in an all-day program last year?

5. For the students who entered District 191 this year, coming from a half-day program last year, has their adjustment been any more difficult because they did not have a full-day program? No Yes, please explain:

6. In your view, ***what has been the rate*** of 1st grade students being referred for supplemental help (e.g., special education, ELL service, Title 1, etc.) this year as compared to previous years? More, fewer or about the same?

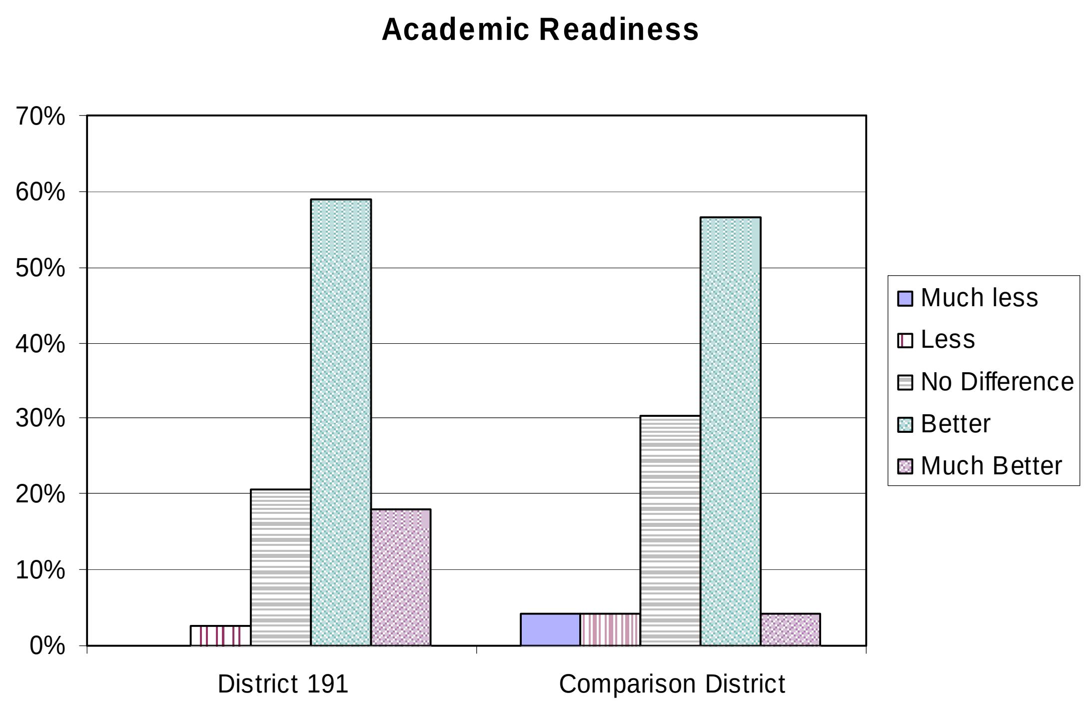
7. What is your ***overall opinion*** of full-day kindergarten programs (check one.)
   _____It's good for all children.
   _____It's best for bright kids needing the challenge
   _____It's best for students who need help with basic readiness.
   _____I generally don't believe that all-day kindergarten is a good idea.
8. Please provide any additional comments you have about your experiences this year with this group of students.

QUESTION 1: ACADEMIC, SOCIAL AND EMOTIONAL READINESS

Academic Readiness

In the first question, 1st grade teachers were asked how half-day kindergarten students performed in a 1st grade classroom as compared to full-day kindergarten students. Teachers in District 191 compared their current class with previous years in order to compare the two groups, and teachers in the comparison district compared students within their current classroom, some having attended half-day kindergarten and some having attended full-day. Results indicated that teachers in both districts perceived full-day kindergarten students as more academically prepared or ready than half-day kindergarten students. The following table and graph depict these responses:

Academic readiness compared to ½ day kindergarten students		
Response	District 191	Comparison District
Much less	0%	4.3%
Less	2.6%	4.3%
No Difference	20.5%	30.4%
Better	59.0%	56.5%
Much Better	17.9%	4.3%



In addition to indicating an overall academic readiness of full-day kindergarten students compared to half-day students, teachers were given the opportunity to provide comments to clarify or illustrate this comparison. District 191 teacher comments followed a theme of attributing some academic benefits to the full-day kindergarten experience. Fourteen of twenty-four comments (58.3%) indicated an improvement in literacy skills, including improved scores on the Developmental Reading Assessment (DRA) and strengths in letter recognition, sight word recognition, and letter/sound association. Of the teachers who reported improved language arts skills, seven specifically mentioned that students who had attended full-day kindergarten tended to have better writing skills than students in previous years who had attended half-day kindergarten. Other teachers commented that students were able to pay attention longer (n = 2), were more ready to learn (n = 1), and understood procedures for the school day better (n = 1) than half-day kindergarten students had. Three teachers indicated that smaller 1st grade class sizes might have played a role in perceived academic readiness, and one wrote that students were not as academically prepared as previous classes of students had been.

With few full-day kindergarten students in each class, the comparison district teachers were more hesitant to attribute differences between students to specific kindergarten schedule. Examples of teacher comments from both districts are listed below. The rating assigned by the teacher providing the quote is included in parentheses.

<u>District 191 teachers:</u>

- *Writing skills were overall better than previous years. More students were able to use invented spelling. More students recognized most of the letters and knew more sounds of letters.* (Score of 3.5: between No Difference and Better)

- *Knew consonants, knew basic 30 sight words, great book handling skills – left to right, tracking print, etc.* (Score of 5: Much Better)
- *All of the students who attended kindergarten in District 191 knew the names of the letters of the alphabet and most of their sounds. They all read at DRA level 2 or above.* (Score of 5: Much Better)

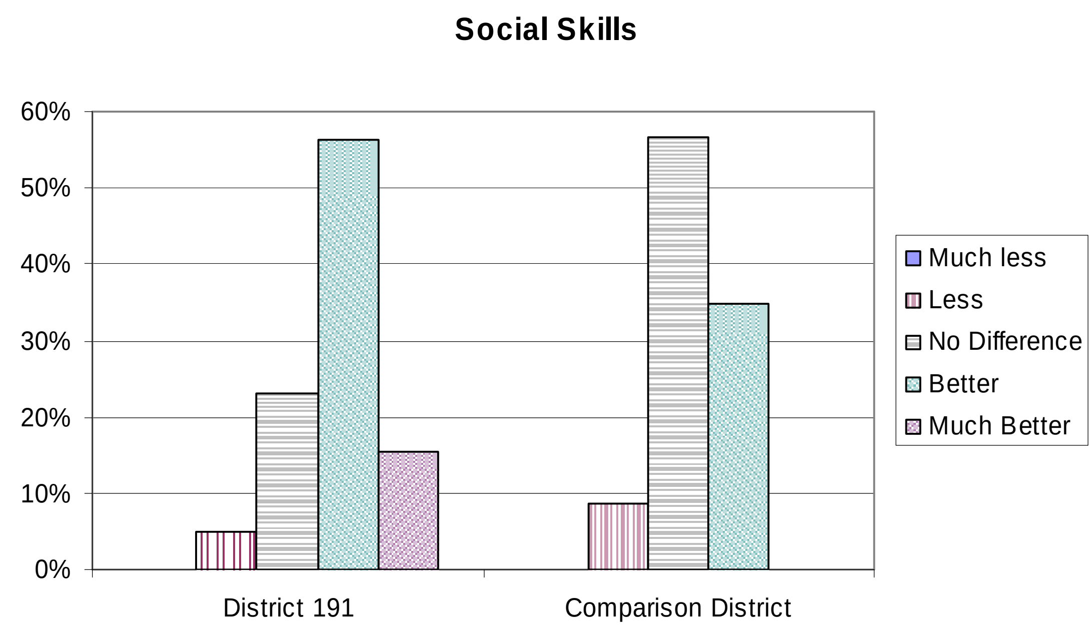
Comparison district teachers:

- *I believe he is a higher ability student to begin with so it's hard to say if he's doing better because of full day or if he would have done well anyway.* (Score of 4: Better)
- *With only one all day student, it is hard to judge this. This student is an average student, but she is also one whose family does not speak English in the home, so it's possible she may not have been at an average level if in ½ day kindergarten.* (Score of 3.5: between No Difference and Better)
- *This student has a history of learning difficulties in her family. She is in the referral process this year.* (Score of 2: Less)

Social Skills

In terms of social skills, 1st grade teachers in District 191 saw an improvement over previous years, while most teachers in the comparison district did not see a difference between half-day and full-day kindergarten students in their classes. The following table and graph depict these responses:

Social skills compared to ½ day Kindergarten students		
Response	District 191	Comparison District
Much less	0%	0%
Less	5.1%	8.7%
No Difference	23.1%	56.5%
Better	56.4%	34.8%
Much Better	15.4%	0%



Teachers provided follow-up comments to describe students' social skills. Comparison district teachers provided limited comments about the characteristics of specific children, and District 191 teachers wrote comments summarizing the social skills of the class. The most common topic of commentary from District 191 teachers was the familiarity of students with one another. Teachers observed that students were more comfortable with one another and knew each other better than pervious students had due to the amount of time spent together in kindergarten. Examples of comments from District 191 teachers are listed below. The rating assigned by the teacher providing the quote is included in parentheses.

<u>District 191 teachers:</u>

- *Compared to group that was all day every other day they are better than 2nd graders.* (Score of 5: Much Better)
- *They knew each other – understood and appreciated routine, structure, and yet had respect for each other.* (Score of 4: Better)
- *I have several thumb suckers – some who roll on the floor. Big immaturity. Have we rushed them?* (Score of 2: Less)

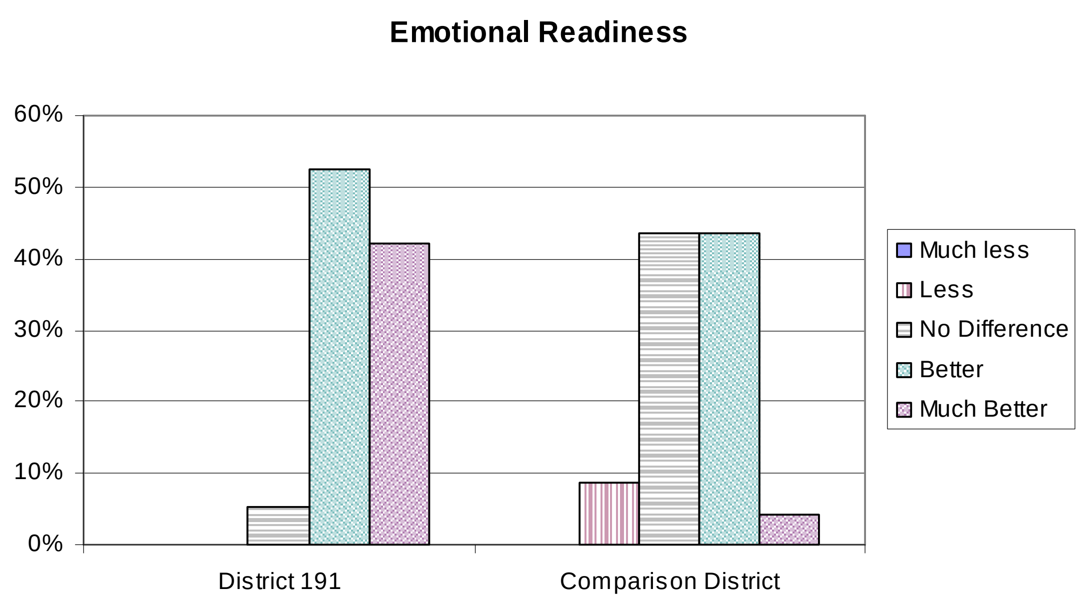
<u>Comparison district teachers:</u>

- *Very quiet, by nature tends to be very independent.* (Score of 3: No Difference)
- *This is a special needs student.* (Score of 3: No Difference)
- *Talked back to others. Very aggressive.* (Score of 1: Much less)

Emotional Adjustment

Finally, teachers were asked to rate the emotional adjustment of their 1st grade students. This was the greatest difference between half-day and full-day kindergarten students according to District 191 1st grade teachers. Almost all (94.7%) rated emotional adjustment as better than or much better than in previous years. This category also represented the widest gap between teachers in District 191 and in the comparison district in their assessment of differences between half-day and full-day kindergarten students. Some comparison district teachers reported that the emotional adjustment was easier for students who had experienced full-day kindergarten (47.8%), but a nearly equal proportion believed that there was no difference between groups (43.5%) or that full-day students actually demonstrated poorer adjustment than half-day students (8.7%).

Emotional adjustment compared to ½ day Kindergarten students		
Response	District 191	Comparison District
Much less	0%	0%
Less	0%	8.7%
No Difference	5.3%	43.5%
Better	52.6%	43.5%
Much Better	42.1%	4.3%



Again, illustrative comments were provided by teachers in both districts. Examples of comments are provided below, along with corresponding ratings.

District 191 teachers:

- *The students came in September ready to be at school for a full day; however, I saw no change in their ability to be on task or ready for instruction for any longer period of time.* (Score of 4: Better)
- *The students were able to handle the full-day more quickly and weren't as tired at the end of the day.* (Score of 4: Better)
- *None were lonely for mom or dad. They knew the school routines so we didn't spend time on those routines.* (Score of 5: Much Better)

Comparison district teachers:

- *She did seem very comfortable with our day and routines from the start.* (Score of 4: Better)
- *Still had difficulty adjusting to the long afternoon.* (Score of 3: No Difference)
- [Student] *was impulsive and emotional.* (Score of 1: Much Less)

QUESTION 2: CHANGES IN TEACHING

Please describe any ***changes you have made in your teaching*** *this year that relate to this year's group of students (e.g., changes in how you do small group instruction; pacing is faster/slower/more in-depth; etc.):*

Most teachers in the comparison district (24/32; 75%) reported that they made no changes in teaching for full-day kindergarten students as compared to half-day students. Several mentioned that they implemented flex grouping regardless of kindergarten program, a format that allowed them to provide instruction at the appropriate level for small groups of students. Teachers who reported any differences spoke to the particular strengths of individual children, and did not explicitly link those to the students' experiences in kindergarten. In District 191, on the other hand, only five of 36 teachers (14%) stated that they saw no changes in their instruction due to the shift from half-day to full-day kindergarten programs. Several teachers described changes in their teaching related to pacing; increased use of small groups; fewer problems with behavior; and the curricular areas of writing, reading, and math. Some responses fit into more than one category. Numbers of teachers indicating each type of change as well as sample quotes are provided in the table below:

Sample comments from District 191
Faster Pacing (n = 19; 52.8%) - *We started our reading instruction Day 1. We bypassed 2 weeks of reading readiness. Their independent writing skills are greatly improved! We are teaching money and place value weeks earlier.* (also coded as writing, reading, and math) - *Faster in writing curriculum. My low reading groups accelerated faster.* (also coded as reading and writing)

Reading (n = 11; 30.6%)
- *I could move faster in reading from the beginning. I was able to omit some reading readiness that I usually have done. The first unit seemed way too easy for many of the children.* (also coded as faster pacing)
- *They understood short vowels sooner…increased sight word knowledge. Guided Reading began 2nd week of school. DRA levels on average were higher. Used to be A's and 1's, now I had 3's, 4's and 6's for average.*

Writing (n = 7; 19.4%)
- *My written language expectations are higher. They are more fluent writers than previous years.*
- *I change my teaching every year based on my classroom's needs, but this year I felt I was able to go more in depth when teaching writing.*

Math (n = 5; 8.3%)
- *Pacing is faster. In math, skills seem to be mastered more quickly – so they do not need as much practice.* (also coded as faster pacing)
- *Faster paced math, especially addition and subtraction they had much more prior knowledge.* (also coded as faster pacing)

Small Groups (n = 5; 13.9%)
- *I am spending more time in small group reading – there are more extreme level differences.*
- *More small group instruction to different ability groups – meet needs.*

No Change (n = 5; 13.9%)
- *Changes in one's teaching always happen in some degree to the different dynamics that come with each new group of students. That said, I didn't find pacing to be much different in the academic/social/emotional areas to warrant any changes in my teaching.*
- *We still have a wide range – from those who are struggling tremendously in reading and math to those who need daily challenges. We have more on the low academic end than in some years. We have about the same number of top academic students as we've had for many years.*

Behavior (n = 4; 11.1%)
- *I'm able to actually teach rather than deal with discipline (extreme) behaviors from the students.*
- *Pacing is faster due to less time with behavior issues and they are more ready to learn.* (also coded as faster pacing)

QUESTION 3: CURRICULUM USE

Are you using more or different curriculum materials this year due to (some of) the students' having been in an all-day setting last year?

Results from this question indicated that District 191 teachers are using more curriculum materials than in the past. While eleven (31%) teachers stated that they are not using more or different curriculum materials than in the past, the majority (n = 25; 69%)

believe that different materials have been necessary for this year's 1st grade class. Teachers reported more advanced skills in reading and in math. Sample responses indicating both no change and increased curriculum use are listed below:

No, I am not using more or different curriculum materials:

- *No. We have always had to supplement to meet the specific needs of students.*
- *Not really. The range is wide from almost non-readers to those reading far above DRA level 24. The range in math is great too.*

Yes, I am using more or different curriculum materials:

- *Need to use more challenging math assignments. They seem better equipped for problem solving and love the challenges.*
- *More guided reading, more lit log written response, more writing, deeper discussion. Everything is at a deeper level…connections are more real!*
- *We are moving more quickly and may find we will add more curriculum in the spring. This group seems more ready for independent work.*
- *I'm using the same curriculum and it is working better than before.*
- *I am using more leveled readers with all groups – using higher levels with top students.*

Most teachers (76.2%) in the comparison district reported that they have not used additional curriculum materials this year due to some children having attended all-day kindergarten. However, five (23.8%) teachers indicated that some changes did take place, including using more advanced work and skipping activities used in previous years due to their being covered in kindergarten. Examples of responses from comparison district teachers are listed below:

- *No. But there are reported concerns by other teachers that all-day students say they have done planned activities in kindergarten. I think this shows a need to communicate with Grade 1 teachers to prevent this.*
- *Many of the children have said, "I already read that book," even though it is a part of 1st grade's language arts series! This needs to be specified again.*
- *No, curriculum material is set by the district. I usually evaluate my students each year and make appropriate choices whether I have ½-day or full-day kindergarteners.*
- *Not really. First graders, in general, come to school with a great deal of differences from each other. We already use a wide range of materials and curriculum to meet their needs.*

As indicated by the first two responses, one possible problem with providing full-day kindergarten to only some students in a district is the difficulty of communication between kindergarten and 1st grade teachers in developing appropriate 1st grade curriculum. In addition, with few full-day kindergarten students in each room, typical accommodations such as flexible groups for reading and math may suffice to meet each child's needs.

QUESTION 4: PARENT COMMENTS

What, if anything, have parents commented to you about their child having been in an all-day program last year?

A slight majority (n = 20; 55.6%) of teachers in District 191 reported hearing positive comments from parents about all-day kindergarten. Only two teachers (5.6%) received any negative feedback, and 15 (41.7%) did not hear any response from parents. Positive comments of District 191 parents can be categorized into general positive feedback comments and comments specific to increased readiness for 1st grade. Examples of both are given below:

General Positives (n = 11; 30.6%)

- *Love it! But children who moved in on day one or later and experienced a ½ day program are greatly behind. They slow down the pace of the class and could water down the results.*
- *Only one comment – she liked it and felt her child grew in all areas*

Increased Readiness for 1st Grade (n = 9; 25%)

- *Better prepared for full day in 1st grade. Day did not seem as long.*
- *They were surprised at how well the children read already at the beginning of 1st grade*

It appears that parents of District 191 students were pleased with the full-day kindergarten program and the effect that it had on their children's development. Only three of nineteen (15.8%) teachers from the comparison district reported any feedback from parents. In these cases, one teacher heard from parents that their children were excited to be back in school in 1st grade, parents of one student receiving special education stated that they were better prepared due to all-day kindergarten, and one student's parents shared general positive feedback about the all-day kindergarten experience.

QUESTION 5: ADJUSTMENT OF ½-DAY STUDENTS

Has adjustment been any more difficult for students who attended half-day kindergarten because they did not have a full-day program?

Teachers in both districts had a range of views on whether adjustment to 1st grade was more difficult for students who had attended half-day kindergarten than for those who had attended a full-day program. The number of teachers who responded in each category, along with percentages, is presented in the table below.

	District 191		Comparison	
	N	%	N	%
Yes	12	30.8	2	8.7
No	17	43.6	12	52.2
NA/No response	10	25.6	9	39.1

In District 191, teachers were more likely to indicate that half-day students had a more difficult time adjusting to the 1st grade classroom than were teachers in the comparison district. However, in both districts, the largest percentage of teachers indicated that half-day students did not have a more difficult adjustment than full-day kindergarten students.

Qualitative teacher responses indicated that adjustment may vary greatly by student, and coming to conclusions about the relative influence of a half-day or full-day kindergarten program on 1st grade adjustment was difficult. This seemed to be the case for teachers who indicated that adjustment was not more difficult for half-day students than for full-day students. Teachers who indicated that a difference existed between groups cited skill and experience advantages of the full-day kindergarten students. Sample responses are listed below:

Yes, adjustment for half-day kindergarten students was more difficult.

- *Their lack of preparation was very obvious. Our all day kids new consonant names, sounds, many knew some short vowels – they could write – recall sight words. New kids just couldn't keep up.* (District 191)
- *The full-day students work better together and are much more ready to sit and listen.* (District 191)
- *Understanding and practicing school procedures are essential to being confident in 1st grade. I have two students from ½-day programs. They didn't have the phonics and writing background that 191 students had.* (District 191)
- *Reading skills are so much lower along with writing, spelling and math skills.* (Comparison)

No, adjustment for half-day kindergarten students was not more difficult.

- *I have only one child in my room who did not have all-day kindergarten last year and he happens to be my top student.* (District 191)

- *I have two students that went to kindergarten half-days and they were right on par with the full-day students and continue to be.* (District 191)
- *I only had two new students. One went to all-day kindergarten in Michigan and is one of my lowest students. One went to ½-day and is my brightest student who read at a DRA 24+ when tested in August.* (District 191)
- *1st grade is still an adjustment and 1st graders may take a bit of time to adjust to the changes.* (Comparison)

Other comments not connected with a yes or no response:

- *My new students have language and diversity differences that make it difficult to know if it's been a factor of all day/half day.* (District 191)
- *This question is impossible to answer. Who knows actually why a student is having a difficult time? Could be family life, move, etc.* (District 191)
- *There are too many variables to accurately say that the length of the day in kindergarten was the major factor for adjustment.* (Comparison)

QUESTION 6: REFERRAL RATE

*In your view, **what has been the rate** of 1st grade students being referred for supplemental help (e.g., special education, ELL service, Title 1, etc.) this year as compared to previous years?*

The highest percentage of teachers in both districts indicated that the rate of referral during the current school year was about the same as in previous years. Of the District 191 teachers, 23.1% (n = 9) reported an *increase* in referrals to supplemental services as compared to previous years. A table of number and percent of teachers indicating each response is provided below:

Rate of Referral Compared to Previous Years

	District 191		Comparison	
	N	%	N	%
More	9	23.1	0	0
Fewer	6	15.4	4	17.4
About the Same	19	48.7	12	52.2
No Response	5	12.8	7	30.4

Follow-up responses revealed that in District 191, teachers perceived that change in student population or individual student characteristics influenced the overall rate of referral. For example, teachers wrote the following responses:

- *This depends on the child's ability…those that would need it- sill need it.*
- *Change of student population contributes to this.*

In addition, other teachers indicated that factors such as mobility and eligibility requirements played a role in rate of referral.

- *I can only speak for my room. Some of the kids referred were in last year – but mostly they were new to our school.*
- [Fewer referred for] *ELL,* [but about the same referred for] *Title – the cutoff was raised for Title.*
- *Fewer if you are only considering the children that were in all day K. I have five students participating in Title I. Three attended our school last year and two transferred in from other districts.*

Finally, one teacher suggested that earlier identification in kindergarten might make referrals slightly less common in 1st grade.

- *Maybe slightly less. More had already been referred previous to 1st grade due to K teachers being able to identify earlier.*

QUESTION 7: OVERALL OPINION

What is your ***overall opinion*** *of full-day kindergarten programs?*

The final question in the survey asked teachers to indicate their overall opinion of the benefits of full-day kindergarten. A strong majority of teachers in both districts (77.1% District 191, 77.8% comparison) indicated that they believe full-day kindergarten is good for all children. A smaller percentage (17.1% District 191; 16.7% comparison) believed that full-day kindergarten is best for students who need help with basic readiness. Only three teachers from both districts combined indicated that they generally do not believe that all-day kindergarten is a good idea.

Overall Opinion of Full-Day Kindergarten Programs

	District 191		Comparison	
Opinion	N	%	N	%
It's good for all children	27	77.1	14	77.8
It's best for bright kids needing the challenge.	0	0	0	0
It's best for students who need help with basic readiness.	6	17.1	3	16.7
I generally don't believe that all-day kindergarten is a good idea.	2	5.7	1	5.6

QUESTION 8: ADDITIONAL COMMENTS

Several teachers in District 191 provided additional comments reflecting on their experience teaching students who participated in full-day kindergarten. Some conveyed their positive impression of the full-day program, others shared concerns about the long day, and still others listed factors other than kindergarten program that effected their students. Examples of each type of response are provided below.

Positive feedback about all-day kindergarten:

- *I feel that I have a great group of children who are well adjusted academically and emotionally from the help of the all day kindergarten program.* (District 191)
- *I was off and teaching! I had kindergarten DRA scores in hand last May! It helped to get a "picture" in August. My kids were indeed where the kindergarten teachers said. I feel I was teaching asking deeper thinking questions – increased sight word knowledge – better writing skills – number sense – etc. Am concerned now for 05-06. No longer will the majority have this foundation. At least at our school – approximately ¼ of the kids are ½-day.* (District 191)
- *I have a great fear about next fall. So many more children will not have had all day kindergarten. The impact on the 1st grade rooms will be stunning since our group will be mixed. It will be difficult and will affect the results.* (District 191)
- *It is difficult for me to compare because we grouped such a high percentage of ELL students together which has skewed my composite. I believe my students (both high and low) benefited from all day opportunities. They came in with more confidence, if not more skills. I shudder to project where my needy students may have been without that learning opportunity.* (District 191)
- *I only had one in my class this year. She was ready for the longer day and can adapt to changes easier. I would love to see all day kindergarten offered for all!* (Comparison)

Concerns about all-day kindergarten:

- *I believe childhood should be a journey – not a race.* (District 191)
- *I am concerned that we are robbing these children of their childhood and carefreeness. Too much academics.*(District 191)

Extraneous factors effecting students:

- *I have <u>really</u> enjoyed my class this year. The most important factor has been able to reach <u>all</u> students due to <u>class size</u>. I do have some problem students but I feel so much more patient with them and give them the time they need to be 1st graders.* (District 191)
- *It's hard for me to make judgments on all-day kindergarten based on one group of eighteen students. There are so many factors involved!* (District 191)
- *I think our group of kids had more needs than other groups – it's the group – not related to the all day issue. I think large class size and all day kindergarten somewhat cancel each other out. This group had large class size in very tight quarters during kindergarten year.* (District 191)
- *I think* [student] *is an above average child and am reluctant to say that she is more capable because of all day kindergarten.* (Comparison)

- *It all depends on the individual student and family life. Some kids need it and others don't.* (Comparison)

CONCLUSIONS

This component of the evaluation of the all-day kindergarten program in the District 191 School District asked 1st grade teachers to share their experiences in teaching both half-day and full-day kindergarten students. Overall, it appears that 1st grade teachers perceive several academic, social and emotional benefits being experienced by students who have attended full-day kindergarten programs. A large percentage of teachers in District 191 in particular appeared to strongly support the full-day kindergarten program. Specific gains were reported in the areas of early reading skills, writing, math, behavior, and adjustment to the school routine.

Comparison district teachers were somewhat less convinced of the changes that a full-day or half-day program had promoted in their students. In most cases, comparison district teachers had only one or two full-day students in each classroom. Out of necessity, their responses tended to describe the characteristics of those individual students rather than of an entire class. In addition, several teachers expressed hesitancy to attribute changes in referral rates for supplemental services or adjustment difficulties specifically to experience in the full-day program. This result may be due to the many factors that play a role in each of these categories: increasing language diversity in the classroom, individual child characteristics, changing eligibility criteria, and home variables all play a role in instructional needs in the classroom.

Part Two: Full-Day and Half-Day Kindergarten – Cohort Two

Kindergarten Outcomes
Teacher Feedback

Full-Day and Half-Day Kindergarten: Academic Outcomes

This section compares outcomes half-day and full-day kindergarten students in District 191. The primary focus is on students who attended kindergarten during the 2004-2005 school year. During that year, full-day kindergarten was optional and fee-based. Therefore, families elected to enroll their children in one of two programs. Randomization into groups was not possible.

Data from all kindergarteners in the Burnsville-Eagan-Savage school district were collected via teacher-made and teacher-administrated assessments of the students' learning in fall and spring of the 2003-4 (full-day kindergarten), and 2004-2005 (full-day and half-day kindergarten) school years. Assessments were also conducted in previous years, from which a random sample of 2001-2 (half-day kindergarten) assessments were drawn for comparison. These assessments measured student achievement in both math and language arts. The following variables were assessed in the same or comparable way among the three assessments (01-02, 03-04, and 04-05) and allowed comparison between them: one-to-one correspondence, recognition of letters (upper and lower case), sounds in isolation, word association, counting, and number-symbol number-concept. Additional skills were compared between 03-04 and 04-05, including sight words, backward counting, and numeral recognition. Each teacher collected and recorded the assessment data for their students. The data were then shared with CAREI for analysis.

PROCEDURES

Students were assessed individually by their classroom teachers in both fall and spring on each of the targeted skills. The general procedures used were:

- Upper Case Letter Recognition: teachers showed each student each letter of the alphabet individually and out of order and tracked the number of letters the student correctly identified by saying the letter's name. Total possible correct was 26.
- Lower Case Letter Recognition: teachers showed each student each letter of the alphabet individually and out of order and tracked the number of letters the student correctly identified by saying the letter's name. Total possible correct was 26.
- Sounds in Isolation: teachers showed each student a letter, individually and out of order, and tracked the number of sounds the student correctly identified by making the sound. Total possible correct was 31 sounds: 26 plus consonants with hard and soft sounds and vowels with short and long sounds.
- Word Association: teachers showed each student a letter and asked the student to say a word that begins with that sound (same sounds as the sounds in isolation variable). The teacher then recorded the number of instances in which the student correctly stated a word that begins with the sound. Total possible correct was 31 sounds.
- Sight Words: in the 03-04 and 04-05 school years, teachers showed each student simple words and ask them to read each. Total possible correct was 36. This assessment was also given in 01-02, but with 30 possible correct and using different

sight words in the assessment. Given the differences between these two assessments, only 03-04 and 04-05 kindergarten assessments are compared statistically. Basic results and growth from pre- to post-test for all groups are given as descriptive information, however.

- One-to-One Correspondence: teachers asked each student to count objects as depicted on paper. The teacher then recorded “yes” or “no” to indicate whether the student accurately counted the objects in pictures shown.
- Counting to 100: teachers asked each student to count aloud as high as he or she could without looking at written numbers or pictures. The teacher then recorded the number the student reached in correct sequence. Total possible correct was 100.
- Numeral Recognition: teachers showed each student an individual number, out of sequential order, and asked for the student to state the name of that number. Total possible correct was 38.
- Number Symbol-Number Concept: teachers showed each student 12 groupings of object pictures and asked them to identify which numeral represented that grouping. The teacher then recorded the number of times a student accurately connected the number concept to the number symbol up to 12.
- Counting Backwards: teachers asked each student to start at the number 12 and count backwards to 1. The teacher then recorded a “yes” or “no,” to indicate whether the student accurately named the numbers in backward sequence 12 to 1.

HALF-DAY VS FULL-DAY KINDERGARTEN

2004-2005: Kindergarten students in the 2004-2005 school year participated in either half-day or fee-based full-day kindergarten. Groups were not randomly assigned, and had several differences on pre-test achievement scores. Students enrolled in full-day kindergarten had significantly ($p \leq .05$) higher scores in nearly all language arts and math subtests in the fall of 2004 (with the exception of sight words read and number-symbol number concept connection). In the spring assessment, full-day students again produced significantly ($p \leq .05$) higher scores, this time on every subtest. The amount of change from pre- to post-test was also examined. An independent samples t-test revealed that the full-day kindergarten group improved significantly ($p \leq .05$) more than the half-day group on the subtests of sounds in isolation, word association, and sight words. Differences were not significant in changes in letter recognition (upper and lower case), counting, numeral recognition, or number-symbol number-concept.

Because several of the subtests measuring student achievement have a restricted range, it is not surprising that significant differences were not found in several tests. That is, when the maximum correct is 12, a large proportion of students are likely to reach that benchmark, making the distribution largely unbalanced. Therefore, the proportion of students in each group who reached mastery level was also examined. The graph below demonstrated the percentage of students in each kindergarten group who reached 100% proficiency on each subtest.

PERCENTAGE OF STUDENTS REACHING MASTERY (100%) ON EACH SUBTEST				
	Full-Day Kindergarten 04-05		Half-Day Kindergarten 04-05	
Subtest	Pre	Post	Pre	Post
Upper Case Letters	37.6%	95.0%	25.9%	77.8%
Lower Case Letters	16.6%	89.5%	16.0%	72.9%
Sounds in Isolation	0.7%	63.2%	0.8%	26.1%
Word Association	0.6%	43.7%	0.8%	20.8%
Sight Words	2.5%	51.2%	2.1%	26.3%
Numeral Recognition	11.0%	72.4%	8.4%	58.0%
Number Symbol – Number Concept	46.9%	94.4%	44.3%	89.8%
Counting	15.0%	81.0%	11.5%	70.0%

This table demonstrates that while full-day and half-day kindergarten classes usually had similar proportions of students reaching mastery in the fall of the kindergarten year, differences emerged by spring. A higher percentage of students reached mastery in the full-day classes than in the half-day classes on every subtest. It appears that full-day kindergarten left fewer children "behind" than did half-day kindergarten.

2001-2002, 2003-2004 and 2004-2005 combined: The full-day kindergarten groups from 03-04 and 04-05 received the same kindergarten program, but were not necessarily equivalent groups. Because full-day kindergarten became a fee-based option in 04-05, whereas it was universal in 03-04, preexisting differences may have existed between groups. In order to examine these differences, pre- and post-test scores on assessments were compared between the two full-day groups. No pre-existing differences between the two groups were found at pre-test, with the exception of scores on the numeral recognition subtest, in which 04-05 students performed significantly better than 03-04 students. At post-test, scores on the subtests of sounds in isolation, word association, and sight words were significantly different between groups. In all three cases, the 04-05 group produced higher mean scores than the 03-04 group. Overall, it appears that differences between half-day and full-day kindergarten observed in the 04-05 sample persist when data from universal full-day kindergarten in 03-04, and a random sample of data from half-day kindergarten in 01-02 are included.

The following table represents results on each language arts assessment for all students. The number correct is given, along with percentage correct. For example, in the case of upper case letters, 26 correct out of 26 possible is 100%. An asterisk (*) next to a difference score in the bottom row indicates that a significant difference was found between half-and full-day kindergarten students' scores on that subtest.

ACADEMIC OUTCOMES, PRE-POST LANGUAGE ARTS										
Kindergarten Type	Upper Case Letters		Lower Case Letters		Sounds in Isolation[1]		Word Association		Sight Words	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
191 ½-Day 01-02 (n=88)	20.35 (78%)	25.34 (97%)	17.46 (67%)	25.02 (96%)	10.93 (42%)	22.99 (88%)	11.06 (43%)	23.66 (91%)	NA	
191 ½ -Day 04-05 (n=328)	17.16 (66%)	24.66 (95%)	14.92 (57%)	24.15 (93%)	7.19 (28%)	22.64 (87%)	8.18 (31%)	22.08 (85%)	3.84 (11%)	23.60 (66%)
191 Full-Day 03-04 (n=758)	19.23 (74%)	25.67 (99%)	16.22 (62%)	25.52 (98%)	8.72 (34%)	24.61 (95%)	9.92 (38%)	24.4 (94%)	3.85 (11%)	29.23 (81%)
191 Full-Day 04-05 (n=599)	19.59 (75%)	25.73 (99%)	17.00 (65%)	25.93 (99%)	9.10 (35%)	24.98 (96%)	10.41 (40%)	24.82 (95%)	4.37 (12%)	30.74 (85%)
Total ½-Day (n=416)	**17.95** (69%)	**24.82** (95%)	**15.54** (60%)	**24.36** (94%)	**8.13** (31%)	**22.74** (87%)	**8.77** (34%)	**23.74** (80%)	**3.84** (11%)	**23.60** (66%)
Total Full-Day (n=1357)	**19.38** (75%)	**25.70** (99%)	**16.55** (64%)	**25.69** (99%)	**8.89** (34%)	**24.76** (95%)	**10.13** (39%	**27.14** (97%)	**4.03** (13%)	**29.85** (92%)
Half-Day, Full-Day Difference	**1.43***	**.88***	**1.01**	**1.33***	**.76**	**2.02***	**1.36**	**2.17***	**.23**	**6.25***

This table represents the academic growth from fall to spring of students' kindergarten years. It appears that full-day students exit kindergarten with a higher mean score than their ½-day counterparts on every language arts assessment. When both ½-day classes and both full-day classes are pooled to make a total ½-day and total full-day average on each assessment, the full-day students enter ***and*** exit kindergarten with higher mean scores on language arts assessments.

In terms of significance, it should be noted that while these differences are statistically significant, their practical significance may be different. That is, the scores of half- vs. full-day kindergarten groups are different in such a way that statistically, we can say that the difference is very unlikely to have occurred by chance. However, the actual difference in scores is often only a few letter sounds learned or words produced. The subtest with perhaps the greatest practical significance was sight words, in which outcomes showed full-day kindergarten students learning to read an average of six words more than half-day students, out of a possible thirty-six.

The following table represents results on each math assessment for all students. An asterisk (*) next to a difference score in the bottom row indicates that a significant difference was found between half-and full-day kindergarten students' scores on that subtest ($p \leq .05$).

[1] The skills of sounds in isolation and word association were tested in 03-04 and 04-05 using a maximum number correct of 31, but in 01-02 using a maximum number correct of 26. All scores in the 03-04 and 04-05 groups exceeding 26 were given a score of 26 in order to make the data more comparable.

ACADEMIC OUTCOMES, PRE-POST MATH						
Kindergarten Type	Counting		Number Symbol - Number Concept		Numeral Recognition	
	Pre	Post	Pre	Post	Pre	Post
191 ½-Day 01-02 (n = 88)	41.15	65.00	8.84 (74%)	11.00 (92%)	NA	
191 ½ -Day 04-05 (n = 328)	31.74	81.17	8.34 (70%)	11.42 (95%)	15.85 (42%)	31.49 (83%)
191 Full-Day 03-04 (n = 758)	38.42	86.44	9.13 (76%)	11.78 (98%)	17.64 (46%)	34.36 (90%)
191 Full-Day 04-05 (n = 599)	39.50	89.23	8.97 (75%)	11.75 (98%)	19.48 (51%)	34.96 (92%)
Total ½-Day (n = 416)	**34.03**	**77.22**	**8.41** (70%)	**11.37** (95%)	**15.85** (42%)	**31.49** (83%)
Total Full-Day (n=1357)	**38.88**	**87.61**	**9.06** (76%)	**11.77** (98%)	**18.42** (48%)	**34.61** (91%)
Half-Day, Full-Day Difference	**4.85***	**10.38***	**.65***	**.40***	**2.57***	**3.12***

An independent samples t-test revealed several significant differences between the two groups. While the pre-test mean scores on some variables were not significant, post-test mean scores were significant in all cases. In all cases, the full-day kindergarten group scored higher than the ½-day group in the spring assessments of academic growth.

One-to-one correspondence and counting backward were tests in which outcomes were measured in terms of mastery (yes/no) rather than number correct. The following table represents the percentage of students who mastered one-to-one correspondence and backward counting for half- and full-day kindergarten.

ACADEMIC OUTCOMES, PRE-POST, MATH				
Kindergarten Type	1:1 Correspondence		Counting Backward	
	Pre	Post	Pre	Post
191 ½-Day (01-02) (n = 88)	80.9%	97.1%	NA	
191 ½-Day (04-05) (n = 328)	45.4%	90.9%	38.8%	83.3%
191 Full-Day (03-04) (n = 758)	52.8%	94.8%	53.0%	93.4%
191 Full-Day (04-05) (n = 599)	52.7%	95.3%	55.6%	94.5%
Total ½-Day (n = 416)	**52.7%**	**92.1%**	**38.8%**	**83.8%**
Total Full-Day (n = 1357)	**52.8%**	**95%**	**54.1%**	**93.9%**
Difference	**.1%**	**2.9%**	**15.3%**	**10.1%**

In the subtest of one-to-one correspondence, slightly more full-day students reached mastery than did ½-day students. Although both groups were relatively equal in the fall, slightly more full-day kindergarten students reached mastery in the spring than did half-day students. In backward counting, the full-day group had a great many more students reaching mastery at pre-test than did the half-day group. At post test, the groups were more similar, with full-day students maintaining a higher rate of mastery.

See Appendix for graphs depicting the pre-post changes in each subtest for both groups. Increasing space between lines is an indication of the full-day students experiencing more growth than the ½-day students by the end of the year.

DIFFERENCES BY FREE AND REDUCED PRICE LUNCH ELIGIBILITY

In order to compare groups based on an indicator of socioeconomic status, we calculated a percentage of kindergarten students eligible for free or reduced lunch (FRL) prices at each school. Schools fell into three clearly divided groups based on these percentages. The low FRL group included two schools, each of which had FRL percentages below 5%. Medium FRL included all schools with between 15% and 20% of kindergarten students eligible for free or reduced price lunch. Three schools fell into the medium FRL group. Finally, schools with high FRL percentages reported 30% to 40% of kindergarten students as being eligible for free or reduced lunch. This group consisted of the remaining five elementary schools in the district.

A comparison of the distribution of students in each FRL category between full- and half-day kindergarten groups found that the half day group was significantly different from both full-day groups (03-04 and 04-05) but that full-day groups were not significantly different from one another. Differences were such that the half-day group had a greater proportion of students in the high FRL schools and a lower proportion of students in low FRL schools than did either full-day group.

During the 2003-2004 school year, all students in the district were enrolled in full-day kindergarten. When scores on fall and spring assessments were compared in terms of FRL groups, significant differences emerged in the fall but not in the spring. That is, on every subtest in language arts and in math, students in schools with high FRL percentages performed below those in schools with low FRL percentages at the beginning of the school year, but not at the end of the school year.

2004-2005: Full-day kindergarten became a fee-based option in the 2004-2005 school year. During this year, 35% of students attended half-day kindergarten, and 65% attended full-day kindergarten. In this group, several significant differences between schools with varying FRL status were found at both pre- and post-test. While full-day kindergarten students demonstrated an elimination of significant differences in two subtests, the remaining assessment results were significant in both fall and spring. Half-day kindergarten students exhibited no change in significance between fall and spring in terms of differences between FRL groups.

The following table lists significant differences found between low, medium, and high FRL schools on each assessment at both pre- and post-test:

Significant Differences Between Schools With Varying FRL Status (04-05 Only)				
Assessment	Full-Day		Half-Day	
	Pre	Post	Pre	Post
Upper Case Letters	Yes	Yes	Yes	Yes
Lower Case Letters	Yes	**No**	Yes	Yes
Sounds in Isolation	Yes	Yes	Yes	Yes
Word Association	Yes	Yes	Yes	Yes
Sight Words	Yes	Yes	Yes	Yes
Numeral Recognition	**No**	Yes	Yes	Yes
Counting	Yes	**No**	**No**	**No**
Number Symbol–Number Concept	Yes	Yes	Yes	Yes

Additional analyses revealed that full-day students in high FRL schools improved significantly more than half-day students in high FRL schools on the subtests of sounds in isolation, word association, and sight words. In medium FRL schools, full day students improved significantly more in sight words, but significantly less in upper case letter recognition. Because most students in the sample reached 100% letter recognition in both upper and lower case letters, change scores may not be ideal indicators of differences between groups for these subtests, however. Finally, no differences in change scores were found between half-day and full-day kindergarten in the low FRL schools.

2003-2004 and 2004-2005 combined: In order to examine overall differences, scores of students who attended universal full-day kindergarten were combined with the scores of students who attended fee-based full-day kindergarten. The following table depicts changes in significance from pre- to post-test for full-day and half-day kindergarten groups in both 03-04 and 04-05.

Significant Differences Between Schools With Varying FRL Status (03-04 and 04-05)				
Assessment	Full-Day		Half-Day	
	Pre	Post	Pre	Post
Upper Case Letters	Yes	**No**	Yes	Yes
Lower Case Letters	Yes	**No**	Yes	Yes
Sounds in Isolation	Yes	Yes	Yes	Yes
Word Association	Yes	Yes	Yes	Yes
Sight Words	Yes	Yes	Yes	Yes
Numeral Recognition	Yes	**No**	Yes	Yes
Counting	Yes	**No**	**No**	**No**
Number Symbol–Number Concept	Yes	**No**	Yes	Yes

In this case, significant differences were eliminated in five of eight subtests in the full-day kindergarten group. Pre-existing differences between groups should be considered in both cases presented above. While a significant difference was found between the full-day groups and half-day group in terms of proportion of students in low, medium and high FRL schools, it should be noted that in the half-day group the high FRL schools performed on par with low FRL schools. In an independent samples t-test between the low FRL schools and high FRL schools for half-day kindergarten students, only one significant difference between groups was found at post-test. In the case of sight words, students in high FRL schools read significantly fewer words at post-test than did students in low FRL schools (p = .01). Therefore, it appears that in this case, the medium FRL schools may have accounted for the significant differences in results in the half-day group.

The following table lists assessment results for each subtest in language arts and math. Scores are further divided by kindergarten schedule (full-day and half-day) and FRL status (low, medium, and high). Scores are reported in terms of raw score and percent of possible total score. These data include all scores from the 03-04 and 04-05 school years.

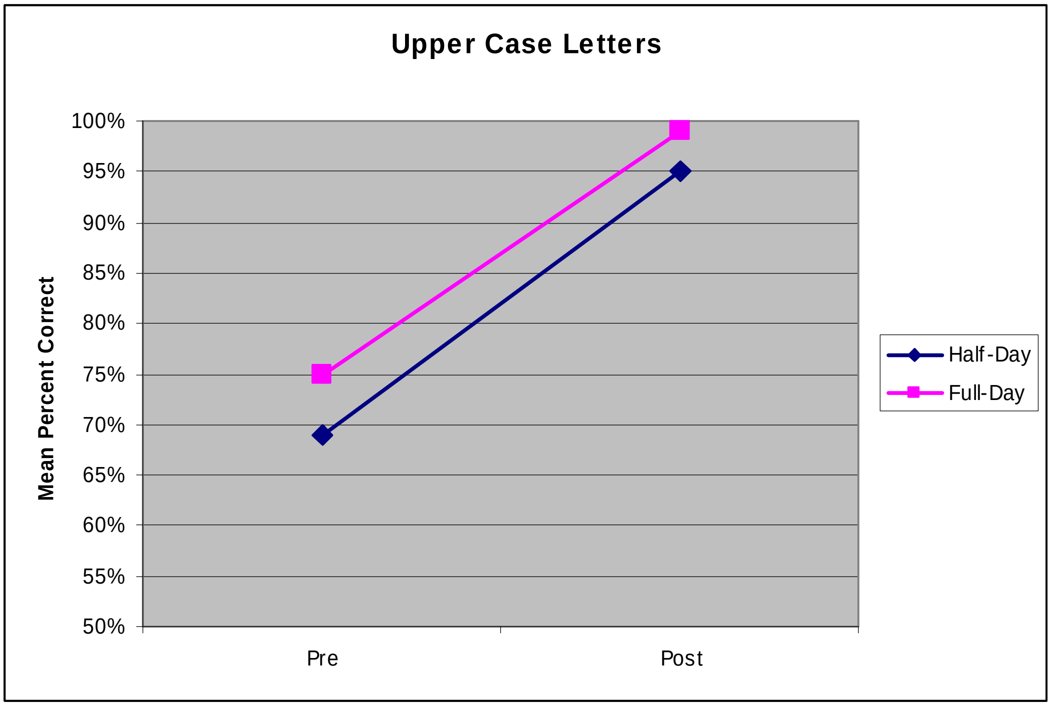
Assessment Results
By Kindergarten Schedule and Free/Reduced Price Lunch Eligibility

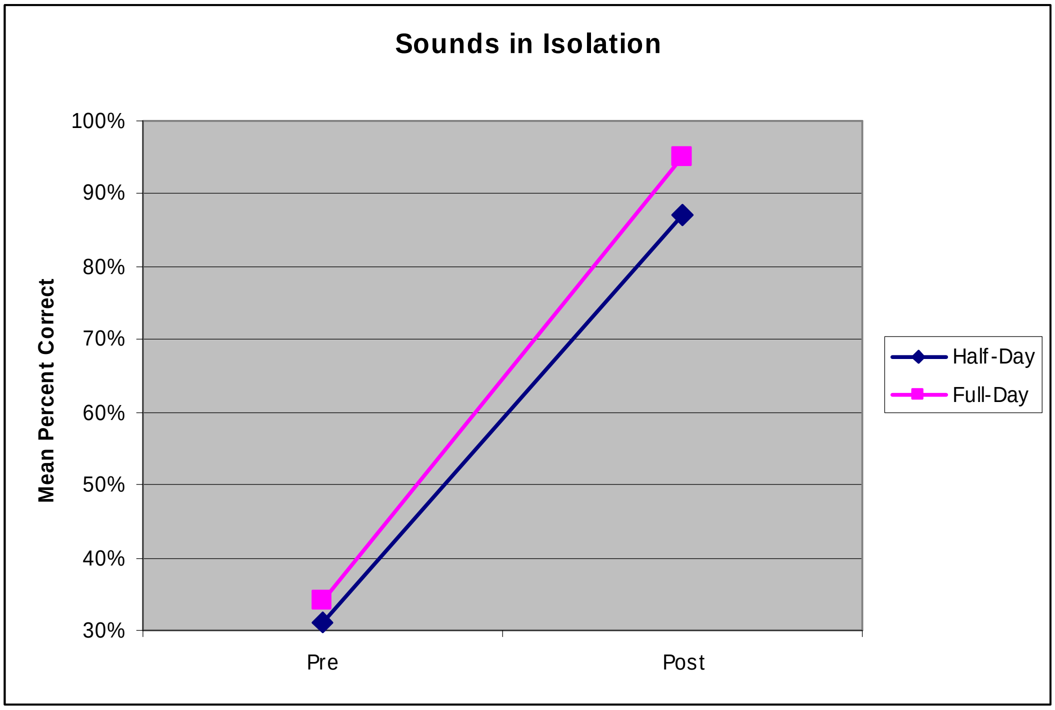
Assessment	Full-Day Kindergarten			Half-Day Kindergarten		
	Low FRL (n=318)	Med FRL (n=404)	High FRL (n=635)	Low FRL (n=37)	Med FRL (n=99)	High FRL (n=189)
Upper Case Letters, Pre	**20.87** 80%	**18.97** 73%	**18.88** 73%	**20.39** 78%	**13.28** 51%	**18.66** 72%
Upper Case Letters, Post	**25.68** 99%	**25.56** 98%	**25.80** 99%	**25.12** 97%	**23.64** 91%	**25.09** 97%
Lower Case Letters, Pre	**18.21** 70%	**16.10** 62%	**15.98** 61%	**17.76** 68%	**11.09** 43%	**16.50** 63%
Lower Case Letters, Post	**25.56** 98%	**25.34** 97%	**25.97** 99%	**24.94** 96%	**22.73** 87%	**24.75** 95%
Sounds in Isolation, Pre	**12.25** 40%	**7.38** 24%	**8.22** 27%	**11.94** 44%	**3.30** 11%	**8.33** 27%
Sounds in Isolation, Post	**28.67** 92%	**27.26** 88%	**28.22** 91%	**27.58** 89%	**21.06** 68%	**25.15** 81%
Word Association, Pre	**14.18** 46%	**8.87** 29%	**8.81** 28%	**11.09** 36%	**6.35** 20%	**8.61** 28%
Word Association, Post	**28.37** 92%	**25.92** 84%	**27.32** 88%	**26.39** 85%	**20.81** 67%	**24.79** 80%
Sight Words, Pre	**5.93** 16%	**3.57** 10%	**3.43** 10%	**4.36** 12%	**1.67** 5%	**4.86** 14%
Sight Words, Post	**31.46** 87%	**27.64** 77%	**30.48** 85%	**30.27** 84%	**18.91** 53%	**24.88** 69%
Numeral Recognition, Pre	**21.06** 55%	**18.29** 48%	**17.09** 45%	**20.33** 52%	**12.56** 33%	**16.72** 44%
Numeral Recognition, Post	**34.65** 91%	**34.03** 90%	**34.97** 92%	**34.25** 90%	**29.23** 77%	**32.09** 84%
Counting, Pre	**43.46**	**41.99**	**34.33**	**38.91**	**30.32**	**31.05**
Counting, Post	**86.65**	**87.09**	**88.43**	**84.55**	**79.18**	**81.83**
Number Symbol–Number Concept, Pre	**10.02** 83%	**8.25** 69%	**8.96** 75%	**9.30** 78%	**6.96** 58%	**8.63** 72%
Number Symbol–Number Concept, Post	**11.80** 98%	**11.67** 97%	**11.82** 99%	**11.66** 97%	**10.75** 90%	**11.72** 98%

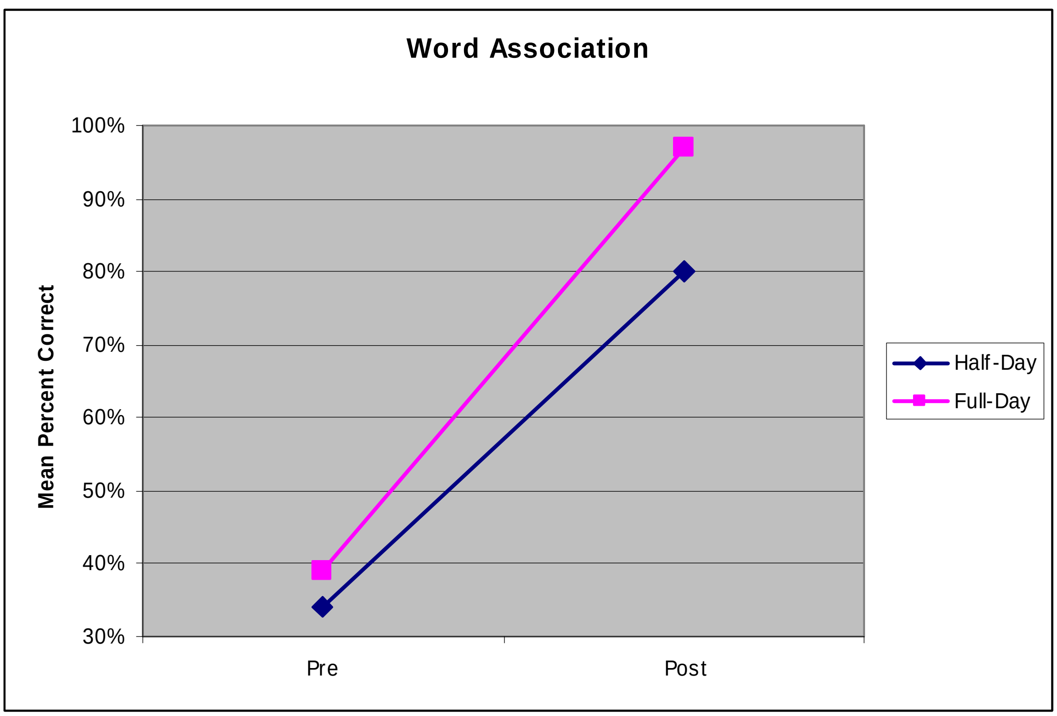
It appears that in most cases, the low FRL schools performed best at both pre and post test. While differences were more common at pre-test, it should be noted that in many cases gaps in achievement either narrowed or closed by the time of post-test. This was particularly evident in full-day classrooms.

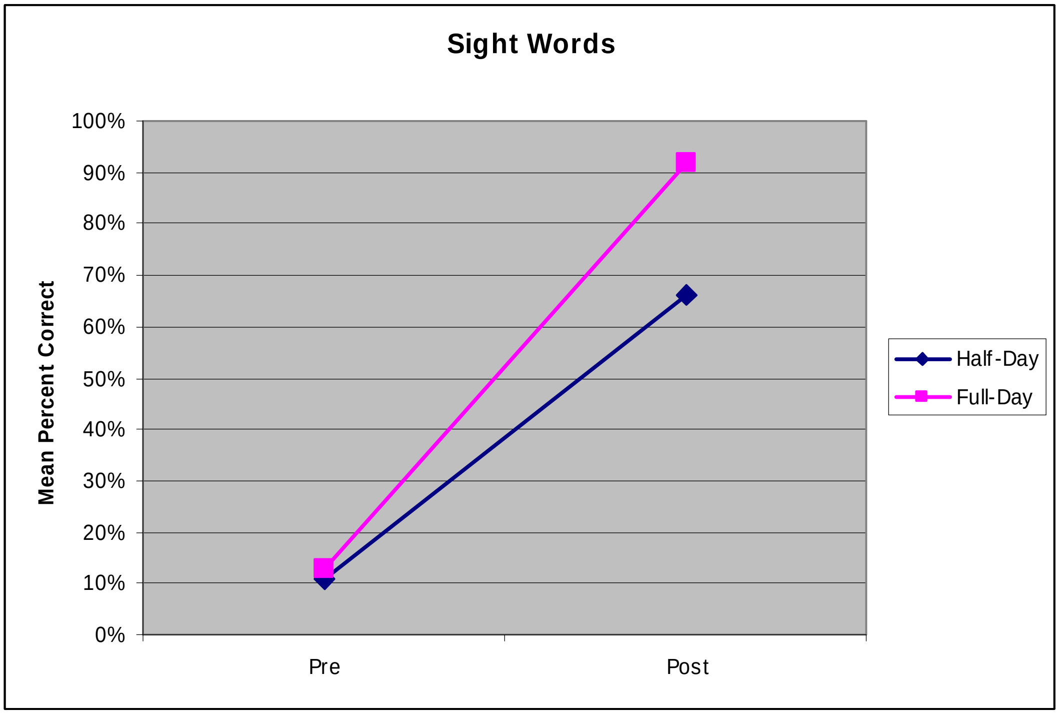
Graphic depictions of these trends can be found in Appendix B

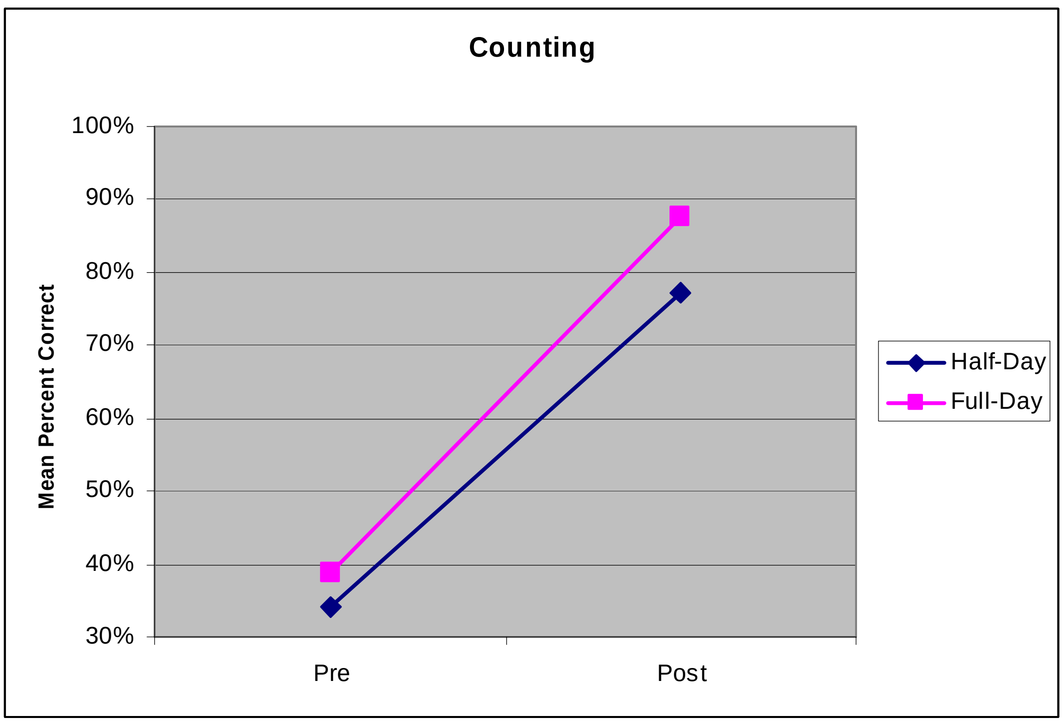
Appendix A
All Full-Day and Half-Day Assessments, Pre and Post

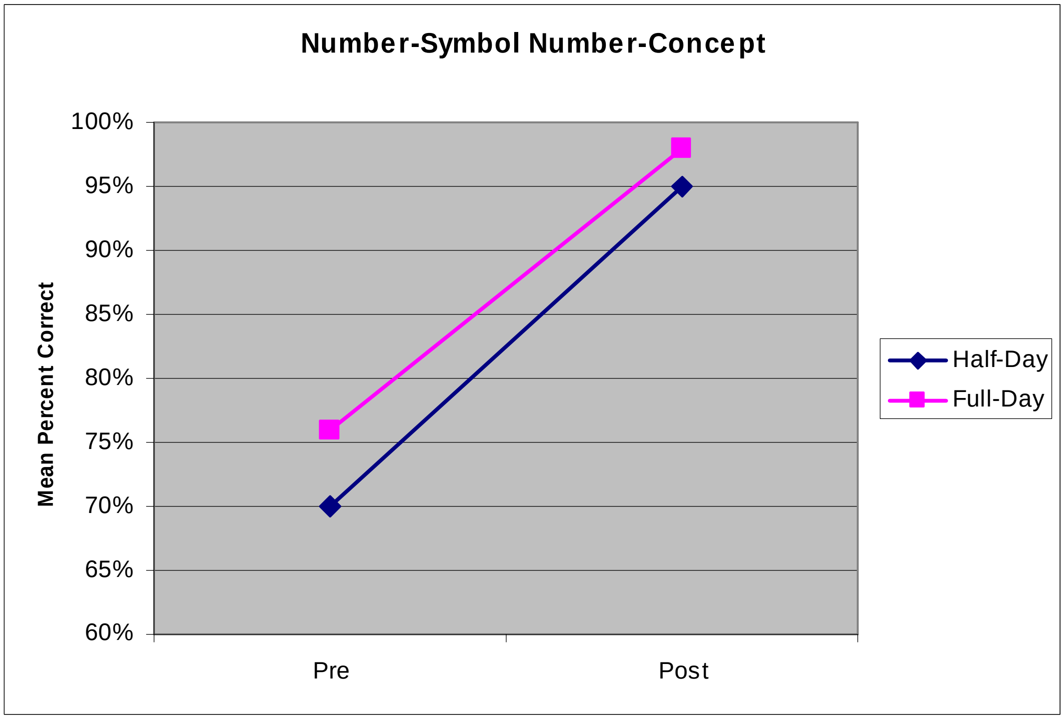


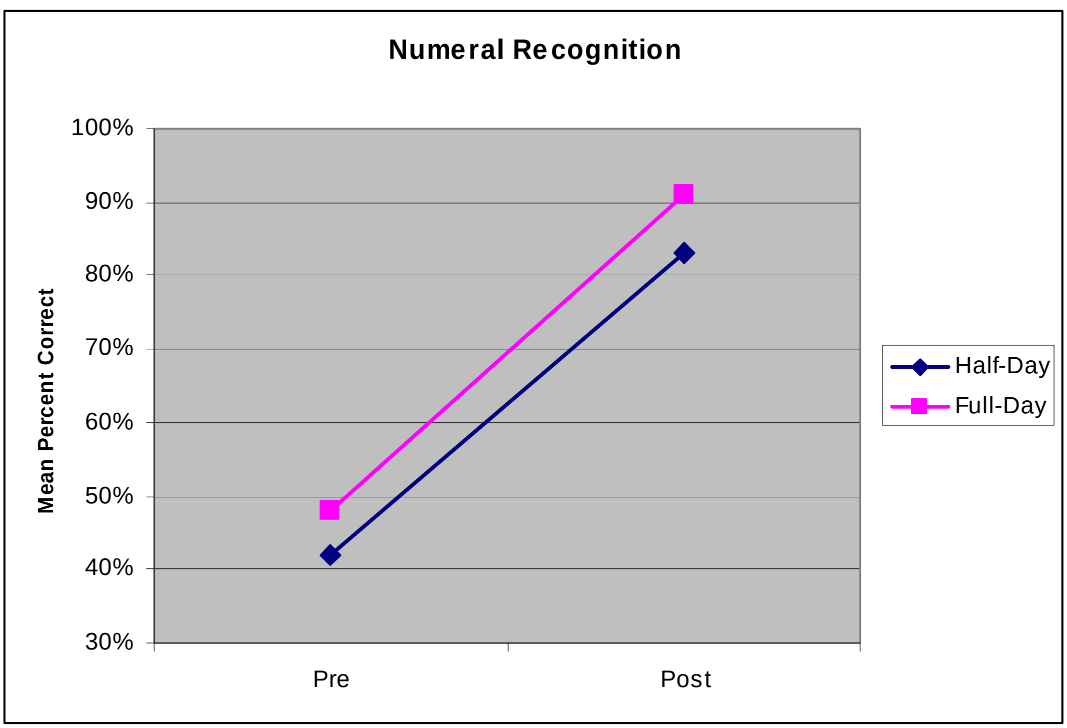

Sounds in Isolation
Mean Percent Correct
100%
90%
80%
70%
60%
50%
40%
30%
Pre
Post
Half-Day
Full-Day

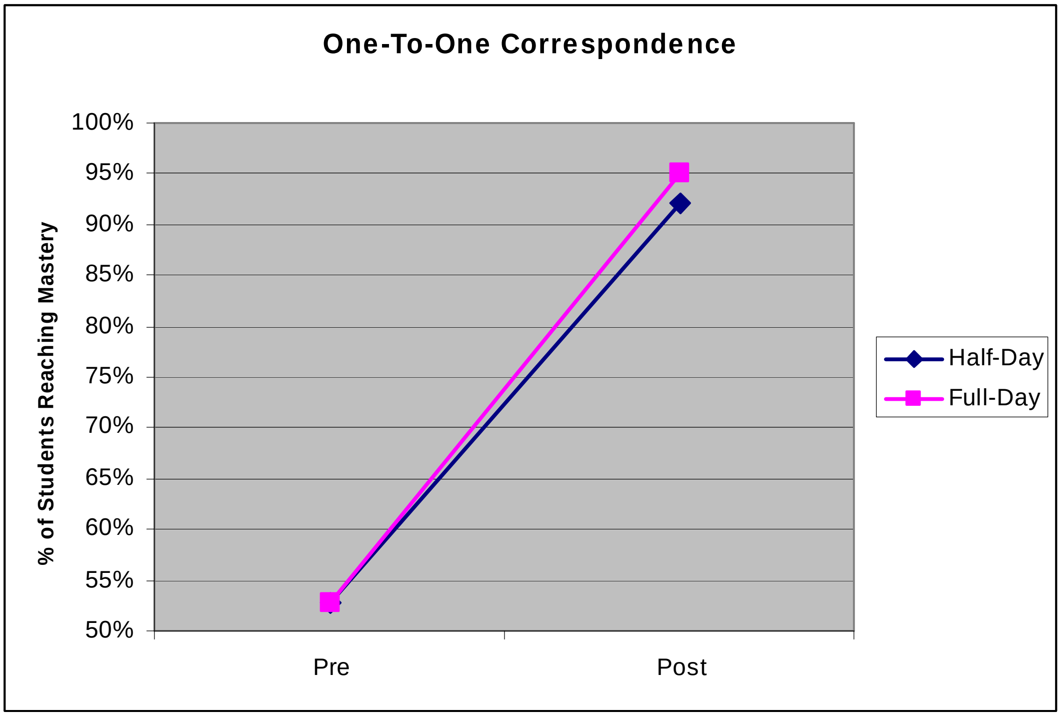

Word Association
Mean Percent Correct
100%
90%
80%
70%
60%
50%
40%
30%
Pre
Post
Half-Day
Full-Day

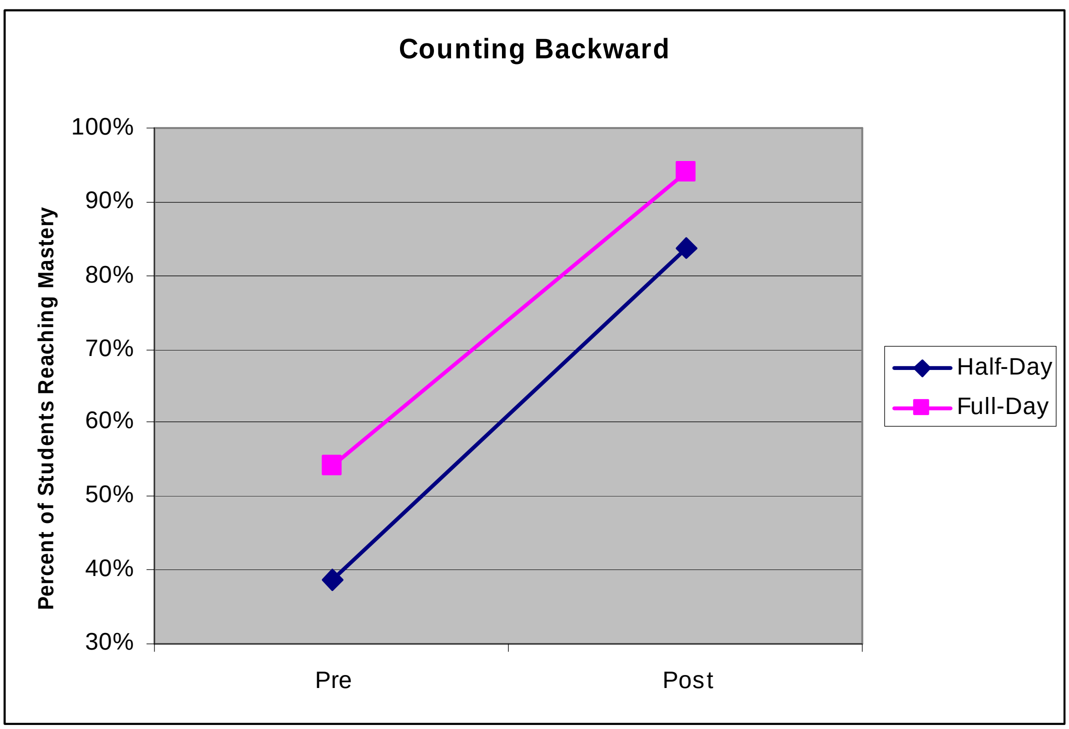

Sight Words
Mean Percent Correct
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Pre
Post
Half-Day
Full-Day


Counting
Mean Percent Correct
100%
90%
80%
70%
60%
50%
40%
30%
Pre
Post
Half-Day
Full-Day

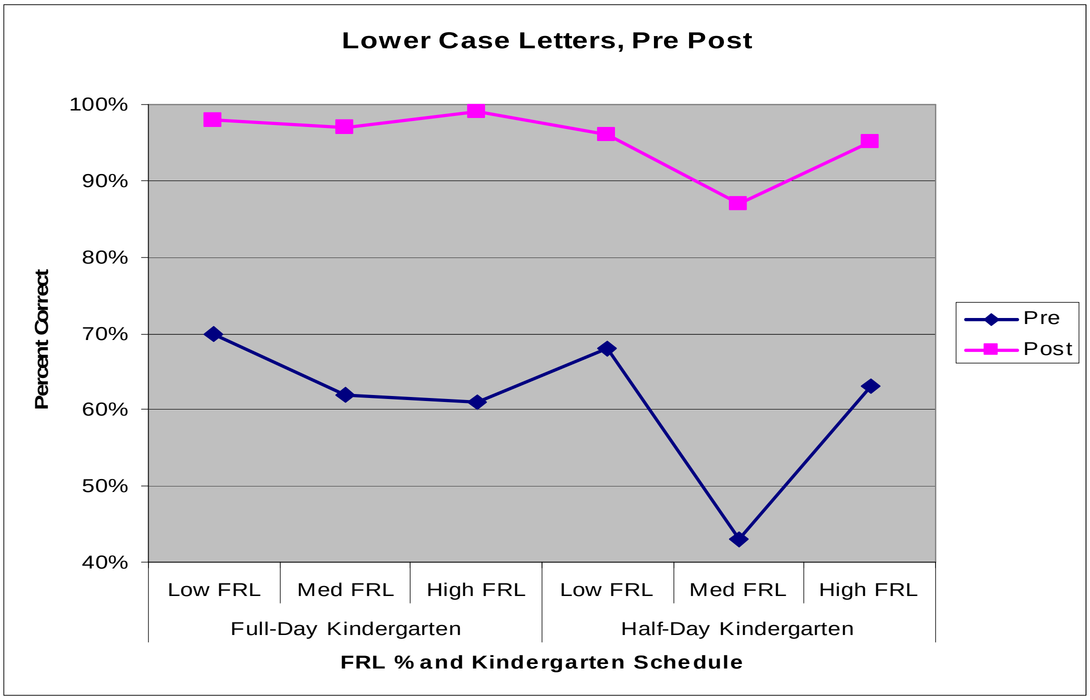

Number-Symbol Number-Concept
Mean Percent Correct
100%
95%
90%
85%
80%
75%
70%
65%
60%
Pre
Post
Half-Day
Full-Day

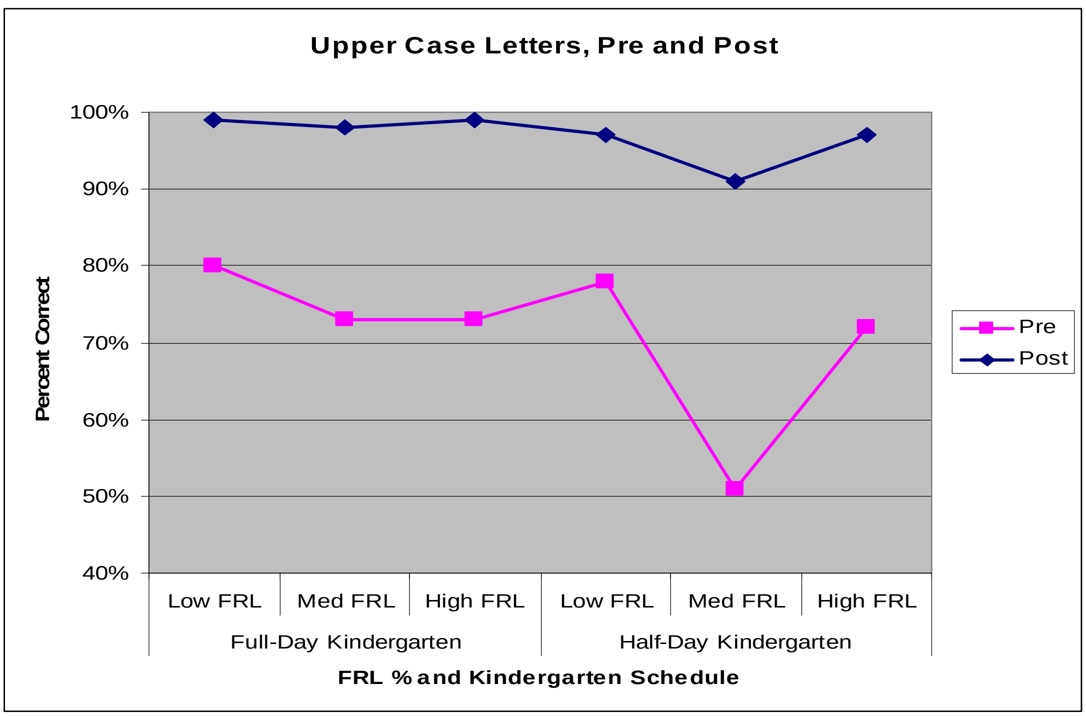

Numeral Recognition
Mean Percent Correct
100%
90%
80%
70%
60%
50%
40%
30%
Pre
Post
Half-Day
Full-Day

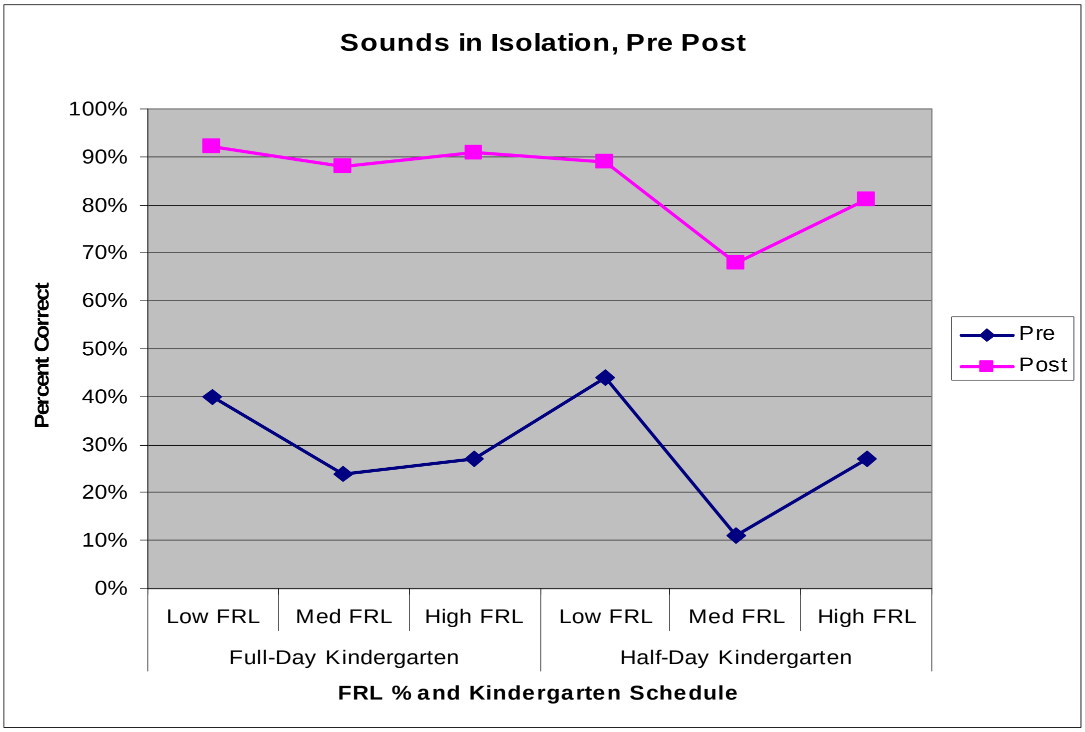

One-To-One Correspondence
% of Students Reaching Mastery
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
Pre
Post
Half-Day
Full-Day


Counting Backward
Percent of Students Reaching Mastery
100%
90%
80%
70%
60%
50%
40%
30%
Pre
Post
Half-Day
Full-Day

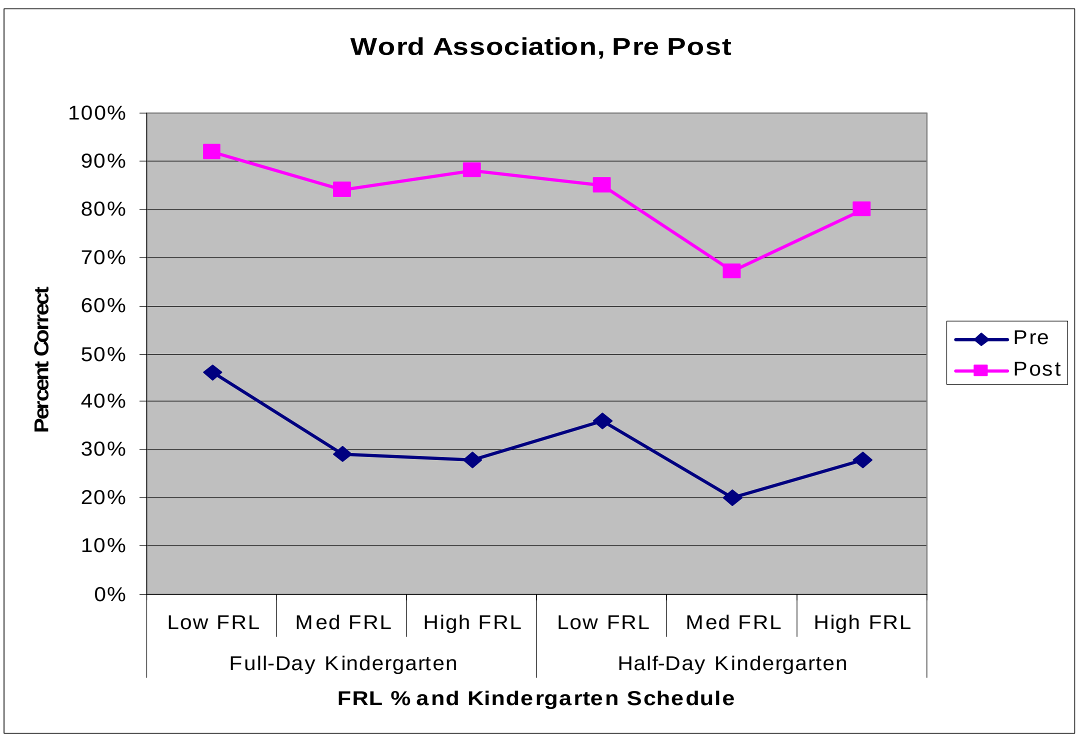
Appendix B
Kindergarten Assessment Results by Free and Reduced Lunch Eligibility Percentage



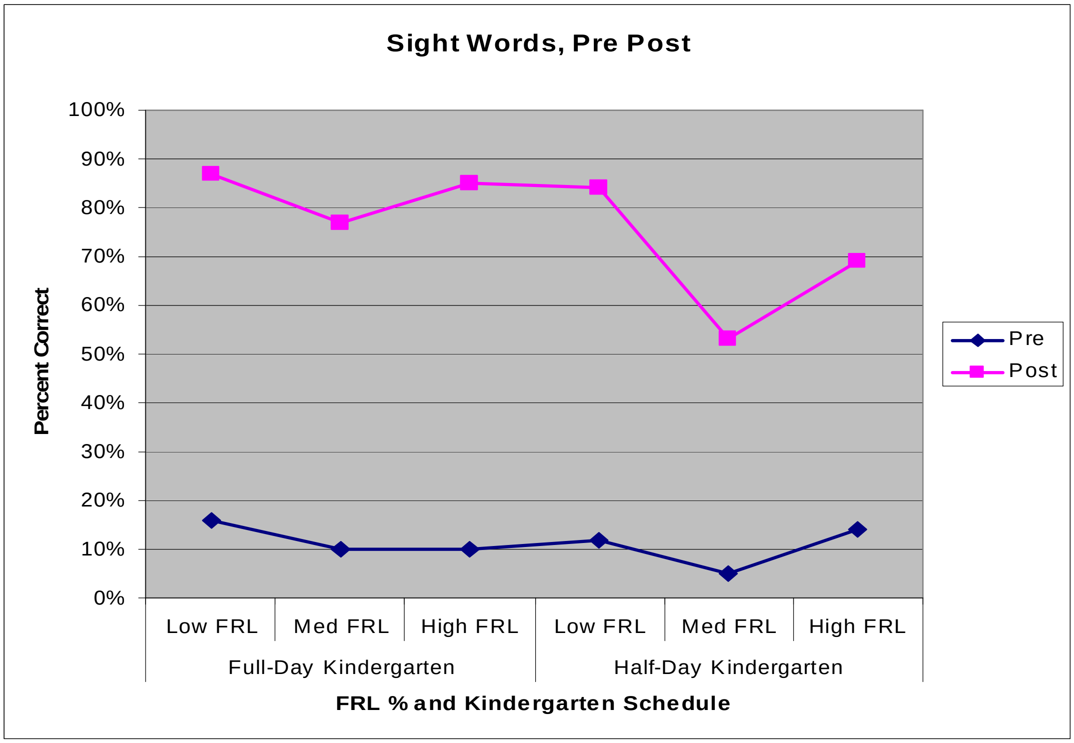


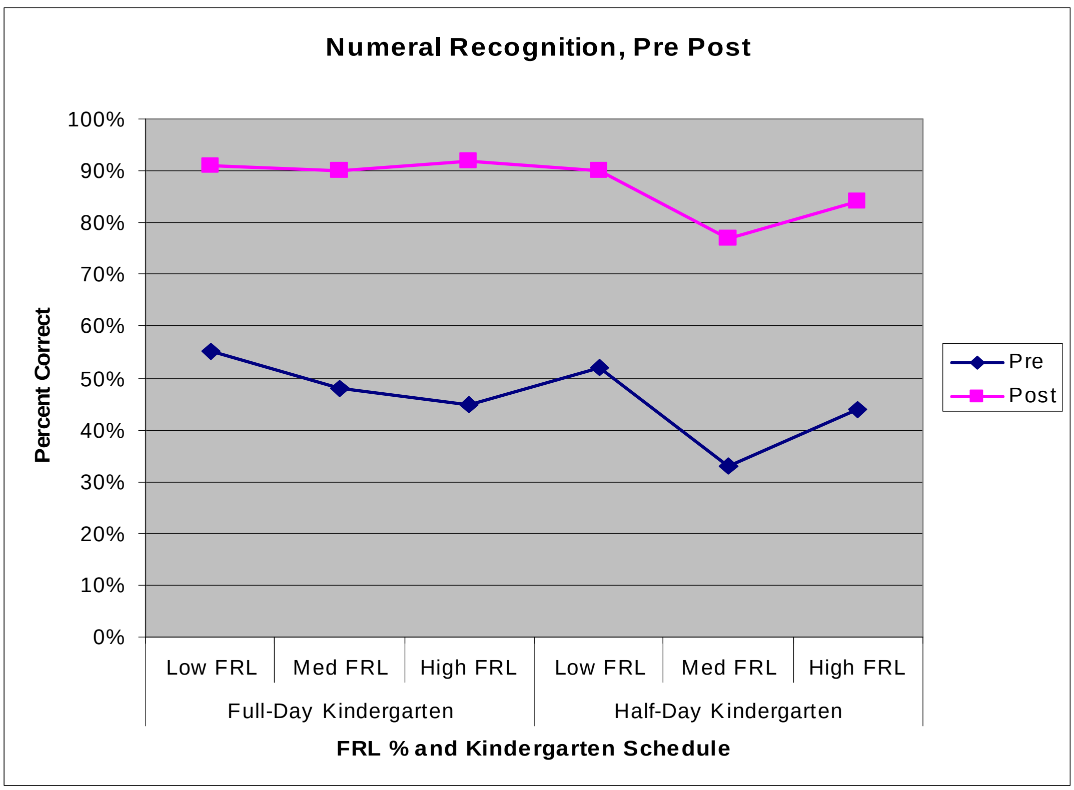


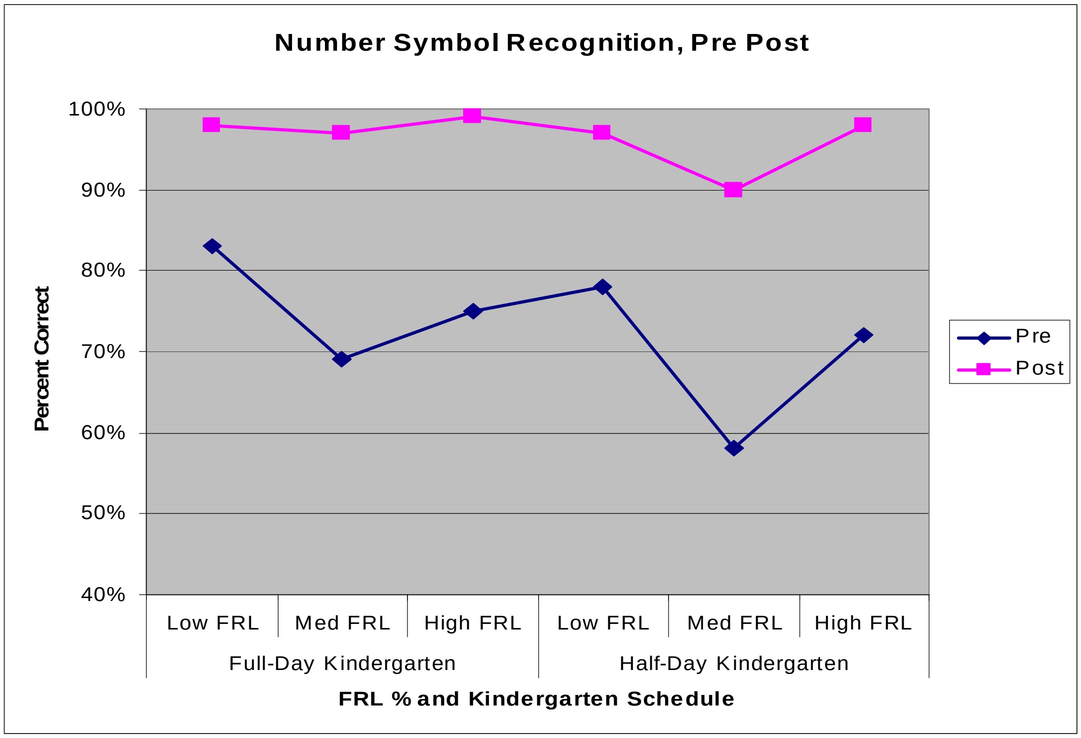
Sounds in Isolation, Pre Post
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post

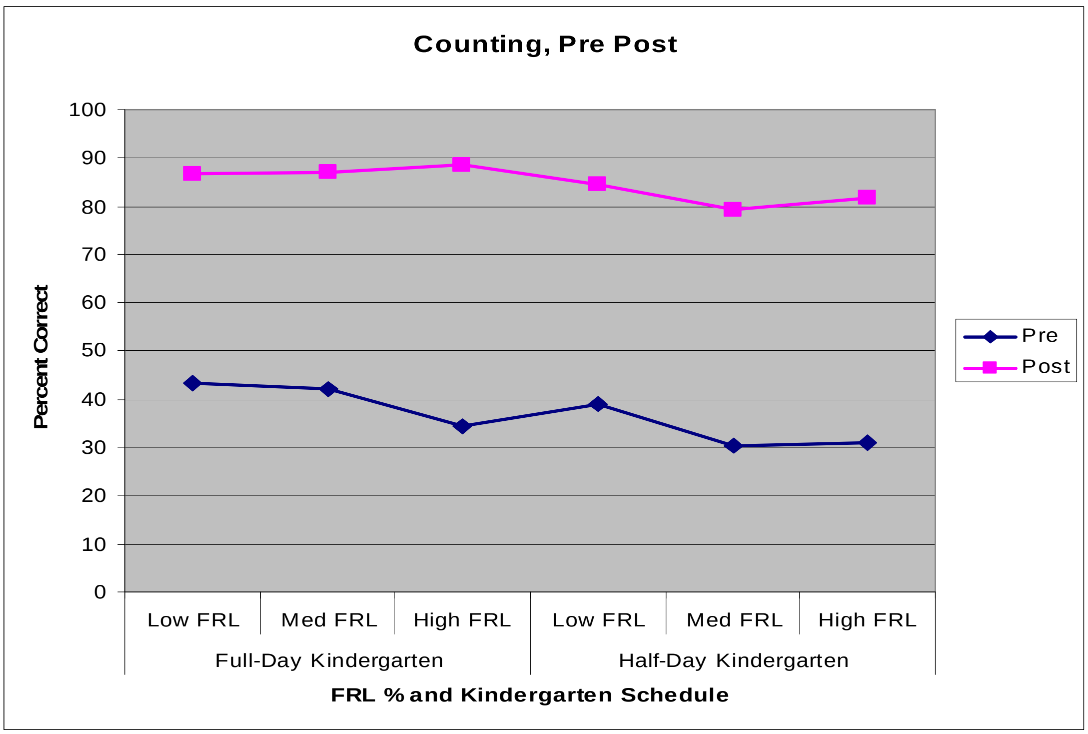


Word Association, Pre Post
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post


Sight Words, Pre Post
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post


Numeral Recognition, Pre Post
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post


Number Symbol Recognition, Pre Post
100%
90%
80%
70%
60%
50%
40%
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post

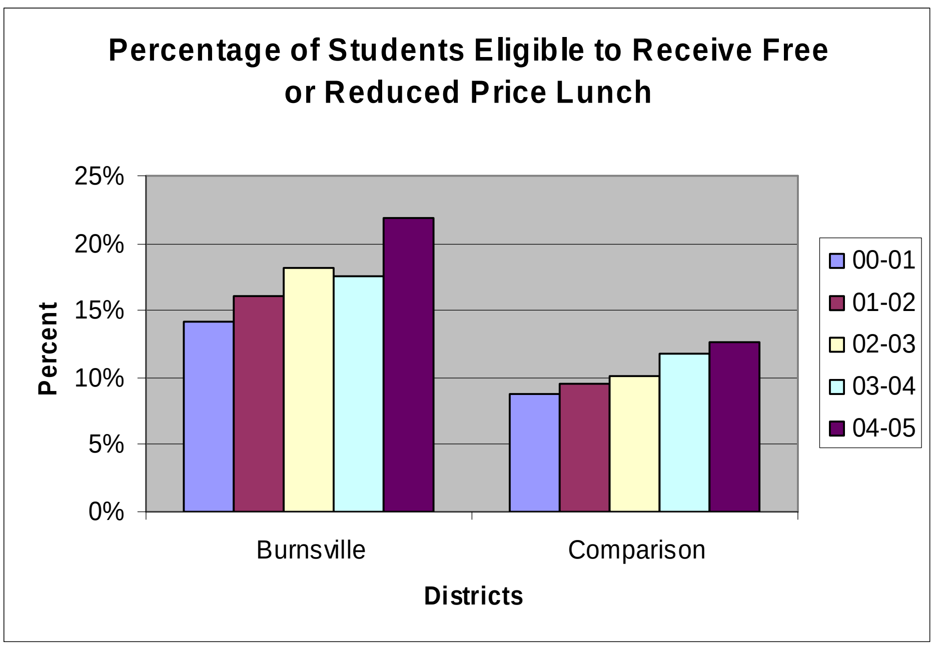

Counting, Pre Post
100
90
80
70
60
50
40
30
20
10
0
Percent Correct
Low FRL
Med FRL
High FRL
Low FRL
Med FRL
High FRL
Full-Day Kindergarten
Half-Day Kindergarten
FRL % and Kindergarten Schedule
Pre
Post

Demographics
District 191 and Comparison District

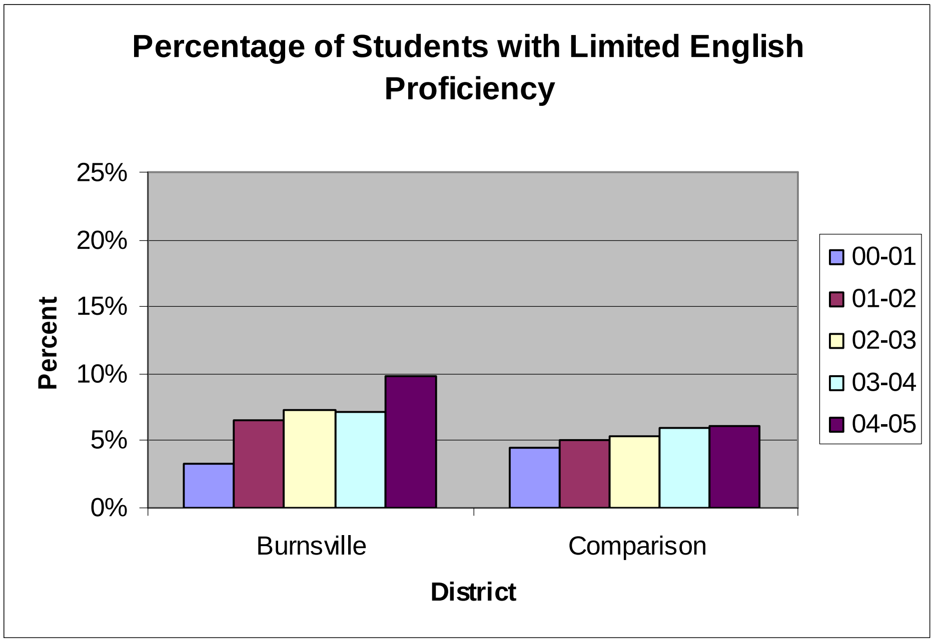
District Demographics:
Burnsville and Comparison District

For both of the districts providing data for this study (Burnsville, Comparison), demographic data were available from the Minnesota Department of Education. Schools were compared on demographic variables of minority student population, eligibility of free or reduced price lunch, and percentage of students classified as Limited English Proficient (LEP). In addition, districts were compared based upon number of schools within each district not making Adequate Yearly Progress (AYP) according to state standards.

Eligibility for free or reduced price lunch is a commonly used indicator of socioeconomic status. For both of the districts in this study, free or reduced price lunch eligibility increased across the past five years. The Burnsville district had higher eligibility than the comparison district. The graph below depicts the percent of students eligible for free or reduced price lunch in each of the districts.



A similar trend emerged in the two districts' Limited English Proficient (LEP) populations. The chart below illustrates the growing number of students categorized as LEP in both of the districts, with Burnsville having a higher percentage of LEP students overall.



In terms of racial diversity, Burnsville was noticeably more diverse than the comparison district. Both districts grew increasingly diverse between the years of 2000-2001 and 2004-2005. The average percent of students who were non-white in Burnsville across years was 22.20%. The comparison district average was 9.65%. In the 2004-2005 school year, 25.66% of Burnsville students were considered minority, compared to 11.77% of comparison district students.

Districts were also compared based on how many schools were making Adequate Yearly Progress (AYP) according to state standards. In the 2004 report, five Burnsville schools, and four schools in the comparison district failed to make AYP. In terms of percentages, 31.25% (5/16) of Burnsville schools failed to make AYP. This is compared to 30.77% in the comparison district (4/13). In Burnsville schools, student groups not making AYP in reading or math included African American students, students with Limited English Proficiency, students receiving Special Education services, and students eligible for free or reduced lunch. Of course, some schools did demonstrate AYP for some of these groups. For example, one school failed to make AYP because students eligible for free of reduced lunch did not make adequate progress on math proficiency, although all other groups progressed as expected in reading, math, and attendance. The comparison districts reported similar student groups not making AYP. Differences included Hispanic students not making AYP in reading proficiency, and LEP students *making* AYP in math proficiency in the comparison district. The table below summarizes this information:

Schools within Districts Making Adequate Yearly Progress (Yes) or Failing to Make AYP (No)[2]			
Subject Area	**Student Group**	**District**	
		Burnsville	Comparison
Reading	Hispanic	Yes	No (1 + district)
	Black	No (1)	Yes
	LEP	No (1)	No (1 + district)
	Special Ed	No (1)	No (1 + district)
	Free/Reduced Lunch	No (1)	No (3 + district)
Math	Black	No (2)	Yes
	LEP	No (2)	Yes
	Special Ed	No (1)	No (2)
	Free/Reduced Lunch	No (1)	No (1)

[2] Note: This information is not meant to represent entire district progress. A "No" means that at least one school in the district failed to make adequate yearly progress in that area with that student group. The number in parentheses indicates how many schools did not make AYP with that student group in that area, and whether the district as a whole did not make AYP as well.

Update from the Literature

Update from the Literature: Most Recent Research

Researchers have studied the effects of kindergarten schedules on achievement, behavior, and social skills for several years. Previous reviews and research studies have concluded that a full day schedule provides students with improved academic achievement and behavior during the kindergarten year, and is preferred by parents and teachers (Clark, 2001; Clark & Kirk, 2000; Elicker, 2004; Elicker & Mathur, 1997). In addition, researchers point out that effects may be stronger for low-income children (Elicker, 2004) and that the length of time in the classroom doesn't matter as much as the curriculum covered during a full day (Clark, 2001).

Recent studies have supported, extended, and refuted previous results. First, studies based on the Early Childhood Longitudinal Study provided a variety of results, some contrary to earlier findings (Finn & Pannozzo, 2004; Hausken, Brimhall, & Pollack, 2001; Hausken & Rathbun, 2002) with the full report supporting the benefits of full-day kindergarten (Walston & West, 2004). Each of these studies analyzed data from the kindergarten class of 1998-1999. Results from the full report indicated that full-day students made greater gains in reading/language arts and in mathematics over the course of the kindergarten year compared to half-day students (Walston & West, 2004). These results persisted even after controlling for gain score differences associated with race/ethnicity, poverty status, fall achievement level, sex, class size, amount of time for subject area instruction, and the presence of an instructional aide (Walston & West, 2004). A study employing growth curve modeling found that children with slow-developing reading growth trajectories benefited more than other students from full-day kindergarten, but that normal-developing and fast-developing students did not show a significant effect on reading relative to program attended (Kaplan, 2002). It should also be noted that some behavioral measures indicated that students in full-day kindergarten had significantly poorer classroom behavior (Finn & Pannozzo, 2004) and adjustment to kindergarten (Hausken & Rathbun, 2002). Overall, it appears that academic benefits found during the kindergarten year suggested by previous research have been supported by the Early Childhood Longitudinal Study.

Other contemporary studies of outcomes related to kindergarten schedules have provided additional evidence of the benefits of full-day kindergarten. In a study of urban students' progress from kindergarten to fourth grade, academic benefits persisted throughout the study (Del Gaudio Weiss & Offenberg, 2002). Full-day students were less likely to repeat a grade leading up to 3rd grade, and had significantly higher achievement scores in reading, math, and science along with higher grades and better attendance by 3rd grade (Del Gaudio Weiss & Offenberg, 2002). The differences persisting into 4th grade were higher science achievement and better attendance (Del Gaudio Weiss & Offenberg, 2002). In another urban study, researchers found that full-day kindergarten students had higher achievement scores than half-day kindergarten students in letter identification, concepts about print, readiness to read words, and hearing and recording sounds in words by the end of the kindergarten year even when controlling for pretest scores (DaCosta & Bell, 2000).

Studies comparing students representing different demographic groups added to the evidence that full-day kindergarten is beneficial for lower income students. In one study, full-day kindergarten students in urban, diverse, and low socioeconomic status schools outperformed half-day students in suburban schools with populations of diverse income status and ethnicity (DaCosta & Bell, 2001). Full-day students in this study experienced significantly greater growth in letter identification, concepts about print, readiness to read words, writing, hearing and recording sounds, and book reading level over the kindergarten year (DaCosta & Bell, 2001). It should be noted that in both the half-day and full-day classrooms included in this study, instruction was considered representative of exemplary kindergarten programs (DaCosta & Bell, 2001). Similarly, students who had the opportunity to attend full-day kindergarten in economically disadvantaged areas of one school district reached levels of performance that were equal to (letter and word identification, concepts about print, and writing vocabulary) or better than (dictation and book level) the performance of more affluent half-day students (Zakaluk & Straw, 2002).

In conclusion, recent research on full-day kindergarten appears to support previous findings. The academic benefits of full-day kindergarten over half-day kindergarten have been demonstrated in language arts (DaCosta & Bell, 2000; DaCosta & Bell, 2001; Del Gaudio Weiss & Offenberg, 2002; Walston & West, 2004; Zakaluk & Straw, 2002), mathematics (Del Gaudio Weiss & Offenberg, 2002), Walston & West, 2004; science (Del Gaudio Weiss & Offenberg, 2002), and attendance (Del Gaudio Weiss & Offenberg, 2002). In addition, recent studies have added evidence of the efficacy of full-day kindergarten for low income students (DaCosta & Bell, 2001; Zakaluk & Straw, 2002) and for students who are slow-developing readers (Kaplan, 2002). While some long-lasting effects have been documented (Del Gaudio Weiss & Offenberg, 2002), few studies have followed students past spring of the kindergarten year.

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