The Impact of Standards-based Reform in Duval County, Florida: 1999-2002

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Executive Summary

The major challenge that school districts face is to improve the learning of *all* students, not just in individual schools, but across the entire system of schools. Duval County, Florida has embarked on a remarkable journey to implement standards-based reform in schools throughout the district with the intent to systematically improve teaching and learning across its 150 schools. In this study, we examine the impact of Duval's efforts by documenting the county's changes in state test performance in comparison to other, similar Florida counties. Through these analyses, we explore the hypothesis that Duval's strategies for increasing the quality of teaching and learning across its system of schools is paying off in terms of faster gains in student learning relative to other counties within the state.

In this study, we examine elementary and middle school reading, writing, and mathematics results from the spring of 1999 to the spring of 2002 on the Florida Comprehensive Assessment Test (FCAT) in Duval relative to seven other counties in Florida. We purposefully chose to begin our study with the results of the 1998-1999 school year because that year represented the year before Duval County began implementing standards-based reform. The 2002 data are the latest state test data available. The comparison counties include Broward, Hillsborough, Lee, Orange, Palm Beach, Pinellas, and Polk, which were the most reasonably comparable counties in Florida. From each of these counties, we included all school-level data that were available from the Florida Department of Education.

This is a study of the effects of a school *system's* efforts to bring about widespread improvements in student learning. While these school-level data do not allow us to examine growth in the performance of individual students over multiple years, we can compare growth in school-level scores for different cohorts of students. Thus, for example, we examine school-level changes in fourth-grade performance from one year to the next in Duval County relative to other Florida counties, and then examine these changes over successive cohorts of fourth graders. With this design, we argue that we are comparing the changes in student performance that are produced by the school systems within which students and schools reside. For example, if fourth-grade scores in one county increase more than fourth-grade scores in other counties during a given year, and this pattern persists over multiple years, we believe that it is reasonable to argue that the school *system* is producing these sustained higher levels of performance.

Overall, during the four years of the study, average state test performance in Duval generally grew from year to year, as it did in most other counties in the state. In comparison to other counties, the patterns that emerged from this analysis are strong and persistent gains in Duval's elementary school performance relative to its peers, and virtually no differences in its middle school test performance relative to

other, similar Florida counties. In some cases, the elementary school patterns represented Duval's pulling ahead of its counterparts, while in other cases, it represented Duval's catching up with the comparison counties. More specifically:

- In elementary school writing, Duval's overall pattern was one of moving from performing worse than virtually all its peer counties to performing as well as or better than them. From 1999 to 2000 in fourth-grade writing, Duval performed significantly worse than five counties and no different from two. By 2002, Duval performed significantly better than one county and no different from the other six.

- In elementary school reading, Duval's overall pattern was one of moving from similar to superior performance relative to the comparison counties. In fourth-grade reading in 1999, Duval performed significantly better than two counties, no different from four, and worse than one. By 2002, Duval performed significantly better than all seven comparison counties.

- In elementary school mathematics, Duval also showed greater improvements in performance compared to its peers. In 2000, the district performed significantly better than one county, significantly worse than another, and no different from five. By 2002, the district was performing significantly better than five counties and no different from two.

- Although Duval middle school state test performance generally improved over the time of this study, middle school reading and mathematics results showed no differences in improvement relative to the other Florida counties we examined. Duval's middle school reading and mathematics performance was virtually indistinguishable from that of other comparable counties from 2000 to 2002. In eighth-grade writing, Duval performed worse over time relative to other counties in the state. From 1999 to 2000, Duval was performing no different from six of its peer counties and significantly worse than one. From 2001 to 2002, Duval performed significantly worse than four of the comparison counties and no different from three.

These results indicate impressive positive effects in elementary schools, while there are indistinguishable differences or negative effects in middle schools. These analyses are worth extending as students who were in elementary schools during the period of this study move into middle schools.

Overall, these results provide evidence that Duval's efforts to systematically change the practices of teachers and school leaders across its system are improving the achievement of its elementary schools at a faster rate than in other comparable districts. In middle schools, to date, growth in performance has been comparable to that of other counties.

Introduction

The scaling-up of educational reform is the holy grail of educational improvement. While there are numerous examples of individual teachers and schools that dramatically change their instructional and organizational practices and produce remarkable gains in student learning, producing similar changes in many classrooms and schools is the ultimate goal of education reform. The individual cases usually reflect changes in the ways that teachers and students engage with and construct knowledge and the role of school structures in facilitating this process. Yet organizationally, educators have been unable to produce these changes on a large scale. This, according to Elmore (1996), is the crux of the problem of scale, which can be seen as "the need to change the core of schooling in ways that result in more students receiving engaging instruction in challenging academic content" (p. 6). In this study, we describe the efforts of Duval County, Florida to improve the content and instruction that all its children receive, with a focus on the impact of these efforts on student learning over time.

After this introduction, we briefly describe Duval's strategies to change the content and environment of teaching and learning in the district. Then, we explain our method for selecting a sample of similar Florida counties against which to compare Duval's performance over time. Next, we portray additional demographics of Duval and the comparison counties, and then present the methods for our analysis, including a description of the data sources and our analytical approach. We conclude this report as we first present and then discuss the results of our analyses in reading, writing, and mathematics in both elementary and middle schools.

The Duval Story

Duval County is the 14th largest school district in the United States, serving approximately 127,000 students in 150 schools. In June 1998, John Fryer, a retired Air Force Major General, was appointed superintendent. Early in his tenure, Fryer selected America's Choice, a Comprehensive School Reform program offered by the National Center on Education and the Economy (NCEE), as a means of systematically improving teaching and learning. Fryer described his initial challenge as a way to quickly infuse expertise into the system, "I did not have the time to build a reform from the ground up and thought that NCEE represented my best opportunity to acquire the capacity fast" (personal interview, October 2001).

In the 1999-2000 and 2000-2001 school years, 61 Duval elementary and middle schools adopted the America's Choice design, representing about 40% of the county's schools and creating what the superintendent called a "critical mass." As Fryer described, he never seriously considered purchasing America's Choice for all schools in the county. At any rate, the county could not have afforded to buy the model for each of its schools. And even if it could have afforded to do so, it still faced the problem of how to support schools once

they completed the three-year America's Choice program. During the 1998-1999 school year, Duval also began implementing a new mathematics curriculum, *Connected Math*, in sixth and seventh grades. All eighth-grade teachers were trained to use *Connected Math* in 1999-2000. In 1999-2000, Duval began a county-wide adoption of *Investigations* in third through fifth grades. In 2000-2001, all K-2 teachers were trained to use *Investigations*.

At the end of the 2002-2003 school year, the last Duval schools that adopted the design in 2000-2001 will be completing their final year of America's Choice. There are no plans to continue purchasing the design. During the last several years, Duval has begun to explicitly develop its internal capacity to support all of the county's schools to implement its version of standards-based reform, which is strongly influenced by the philosophy and strategies of NCEE, infused with Duval's own beliefs and approaches, and shaped by the requirements and accountability system of the state of Florida. The county is in a fascinating transitional period in which it seeks to increasingly refine its reforms, articulate them to stakeholders, and develop the internal capacity to deepen the work.

Reform efforts in Duval's high schools are only in their nascent stages. Although Duval has implemented some changes within its high schools, involving some of them as pilot sites for the America's Choice high school design for example, the county has only recently begun to attend seriously to the distinct challenges of improving teaching and learning in high schools. For this reason, we have not included high schools in our analyses since we would not expect them to be performing differently than their counterparts in other counties at this point. In subsequent years, as reform takes deeper root, it would be reasonable to expect differential changes in Duval high schools as well in comparison to high schools in comparable Florida counties.

Duval's strategy includes the following elements:

- A focus on standards for student performance. Standards represent a clear and commonly understood set of expectations for what children should know and be able to do at each grade level, and a focal point for teachers to engage in discussions of student work.

- A retooling of the curriculum in English/language arts, mathematics, and science that provides more opportunities for students to learn the material they are expected to master. In English/language arts, the county has made a strong commitment to standards-based literacy, including hour-long blocks of authentic reading and writing instruction and practice supplemented by skills instruction. In mathematics, the county has adopted more challenging curricula, including *Investigations* for elementary schools and *Connected Math* for middle schools. In science, the county is honing its curriculum

to reduce repetition and increase cognitive demand over time.

- An intensive and unprecedented commitment to the professional development of teachers, school leaders, and county administrators. This includes ongoing literacy training at each grade level in each school, the development of teacher leaders in mathematics and science, full-time standards coaches in each school, leadership training for principals, and ongoing workshops for county leaders.

- The fostering of adult learning communities where teachers and school and county leaders engage in their own ongoing development as learners.

- A special emphasis on raising the performance of the county's lowest-performing students and schools. Informed by systematic and regular examination of data, schools have developed a variety of intervention and assistance strategies to identify, serve, and monitor students who are not meeting standards.

- A county-wide monitoring system to track the implementation of standards that further articulates expectations for school progress and provides feedback to both school and county leaders about their progress toward the county's goals.

Together, these elements and others form the foundation of a comprehensive strategy that is ever undergoing revision, reformulation, and refinement. However, this strategy would not be nearly as compelling if there were not evidence that the county's efforts were producing systematic gains in student learning. It is this evidence that we seek with this study.

Sample

There are a total of 67 counties/ public school districts in the state of Florida. More than two-thirds of these are rural counties serving relatively small numbers of students. To select counties that were comparable to the more urban Duval County, we examined county-level data on the 14 largest counties in Florida (including Duval) — those serving more than 20,000 students. These data are available from the Florida State Department of Education in its school indicators report, but they are reported separately for elementary, middle, and high schools. We chose to use each county's 1998-1999 elementary school demographic data as a proxy for each system. We analyzed a number of elementary school characteristics including: number of students, percentage of students receiving lunch assistance, fourth-grade reading performance, and school operating costs. After examining the demographic data, we removed Miami-Dade from consideration because it is the proverbial "800 pound gorilla" of Florida counties, having 60% more elementary school students than the next largest county and two-and-a-half times as many students as Duval. From the remaining 12 counties, we selected 7 for inclusion in the study because they were the most similar to Duval in terms

Table 1. 1998-1999 Elementary School Characteristics Used in the Selection of Comparison Counties

County	State Rank by Size	Number of Elementary Students	Percent of Students Receiving Free/Reduced-price Lunch	Percent of Fourth Graders Scoring at or Above Standard in Reading	Operation Costs
Broward	2	114,667	44%	49%	$4,608
Hillsborough	3	79,391	57%	53%	$4,666
Palm Beach	4	71,263	43%	51%	$5,028
Orange	5	68,741	53%	47%	$4,337
Duval	6	65,402	56%	54%	$4,417
Pinellas	7	52,274	47%	63%	$4,637
Polk	8	37,968	62%	49%	$4,614
Lee	12	27,114	53%	59%	$4,928

of the four characteristics examined. These were Broward, Hillsborough, Lee, Orange, Palm Beach, Pinellas, and Polk counties. The other five counties (Brevard, Volusia, Seminole, Pasco, and Escambia) were considerably different on county demographics than Duval, particularly in terms of county size and the percent of students eligible for free/reduced-price lunch assistance. Table 1 shows the descriptive statistics for each of the eight counties that were maintained in the study.

County Demographics

The final sample of counties represents a rich geographic and ethnic cross-section of Florida. The counties in our sample range from Broward in the Fort Lauderdale area of southeastern Florida, the second largest public school system in the state; to Orange County, the fifth largest county in the state, covering the Orlando area; to Hillsborough, serving the Tampa area; to smaller Lee County in the southwestern part of the state around Fort Myers.

Demographic details about the counties are provided in Tables 2 and 3, decomposed for elementary and middle schools (the subjects of our analyses) in the eight counties in the 1998-1999 school year. In these tables, we also report average test scores from the 1998-1999 school year, spring 1999 administration for fourth, fifth, and eighth graders in the eight counties.

In 1998-1999, the year before standards-based reform was introduced into Duval County schools, elementary schools in Duval, Broward, Hillsborough, Lee, Orange, Palm Beach, Pinellas, and Polk counties had similar

Table 2. Mean Characteristics and Standard Deviations for Elementary Schools in Eight County School Districts in Florida in the 1998-1999 School Year, Prior to Standards-based Reform

	Broward	Duval	Hills-borough	Lee	Orange	Palm Beach	Pinellas	Polk
No. of Schools	130	103	111	37	99	81	81	62
Absent 21+ Days	7.58 (2.58)	9.37 (3.52)	7.84 (3.57)	6.29 (3.14)	7.97 (3.25)	7.63 (3.91)	6.75 (2.98)	9.40 (4.27)
Class Size	26.34 (2.59)	23.06 (3.89)	25.28 (17.32)	22.68 (1.96)	20.91 (3.16)	25.43 (2.75)	23.06 (1.29)	22.61 (2.07)
Free/Red. Lunch	46.37 (28.48)	60.73 (21.60)	58.61 (24.29)	53.07 (16.86)	53.99 (21.68)	44.35 (30.07)	46.07 (19.41)	61.81 (17.28)
LEP	9.42 (6.69)	1.00 (4.11)	11.15 (11.71)	8.80 (6.36)	8.61 (8.46)	13.59 (10.48)	1.73 (3.27)	4.43 (4.75)
Special Education	12.30 (3.99)	17.03 (5.38)	13.77 (5.90)	17.04 (4.85)	17.29 (10.07)	15.16 (10.80)	18.18 (5.12)	13.53 (6.11)
Mobility	30.54 (14.59)	45.22 (15.54)	52.13 (90.59)	34.16 (13.02)	48.77 (30.93)	28.20 (11.19)	33.42 (15.07)	39.71 (15.89)
School Grade[a]	2.80 (0.88)	2.72 (0.90)	2.99 (0.87)	3.24 (1.01)	2.79 (0.97)	2.86 (1.12)	3.38 (0.94)	2.82 (0.91)
School Size	871.83 (230.07)	633.40 (263.03)	713.03 (251.15)	732.81 (228.12)	693.91 (212.45)	851.90 (254.94)	645.36 (172.86)	589.92 (178.02)
Minority	54.96 (28.29)	50.30 (26.47)	48.30 (23.75)	32.40 (14.14)	50.39 (25.98)	50.18 (28.20)	26.31 (12.08)	36.69 (14.04)
4th-grade Reading[b]	281.74 (22.97)	289.23 (20.35)	285.23 (24.82)	291.86 (19.99)	276.86 (26.41)	281.62 (26.86)	292.49 (31.31)	283.97 (20.11)
5th-grade Math[b]	304.02 (21.20)	298.40 (18.54)	306.11 (20.56)	307.81 (16.07)	297.18 (22.89)	303.06 (22.64)	304.34 (25.02)	298.40 (18.95)
4th-grade Writing[c]	2.96 (0.28)	2.88 (0.31)	3.10 (0.33)	2.91 (0.33)	2.81 (0.35)	2.88 (0.32)	3.10 (0.53)	2.98 (0.41)

Notes:
[a] School grades were converted to a numerical scale where A=5, B=4, C=3, D=2, and F=1. [b] FCAT Sunshine State Standards Test. [c] FCAT Florida Writing Assessment.

percentages of students with severe absenteeism (i.e., absent 21 or more days), average class sizes, average school accountability grades, and average fourth-grade writing performance. The eight counties also had comparable percentages of students involved in special education programs, ranging from 12% in Broward to 18% in Pinellas. However, Palm Beach (14%), Hillsborough (11%), and Broward, Lee, and Orange (each 9%) counties had an appreciably higher percentage of Limited English Proficient (LEP) students than in Duval County (1%) and Pinellas County (2%).

The percentage of students eligible for free or reduced-price lunch ranged from a low of 44% in Palm Beach County to a high of 62% in Polk County. Duval County had a higher percentage of students eligible for free or reduced-price lunch assistance than Broward, Palm Beach, and Pinellas counties (61% compared to about 45%) and Orange and Lee counties (61% compared to about 53%), and a similar percentage to Polk (62%) and Hillsborough (59%) counties. Additionally, elementary student mobility was the highest in Hillsborough County (52%), considerably higher than Palm Beach, Broward, Pinellas, Lee, and Polk counties (28% to 40%) and somewhat higher than Duval County (45%). Broward and Palm Beach counties had the largest average school size, with 872 and 852 students, respectively, and Polk County had the smallest average school size with 590 students, which was similar to Duval County (633 students).

The percentage of minority student enrollment ranged from 26% in Pinellas County to 55% in Broward County, with similar percentages for Duval, Hillsborough, Orange, and Palm Beach counties (about 50%). For 1998-1999 average reading achievement, Lee and Pinellas County fourth graders performed the highest (292), but similar to Duval (289), and Orange County fourth graders performed the lowest (277); Broward, Hillsborough, Palm Beach, and Polk counties all performed equivalently, scoring around 283. In mathematics, Orange County fifth graders also performed the lowest on average (297), but similar to Duval and Polk County fifth graders (298); the other five counties had similar average mathematics scores, ranging from 303 (Palm Beach) to 308 (Lee). Overall, on average, Duval County elementary schools were most similar to Polk County elementary schools on all of the characteristics examined, except for percentage of minority students.

For middle schools in 1998-1999, as shown in Table 3, the eight counties varied on average characteristics, except for average school accountability grade. The percentage of students absent 21 or more days ranged from 8% in Polk County to 18% in Duval County, with the other counties between 11% and 16%. Average class size in language arts and mathematics both ranged from 21 students per classroom in Hillsborough County to 29 students per classroom in Broward County, with an average of 24 students for language arts and 26 students for mathematics; Duval County averaged 26 students per classroom for both language arts and mathematics. Duval County had the highest percentage of students eligible for free or reduced-price lunch assistance (53%), higher than Palm Beach, Pinellas, and Broward counties, but similar to Hillsborough, Orange, Polk, and Lee counties. In addition, Duval County had the highest average middle school student mobility rate at 50%, noticeably higher than all of the other counties, and Palm Beach had the lowest mobility rate at 24%.

Table 3. Mean Characteristics and Standard Deviations for Middle Schools in Eight County School Districts in Florida in the 1998-1999 School Year, Prior to Standards-based Reform

	Broward	Duval	Hills-borough	Lee	Orange	Palm Beach	Pinellas	Polk
No. of Schools	34	27	36	17	31	26	21	22
Absent 21+ Days	16.15 (5.68)	18.49 (11.79)	14.76 (6.60)	11.05 (4.90)	15.64 (15.00)	11.20 (5.42)	13.21 (5.67)	8.50 (8.98)
Class Size LA[a]	29.11 (3.66)	25.61 (4.40)	21.39 (2.46)	20.72 (3.25)	22.97 (4.29)	26.22 (3.68)	26.13 (1.38)	22.68 (3.41)
Class Size Math	29.42 (4.22)	25.81 (3.55)	20.83 (3.06)	22.90 (1.63)	25.23 (7.69)	27.77 (3.25)	26.73 (1.00)	26.94 (14.11)
Free/Red. Lunch	41.44 (21.63)	52.81 (21.30)	50.36 (20.35)	46.34 (18.94)	50.35 (20.92)	35.85 (27.57)	37.01 (16.97)	48.42 (15.59)
LEP	5.89 (3.79)	1.25 (2.43)	6.36 (5.02)	5.51 (2.61)	6.84 (5.34)	7.12 (5.93)	1.52 (2.77)	2.18 (2.98)
Special Education	10.27 (2.36)	17.80 (6.62)	14.24 (4.24)	17.35 (3.19)	19.56 (15.70)	16.01 (4.31)	18.06 (5.63)	13.63 (5.28)
Mobility	27.83 (9.82)	50.05 (24.47)	38.00 (14.80)	38.68 (15.12)	40.43 (37.02)	23.57 (9.57)	29.07 (12.97)	39.24 (17.95)
School Grade[b]	3.09 (1.19)	2.77 (0.95)	3.03 (0.66)	3.41 (1.18)	2.93 (0.91)	3.24 (0.97)	3.67 (0.80)	3.18 (1.01)
School Size	1562.00 (348.13)	1090.78 (407.53)	979.47 (388.98)	901.35 (242.76)	1042.52 (438.38)	1288.46 (378.93)	1147.38 (248.81)	778.14 (350.02)
Minority	57.61 (23.64)	55.13 (24.07)	51.99 (20.30)	33.53 (16.98)	53.44 (21.93)	56.80 (27.07)	29.49 (14.21)	37.74 (17.29)
8th-grade Reading[c]	280.22 (33.66)	284.37 (25.07)	291.44 (24.34)	292.64 (21.83)	281.52 (30.75)	292.03 (28.00)	282.87 (38.84)	281.85 (29.14)
8th-grade Math[c]	281.41 (35.44)	277.87 (31.89)	294.30 (30.90)	293.07 (32.29)	283.52 (33.07)	289.97 (31.20)	281.50 (45.52)	282.48 (31.85)
8th-grade Writing[d]	3.01 (0.55)	3.24 (0.38)	3.46 (0.42)	3.10 (0.37)	3.07 (0.44)	2.94 (0.65)	3.05 (0.67)	3.09 (0.61)

Notes: [a] LA=language arts. [b] School grades were converted to a numerical scale where A=5, B=4, C=3, D=2, and F=1. [c] FCAT Sunshine State Standards Test. [d] FCAT Florida Writing Assessment.

The percentage of students enrolled in special education programs ranged from 10% in Broward County to 20% in Orange County, with the other counties between 14% and 18%. Duval County, compared to Broward, Hillsborough, Lee, Orange, and Palm Beach counties, had a lower percentage of LEP students (1% compared to 6% to 7%), but a similar percentage to Pinellas and Polk counties (2%). Broward had the largest average school size (about 1,560 students) and Polk County had the smallest average school size (about 780

students), with the other counties ranging from approximately 900 students (Lee) to about 1,560 students (Broward). Broward County also had the highest percentage of minority students (58%), but comparable to Palm Beach, Duval, Orange, and Hillsborough counties, and Pinellas had the lowest percentage (29%).

For 1998-1999 eighth-grade average reading achievement, Lee County performed the highest (293), but equivalent to Palm Beach and Hillsborough counties, and Broward performed the lowest (280), but equivalent to Orange, Polk, Pinellas, and Duval counties. Eighth-grade mathematics results were similar to reading, as Hillsborough, Lee, and Palm Beach performed similarly high on average (294, 293, and 290, respectively), and Duval, Broward, Pinellas, Polk, and Orange counties performed similarly lower (278, 281, 281, 282, and 284, respectively). In writing, most eighth graders performed the same on average (around 3.1), except for Hillsborough County which performed the highest, scoring approximately 3.5. Overall, on average, Duval County middle schools had a high percentage of students eligible for free or reduced-price lunch, high student mobility, high minority student enrollment, low LEP student enrollment, and low reading and mathematics performance compared to the other counties. Duval County middle schools seemed most similar to Orange County middle schools on average demographics and student performance.

Across the eight counties, academic performance in the six subjects/grades examined in this study show a general trend of improvement. That is, while there is some bouncing around of year-to-year test score averages, the raw county average scale scores are generally improving over time. This could reflect the results of programs within counties, the state's methods for calculating results, changes in the composition of county schools, or some combination of these factors. Duval's test results also show trends that are generally positive. As an example, we show fourth- and eighth-grade average county reading scores in Table 4.

The only adjustment made to these numbers was weighting them by the number of students tested in each school. As the reader can see from the table, Duval's performance was flat (fourth grade) or declining (eighth grade) from spring 1999 to spring 2000, and then grew over the following two years. These results are fairly typical. That is, overall, Duval showed gains in average performance from year to year relative to itself during the period examined in this study. This indicates that Duval's unadjusted performance in the three subjects we examined — reading, writing, and mathematics — has continued to grow over the time that standards-based reform was being implemented within the county. Because there were some differences in the direction of county changes in performance from year to year, we resist talking about gains in this report, but

Table 4. Changes in Average Fourth- and Eighth-grade FCAT Reading Scale Scores from Spring 1999 to Spring 2002 for Duval and the Seven Comparison Counties

	Fourth Grade				Eighth Grade			
	1999	2000	2001	2002	1999	2000	2001	2002
Broward	285	292	301	304	295	294	297	300
Duval	294	294	298	303	293	284	293	293
Hillsborough	289	297	303	301	297	294	302	301
Lee	292	298	301	304	302	297	297	299
Orange	280	282	287	289	292	283	289	288
Palm Beach	285	287	297	300	301	292	296	294
Pinellas	297	298	301	299	302	291	303	304
Polk	285	290	296	292	289	286	290	285

rather use a more cautious approach of talking about *changes* in performance. The full set of raw county average test scores for fourth and eighth grade are shown in Appendix A.

These results still do not take into account the very real demographic differences between these counties, which is why we have adopted a more sophisticated analytical strategy using regression modeling. This strategy is described in the following section.

Methods

In this section, we describe the sources for the data that we used to produce these analyses and our analytical approach.

Data Sources

All of the school-level data used in the analyses for this study were downloaded from the Florida State Department of Education's website. The FCAT Sunshine State Standards reading, writing, and mathematics test data for grades 4, 5, and 8 were found at www.firn.edu/doe/sas/fcat/fcinfopg.htm. The demographic data used as covariates in the analytic models were taken from the *Florida School Indicators Report: 1998-1999* and were downloaded from info.doe.state.fl.us/fsir/, except for percent minority which was calculated from the 1998-1999 Common Core of Data collected by the National Center for Education Statistics (nces.ed.gov/ccd/). District-level profiles for the latest school year, 2001-2002, were also available online at www.firn.edu/doe/eias/flmove/county.htm.

FCAT scores for students in fourth, fifth, and eighth grades were collected for the 1998-1999, 1999-2000, 2000-2001, and 2001-2002 school years. This standardized test was administered in the spring of each school year. Both norm-referenced and standards-referenced tests comprise the FCAT

system. For this study, we only used the standards-referenced scores on the FCAT because they are more aligned with the standards-based reform being evaluated. The FCAT Sunshine State Standards scale scores for reading and mathematics range from 100 to a possible 500 and the writing scores range from 1 to 6. All of the schools within each county that had available 1998-1999 demographic and test data were included in the analyses. Schools with missing demographic data were not included.

Statistical Analyses

In order to assess the impact of Duval's standards-based reform efforts on student achievement, standardized test scores in reading, writing, and mathematics for fourth-, fifth-, and eighth-grade cohorts from the eight counties were analyzed over four consecutive years: 1998-1999, 1999-2000, 2000-2001, and 2001-2002. Broward, Hillsborough, Lee, Orange, Palm Beach, Pinellas, and Polk counties served as comparison counties for Duval. All of the data used in the analyses were school averages as individual-level student performance data were not publicly available.

Ordinary least squares regression models were used to compare average school-level achievement in Duval County to average school-level achievement in the seven comparison counties in reading, writing, and mathematics after adjusting for school demographic characteristics and prior achievement. Models were estimated separately for each grade level and subject area combination using PROC REG in SAS 8.2. The basic model equation follows:

$$Y = \beta_0 + \beta_1(\text{PRIOR ACHIEVEMENT})_1 + \beta_2(\text{SEVERE ABSENTEEISM})_2 + \beta_3(\text{CLASS SIZE})_3 + \beta_4(\text{LUNCH ASSISTANCE})_4 + \beta_5(\text{LEP})_5 + \beta_6(\text{SPECIAL EDUCATION})_6 + \beta_7(\text{MOBILITY})_7 + \beta_8(\text{SCHOOL GRADE})_8 + \beta_9(\text{SCHOOL SIZE})_9 + \beta_{10}(\text{PERCENT MINORITY})_{10} + \beta_{11}(\text{BROWARD})_{11} + \beta_{12}(\text{HILLSBOROUGH})_{12} + \beta_{13}(\text{LEE})_{13} + \beta_{14}(\text{ORANGE})_{14} + \beta_{15}(\text{PALM BEACH})_{15} + \beta_{16}(\text{PINELLAS})_{16} + \beta_{17}(\text{POLK})_{17} + r$$

In the model, the outcome Y is the school's average spring test score for a particular grade level and subject area, and r is the random error term. The 10 school-level covariates included in the model are: average prior spring test score, percentage of students who were absent 21 or more days, average class size, percentage of students eligible for free or reduced-price lunch, percentage of students who were classified as Limited English Proficient, percentage of students in special education programs, percentage of students moving into or out of a school during the 1998-1999 school year, school grade (A-F) assigned under the state accountability system,[1] number of students enrolled in a school in fall 1998 (i.e., school size), and the combined percentage of students who were African American, Hispanic, or Native American. County-level means and

[1] School grades were converted to a numerical scale where A=5, B=4, C=3, D=2, and F=1.

standard deviations for these variables were provided in Tables 2 and 3 above.

Dummy indicators for schools in Broward, Hillsborough, Lee, Orange, Palm Beach, Pinellas, and Polk counties were also included in each model. The reference group, the omitted group to which all other counties are compared, was Duval County schools. This analytical approach is similar to a hierarchical linear modeling (HLM) approach (Raudenbush & Bryk, 2002); however, there is a fixed effect for district instead of a random effect as in a traditional HLM. This enables us to make explicit comparisons of the seven districts to Duval County.

Our analyses include three separate statistical tests for each grade level and subject area tested. Because these samples are not independent across tests, this increases the chance of making a Type I error; that is, incorrectly finding a significant difference when in fact no difference exists. Statisticians commonly use adjustments to counteract this potential bias (Miller, 1981). We used a Bonferroni correction to adjust the significance levels (i.e., p-values) of the estimates downward in order to account for the number of statistical tests performed on each independent sample under study. This does not change the effect sizes, but provides a more stringent test of significance so that Type I error is not inflated. These conservative adjustments are reflected in the results tables and in the full models reported in Appendix B of this report.

Thus, our analytical approach was to use regression analyses, repeated across years, correcting for the multiple tests. We considered looking solely at gain scores from spring 1999 to spring 2002, and estimating a linear growth model for all years between 1999 and 2002, but we felt that these approaches could mask trends within this time period because these models embed the assumption that change from one year to the next is constant. For example, if there were differences between 1999 and 2002, these could be due to consistent improvements each year, initial improvements that flattened out in subsequent years, or changes that did not appear until the last year that was examined, and we wanted to identify these differences. Therefore, we chose to report results for individual years, correcting for the additional number of statistical tests performed, in order to make apparent the trends within the period from 1999 to 2002.

Results

In this section, we report the relative changes in student performance for students in Duval County schools in comparison to the changes of students in other Florida counties after controlling for school characteristics and prior achievement. Findings are reported on the three-year impact of the standards-based reform in Duval County on elementary and middle schools in reading, writing, and mathematics. Results are reported separately by grade level, and by subject area. Also, the p-values reported have been conservatively corrected for multiple statistical tests as described

previously in this report. These coefficients are compared to the reference group of Duval County schools. Appendix B contains complete tables of regression coefficients and standard errors for each of the variables included in each of the models. All of the coefficients are in standard deviation units and represent the standardized effect size of the difference between Duval and each other county after statistically controlling for the 10 school baseline characteristics. Cohen (1977) considers effect sizes of .2 as small, .5 as moderate, and .8 as large.

Elementary School Performance

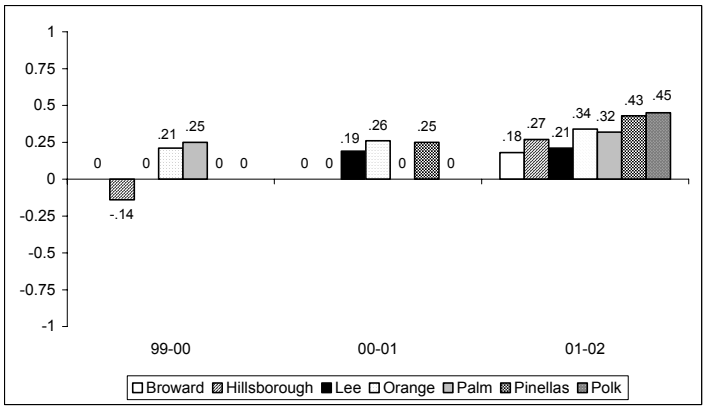
From 1998-1999, the year before Duval began its implementation of standards-based reform, to 2001-2002, Duval showed dramatic gains in performance in elementary school reading, writing, and mathematics test performance in comparison to other Florida counties. In this section, we detail the results in fourth-grade reading and writing, and fifth-grade mathematics performance from the 1998-1999 school year to the 2001-2002 school year.

Fourth-grade Reading Performance

In fourth-grade reading, the overall pattern shows that, at the beginning of its implementation of standards-based reform in the 1998-1999 school year, Duval was performing roughly similarly to the comparison districts. However, by the 2001-2002 school year, Duval was outperforming the seven comparison districts.

The patterns of gains in fourth-grade reading performance are shown graphically in Figure 1. The first set of bars (shown as 1999-2000) show test score changes in Duval compared to those of the seven other comparison counties during the first full year of standards-based reform in Duval County. The second set of bars (shown as 2000-2001) show test score changes in Duval compared to those of the seven other counties during the second year of standards-based reform in Duval. The third set of bars (shown as 2001-2002)

Figure 1. Duval County's Fourth-grade Reading Performance Compared to Seven Other Florida Counties



show test score changes in Duval relative to those of the seven other counties during the third year of reform in Duval. Those bars above the zero axis represent counties significantly outperformed by Duval in that given year. Those bars below the zero axis represent counties which significantly outperformed Duval in that given year. All differences are represented as standardized units, and only those gains that are statistically significant are shown as differences. Thus, non-significant differences, whether they favor Duval or another county, are

represented as zero. Again, in this figure and in all subsequent figures, the reader can consider differences around .2 as small, .5 as moderate, and .8 as large.

The first set of bars in Figure 1 represent changes in Duval's fourth-grade FCAT reading performance in comparison to changes in the performance of fourth graders in the seven comparison counties from the end of the 1998-1999 school year to the same test given at the end of the 1999-2000 school year. This year represents a pre/post measure of the beginning of Duval's implementation of standards-based reform as 1999-2000 was the first year of Duval's first cohort of America's Choice schools. Each bar in the graph represents the change in Duval's performance in that year relative to the changes of that comparison district. For example, as can be seen in the first set of bars in the graph, Duval changed no differently than Broward, Lee, Pinellas, or Polk counties. Hillsborough, by contrast, statistically outperformed Duval County by .14 of a standard deviation. Duval outperformed Orange and Palm Beach during its first year implementing standards-based reform.

After Duval's second year of standards-based reform, represented by the middle section of Figure 1, Duval was beginning to see even larger improvements in test performance in comparison to the other Florida counties. From the spring 2000 FCAT reading test to the spring 2001 FCAT reading test, fourth graders in Duval performed significantly better than did students in three comparison counties (Lee, Orange, and Pinellas), while performing no differently than four others (Broward, Hillsborough, Palm Beach, and Polk). Hillsborough, which had outgained Duval the previous year, was performing no differently than Duval after the second year of the implementation of standards-based reform in Duval.

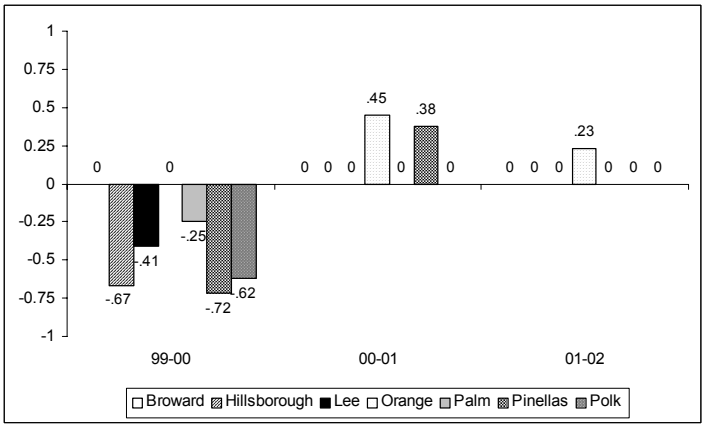
By 2002, after Duval's third year engaged in standards-based reform, the county was significantly outperforming all of the comparison districts. These differences are shown in the final set of bars in Figure 1. The magnitude of these differences in average school test performance ranged from small (.18 to .34) to moderate (.43 to .45). These effect sizes translate into a 4 to 11 point difference on the fourth-grade FCAT reading test in 2002. Thus, after controlling for school demographic characteristics and prior achievement, the average school performance in Duval was 299, Broward was 295, Orange was 291, and Polk was 288.

Fourth-grade Writing Performance

In contrast to the story in elementary school reading where Duval went from similar performance to outperforming all the comparison counties, the story of writing shows Duval catching up with other Florida counties. In fourth-grade writing, Duval initially performed significantly worse than comparison counties and ended up performing similarly.

The patterns in fourth-grade FCAT writing performance are shown in Figure 2. Changes in Duval's performance from the 1998-1999 school year, the year prior to the implementation of standards-based reform, to the 1999-2000 school year, are shown in the leftmost set of bars. Duval performed significantly worse than five of the comparison districts (Hillsborough, Lee, Palm Beach, Pinellas, and Polk), and performed no differently than two of the comparison counties (Broward and Orange). Thus, in the first year of standards-based reform, after controlling for school demographic characteristics and prior achievement, Duval was performing .09 to .26 points worse than the comparison counties on the fourth-grade FCAT writing test. The average adjusted school performance was 3.03 in Duval, 3.27 in Hillsborough, 3.29 in Pinellas, and 3.25 in Polk.

Figure 2. Duval County's Fourth-grade Writing Performance Compared to Seven Other Florida Counties



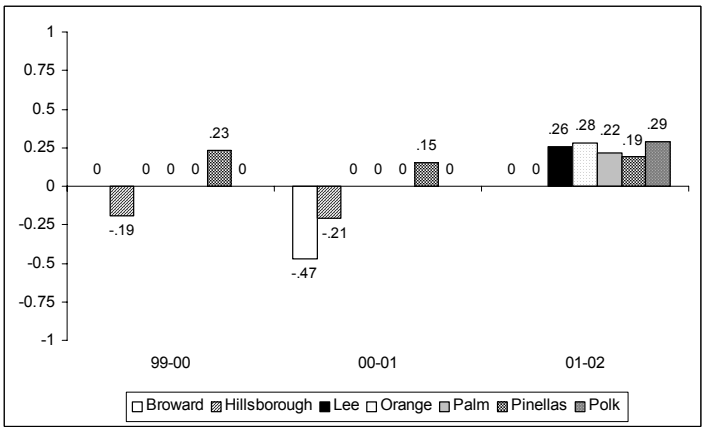
A year later, in 2001, Duval schools had caught up with, and in two cases surpassed, the schools in the comparison counties. In fact, Duval fourth graders were performing no different from students in five of the comparable counties (Broward, Hillsborough, Lee, Palm Beach, and Polk) and performing significantly better than students in Orange and Pinellas. These positive performance differences were generally maintained in 2002 when Duval fourth-grade students generally changed similarly in writing relative to the comparison counties. Duval continued to outperform Orange County, by about a quarter of a standard deviation, in 2002.

Fifth-grade Mathematics Performance

Duval's elementary school mathematics performance seemed largely indistinguishable from that of the comparison counties in the first two years of standards-based reform. From 2001 to 2002, however, Duval schools outperformed most of the comparison counties' schools.

Year-to-year changes in fifth-grade FCAT mathematics performance for Duval relative to the seven comparison counties are shown in Figure 3. There do not appear to be any notable patterns of systematic differences in relative county average test performance from 1999 to 2000 or from 2000 to 2001, the first two years of standards-based reform in Duval County. Significant patterns of difference in performance start to appear from 2001 to 2002 as the changes in performance in Duval County were

Figure 3. Duval County's Fifth-grade Mathematics Performance Compared to Seven Other Florida Counties



significantly more positive than those of the other counties.

From the 1998-1999 school year, the year before Duval began to implement standards-based reform, to the 1999-2000 school year, Duval's first year of implementation of standards-based reform, the county's mathematics performance was essentially no different from that of other counties in the state. In that year, Duval performed significantly better than Pinellas, significantly worse than Hillsborough, and no different from Broward, Lee, Orange, Palm Beach, and Polk counties.

This non-descript pattern continued in 2001. From the spring 2000 FCAT administration to the spring 2001 administration, Duval performed significantly better than Pinellas County, significantly worse than Broward and Hillsborough counties, and no different from Lee, Orange, Palm Beach, and Polk counties.

In 2002, Duval really began to perform significantly better than its counterparts in fifth-grade mathematics. During the 2001-2002 school year, Duval fifth-grade mathematics performance was stronger than that of just about all of the comparison counties. Duval's fifth-grade performance was significantly stronger than that of five counties (Lee, Orange, Palm Beach, Pinellas, and Polk) and no different from two (Broward and Hillsborough). The magnitude of the differences was between two-tenths and three-tenths of a standard deviation, a small but consistent effect. This translates into a range of five to eight points, about seven points on average, on the fifth-grade FCAT mathematics test. The average school performance for Duval was 310 after controlling for school demographic characteristics and prior achievement.

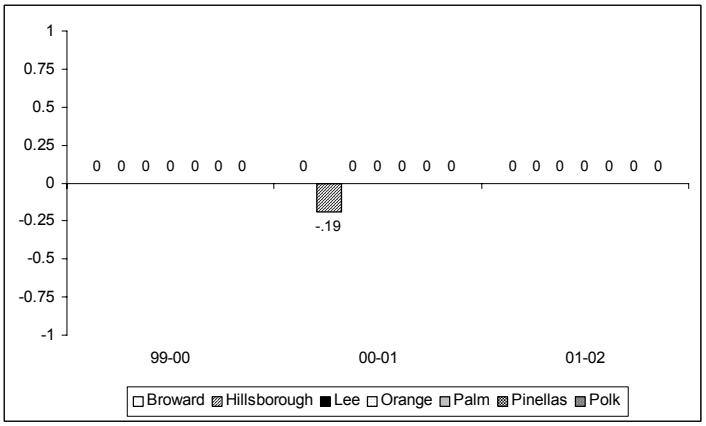
Middle School Performance

Duval middle school FCAT test performance from 1998-1999 to 2001-2002 was largely flat relative to that of the comparison counties in reading and mathematics. There was, however, some evidence of degradation of performance in eighth-grade writing. In this section, we examine the results in eighth-grade reading, writing, and mathematics performance from the 1998-1999 school year, the year before standards-based reform was implemented in Duval County, to 2001-2002.

Eighth-grade Reading Performance

Over the timeframe of this study, there were no patterns of systematic differences in the performance of Duval eighth graders in reading in comparison to the school-average performance of other counties. As shown in Figure 4, there is only one case in which Duval's eighth-grade performance was significantly different from that of eighth-grade performance in other comparison counties. From the spring 2000 administration of the eighth-grade FCAT reading test to the spring 2001 administration, Duval performed significantly worse than Hillsborough by .19 of a standard deviation. In all other years, there were no differences in changes in Duval's performance relative to the changes in performance of the other seven counties.

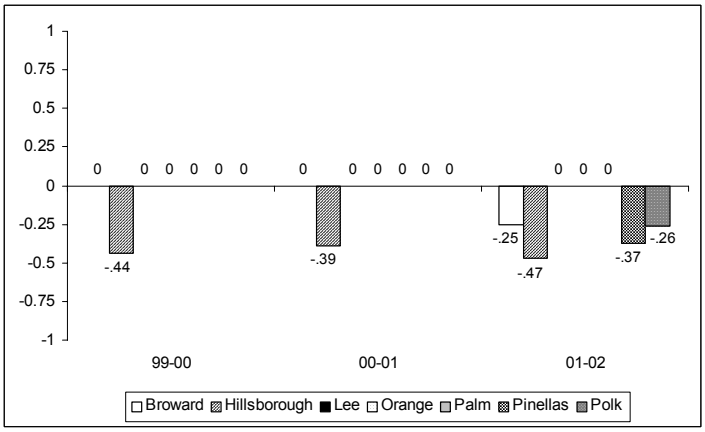
Figure 4. Duval County's Eighth-grade Reading Performance Compared to Seven Other Florida Counties



Eighth-grade Writing Performance

Eighth-grade writing is the one subject and grade level where there was a pattern that suggests that Duval is falling behind the performance of other Florida counties. The results in eighth-grade FCAT writing for Duval relative to the comparison counties are shown in Figure 5.

Figure 5. Duval County's Eighth-grade Writing Performance Compared to Seven Other Florida Counties



From the spring of 1999, the year before Duval began implementing standards-based reform, to the spring of 2000, after the first year of reform, Duval was essentially performing no differently than the other seven counties in Florida. The exception to this was Hillsborough, which outperformed Duval by .44 of a standard deviation, a moderate effect.

This pattern of no differences between Duval and the other seven Florida counties persisted in 2001, as can be seen in the middle section of Figure 5. Only Hillsborough County continued to perform significantly different from Duval, gaining .39 of a standard deviation more than Duval. In 2002, Duval's performance dropped off relative to the other Florida counties. From the spring 2001 administration of the eighth-grade FCAT writing test to

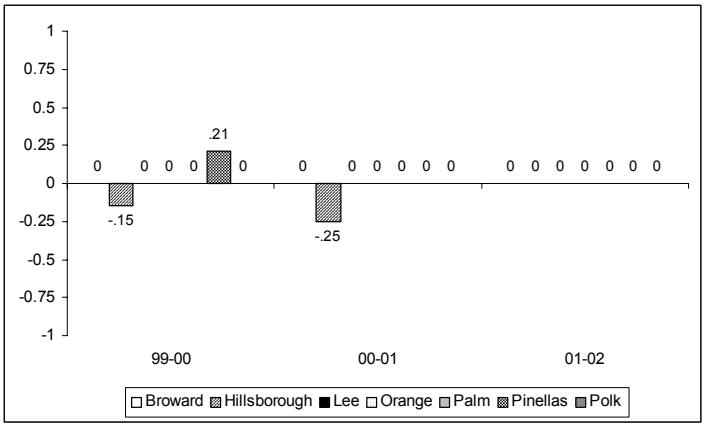
the spring 2002 administration, Duval's performance was significantly worse than that of four of the comparison counties (Broward, Hillsborough, Pinellas, and Polk) while no different from three (Lee, Orange, and Palm Beach) after controlling for differences in the demographic characteristics and prior achievement of the schools in each of the counties. This translates into a .14 to .25 point lower test performance on the eighth-grade FCAT writing test, which had a minimum possible score of 1 and a maximum possible score of 6. The average adjusted school performance was 3.58 in Duval, 3.83 in Broward, 4.05 in Hillsborough, 3.95 in Pinellas, and 3.84 in Polk. The trend in writing performance bears monitoring to see if the 2002 performance is an anomaly or part of a trend.

Eighth-grade Mathematics Performance

Eighth-grade mathematics performance, like eighth-grade reading performance, shows no real patterns of difference between Duval County and the seven comparison counties. The differences from 2000 through 2002 are shown in Figure 6. In 2000, after controlling for performance in 1999, Duval performed significantly better than one county (Pinellas), significantly worse than one county (Hillsborough) and no different from the five other counties.

In 2001, after two years of standards-based reform, Duval was performing similarly to six of the comparison counties, and continued to perform significantly worse than Hillsborough. By 2002, the third year of standards-based reform, Duval was performing no differently than all seven of the comparison counties.

Figure 6. Duval County's Eighth-grade Mathematics Performance Compared to Seven Other Florida Counties



Discussion

In this report, we have set out to quantify the impact of the standards-based reform efforts of Duval County on student learning by examining the trends in school achievement scores in Duval compared to seven other Florida counties that were similar in terms of size, per-pupil spending, poverty, and achievement prior to the implementation of Duval's reforms. We have examined trends in school-level achievement over time from the 1998-1999 school year through the 2001-2002 school year. We chose the 1998-1999 school year as a baseline because it represents the year before the implementation of the first cohort of America's Choice in Duval, which was the beginning of Duval's concerted attempts to change the educational practices which influence student learning. At the time of these analyses,

the 2001-2002 data represent the latest data available from the state of Florida. Our analytic strategy involved comparing the changes in performance in Duval to that of other counties from one year to the next at each of the grade levels tested by the state (4, 5, and 8), and repeating this analysis across multiple cohorts at each grade level. Thus, for example, we compared school-level changes in fourth-grade reading performance, controlling for school demographic characteristics and prior achievement, across multiple years. We contend that if students in Duval are performing better than students in other, similar counties in a grade level over multiple years, then these effects are produced by the school *system* within which they attend.

The results of this analysis show that changes in Duval's elementary school performance in reading, writing, and mathematics were substantially stronger than the changes in performance in the seven comparison counties from 1999 to 2002. Although the patterns differed somewhat by subject and grade level, Duval elementary schools either caught up to or surpassed the annual differences in performance of schools in the comparison counties, even after controlling for both demographic differences and prior performance. These patterns suggest that something systemic is occurring in Duval elementary schools that is resulting in persistent outperformance relative to other counties. We believe that these systematic differences can be reasonably attributed to Duval's standards-based reform efforts.

In contrast to elementary schools, there were no trends of differential performance in Duval County middle schools in reading and mathematics relative to the performance of the comparison counties. In writing, there was a relative decline in performance from 2001 to 2002. The raw performance data from these years (see Appendix A) indicate that Duval was generally making gains in middle school performance during these years, but that these gains were similar to those of the comparison counties. Thus, while the middle schools have held their own, they did not outperform middle schools in the comparison counties.

Depending on how one looks at it, the lack of middle school differences can be interpreted as Duval holding its own amidst change or indicate the need for Duval to re-think its middle school strategy. Duval's standards-based reform initiative has had more difficulty taking root in its middle schools than it has in its elementary schools. In mathematics, for example, Duval initially had difficulties implementing *Connected Math* in its middle schools, where many teachers found it difficult to teach with this more conceptual curriculum. So it is possible that the county's continued improvement — on par with the comparison counties — even in the face of a challenging transition, represents a major achievement. It is also possible that it is harder to change the learning habits of middle school students, who are more acculturated to traditional forms of teaching. If these possibilities hold true, then the effects in Duval middle schools may become visible as middle school

teachers become more accustomed to the new instructional approaches of the county and elementary students begin to enter the middle schools. If either of these possibilities are reasonable, then the county should faithfully persist with its efforts.

It is also possible that middle schools represent distinctly different environments from elementary schools and the organization and culture of middle schools may be more intransigent to the county's standards-based reform. If this is the case, then Duval County will need to tweak its strategies to change the instructional and organizational habits of its middle schools.

Despite the uneven progress across grade levels, the patterns of effect documented in this study provide substantial evidence that the county's standards-based reform efforts have produced significant changes in the learning experiences of students. Even as its transformation has just begun, Duval County's efforts to date have had positive and measurable impacts on the learning of the county's students.

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Appendix A

Table A-1. Mean Scale Scores in Fourth-grade Reading, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	285	292	301	304
Duval	294	294	298	303
Hillsborough	289	297	303	301
Lee	292	298	301	304
Orange	280	282	287	289
Palm Beach	285	287	297	300
Pinellas	297	298	301	299
Polk	285	290	296	292

Table A-2. Mean Scale Scores in Fourth-grade Writing, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	3.0	3.2	3.5	3.5
Duval	2.9	3.0	3.4	3.4
Hillsborough	3.1	3.4	3.6	3.6
Lee	2.9	3.2	3.4	3.5
Orange	2.9	3.1	3.2	3.2
Palm Beach	2.9	3.2	3.4	3.5
Pinellas	3.2	3.4	3.5	3.5
Polk	3.0	3.3	3.5	3.4

Table A-3. Mean Scale Scores in Fifth-grade Mathematics, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	306	315	323	327
Duval	302	311	307	315
Hillsborough	308	321	321	323
Lee	308	320	317	319
Orange	300	309	303	307
Palm Beach	306	318	318	321
Pinellas	307	314	309	317
Polk	301	312	311	313

Table A-4. Mean Scale Scores in Eighth-grade Reading, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	295	294	297	300
Duval	293	284	293	293
Hillsborough	297	294	302	301
Lee	302	297	297	299
Orange	292	283	289	288
Palm Beach	301	292	296	294
Pinellas	302	291	303	304
Polk	289	286	290	285

Table A-5. Mean Scale Scores In Eighth-grade Writing, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	3.3	3.6	3.6	3.9
Duval	3.3	3.6	3.7	3.7
Hillsborough	3.6	4.0	4.1	4.2
Lee	3.2	3.8	3.7	3.8
Orange	3.2	3.6	3.5	3.7
Palm Beach	3.3	3.6	3.6	3.7
Pinellas	3.4	3.8	3.9	4.0
Polk	3.3	3.7	3.8	3.9

Table A-6. Mean Scale Scores in Eighth-grade Mathematics, Weighted for the Number of Students Tested, for each of the Eight Counties from Spring 1999 to Spring 2002

County	1999	2000	2001	2002
Broward	296	306	313	310
Duval	290	297	302	301
Hillsborough	303	314	318	317
Lee	306	313	309	309
Orange	295	300	304	301
Palm Beach	301	307	311	307
Pinellas	305	303	313	311
Polk	291	299	301	297

Appendix B

Table B-1. Regression Coefficients from the Full Models for Reading Achievement by Year and Grade Level (with corrected significance levels)

	Spring 1999 to Spring 2000		Spring 2000 to Spring 2001		Spring 2001 to Spring 2002	
Variable	Grade 4	Grade 8	Grade 4	Grade 8	Grade 4	Grade 8
Intercept	.06	-.16***	-.01	-.20***	.13**	-.15***
	(.04)	(.04)	(.04)	(.04)	(.04)	(.04)
Pre-test Score	.50***	.65***	.55***	.61***	.57***	.75***
	(.04)	(.06)	(.03)	(.06)	(.04)	(.06)
Absent 21	-.06*	-.04	-.07**	.02	-.06~	-.03
	(.02)	(.03)	(.02)	(.03)	(.03)	(.03)
Class Size	.06**	-.04	-.04~	.00	-.05*	.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Free/Red. Lunch	-.18***	.03	-.12**	-.09	-.11*	-.08
	(.04)	(.05)	(.04)	(.05)	(.04)	(.04)
LEP	-.01	-.03	.01	-.05*	.00	-.00
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Special Education	-.07**	-.24***	-.03	-.13*	-.06*	-.01
	(.02)	(.05)	(.02)	(.05)	(.03)	(.05)
Mobility	-.03	-.05	-.11*	-.05	-.17**	-.01
	(.05)	(.04)	(.04)	(.04)	(.05)	(.04)
School Grade	.04	.01	.11***	.02	.11***	.02
	(.03)	(.03)	(.02)	(.03)	(.03)	(.02)
School Size	-.02	-.00	-.00	-.01	-.03	-.04
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Minority	-.13***	-.17***	-.08~	-.11**	-.04	.03
	(.03)	(.04)	(.03)	(.04)	(.04)	(.04)
Hillsborough	.14~	.10	-.00	.19*	-.27***	.07
	(.06)	(.07)	(.06)	(.06)	(.07)	(.06)
Orange	-.21**	-.05	-.26***	.06	-.34***	-.10
	(.07)	(.07)	(.06)	(.07)	(.07)	(.06)
Broward	-.09	.15	.04	-.11	-.18*	.06
	(.07)	(.07)	(.06)	(.07)	(.07)	(.06)
Lee	.02	.04	-.19~	-.06	-.21~	.05
	(.09)	(.08)	(.08)	(.08)	(.09)	(.08)
Palm Beach	-.25**	.04	-.06	-.04	-.32***	-.07
	(.08)	(.07)	(.07)	(.07)	(.08)	(.07)
Polk	-.03	-.01	.02	-.09	-.45***	-.12
	(.07)	(.08)	(.07)	(.08)	(.08)	(.07)
Pinellas	-.12	-.13	-.25***	.11	-.43***	.11
	(.07)	(.07)	(.06)	(.07)	(.07)	(.07)
R^2	.81	.92	.82	.93	.78	.92

~ p<.10, * p < .05, ** p < .01, *** p < .001 after Bonferroni correction

Table B-2. Regression Coefficients from the Full Models for Writing Achievement by Year and Grade Level (with corrected significance levels)

	Spring 1999 to Spring 2000		Spring 2000 to Spring 2001		Spring 2001 to Spring 2002	
Variable	**Grade 4**	**Grade 8**	**Grade 4**	**Grade 8**	**Grade 4**	**Grade 8**
Intercept	-.46***	.05	-.19**	-.12	-.19**	-.20***
	(.06)	(.05)	(.06)	(.07)	(.06)	(.06)
Pre-test Score	.55***	.62***	.55***	.61***	.54***	.58***
	(.04)	(.07)	(.03)	(.08)	(.03)	(.06)
Absent 21	.04	-.04	-.07~	-.00	.02	.00
	(.03)	(.03)	(.03)	(.04)	(.03)	(.04)
Class Size	-.01	.02	-.04	.04	-.00	-.04
	(.02)	(.03)	(.02)	(.03)	(.02)	(.03)
Free/Red. Lunch	-.23***	.02	-.09	-.02	-.09	-.10
	(.06)	(.06)	(.06)	(.07)	(.06)	(.06)
LEP	.02	-.07*	-.00	-.05	.02	-.05
	(.03)	(.02)	(.03)	(.03)	(.03)	(.03)
Special Education	-.04	-.23***	-.06	-.08	-.06	-.09
	(.03)	(.06)	(.03)	(.07)	(.03)	(.06)
Mobility	.01	-.05	.00	.07	-.18**	-.09
	(.07)	(.05)	(.06)	(.06)	(.06)	(.05)
School Grade	.02	.05	.06	.08	.18***	.02
	(.04)	(.03)	(.03)	(.04)	(.03)	(.03)
School Size	-.01	-.04	.02	-.08~	.00	-.04
	(.03)	(.03)	(.03)	(.04)	(.03)	(.03)
Minority	.15**	-.03	-.08	-.07	.06	.06
	(.05)	(.04)	(.05)	(.05)	(.05)	(.05)
Hillsborough	.67***	.44***	-.08	.39**	.12	.47***
	(.09)	(.08)	(.09)	(.11)	(.09)	(.09)
Orange	.12	.10	-.45***	-.09	-.23*	.09
	(.09)	(.09)	(.09)	(.10)	(.09)	(.09)
Broward	.11	-.14	-.03	-.03	-.01	.25*
	(.09)	(.09)	(.09)	(.11)	(.09)	(.09)
Lee	.41**	.20	-.07	-.01	-.02	.05
	(.12)	(.11)	(.12)	(.13)	(.12)	(.11)
Palm Beach	.25~	-.08	-.11	.05	-.04	.11
	(.11)	(.09)	(.10)	(.11)	(.10)	(.10)
Polk	.61***	.04	.04	.19	-.09	.26*
	(.10)	(.09)	(.10)	(.11)	(.10)	(.10)
Pinellas	.72***	.16	-.38***	.20	.02	.37***
	(.10)	(.09)	(.10)	(.11)	(.09)	(.10)
R^2	.57	.87	.59	.82	.61	.85

~ p<.10, * p < .05, ** p < .01, *** p < .001 after Bonferroni correction

Table B-3. Regression Coefficients from the Full Models for Mathematics Achievement by Year and Grade Level (with corrected significance levels)

	Spring 1999 to Spring 2000		Spring 2000 to Spring 2001		Spring 2001 to Spring 2002	
Variable	Grade 5	Grade 8	Grade 5	Grade 8	Grade 5	Grade 8
Intercept	-.20***	-.21***	-.30***	-.41***	-.17***	-.20***
	(.04)	(.04)	(.04)	(.05)	(.04)	(.04)
Pre-test Score	.46***	.80***	.56***	.71***	.54***	.77***
	(.04)	(.07)	(.03)	(.06)	(.03)	(.05)
Absent 21	-.08**	-.02	-.06*	.05	-.05~	-.03
	(.02)	(.03)	(.02)	(.03)	(.02)	(.02)
Class Size	-.01	-.03	-.03	.01	-.05**	-.00
	(.02)	(.02)	(.02)	(.02)	(.02)	(.01)
Free/Red. Lunch	-.11*	.03	-.07	-.04	-.08	-.03
	(.04)	(.05)	(.04)	(.05)	(.04)	(.04)
LEP	.04	-.05~	.04	-.01	.02	.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Special Education	-.09***	-.16**	.01	-.14*	-.12***	-.00
	(.02)	(.05)	(.03)	(.05)	(.02)	(.04)
Mobility	-.12*	-.07	-.07	-.06	-.13~	-.01
	(.05)	(.04)	(.05)	(.04)	(.05)	(.04)
School Grade	.09**	-.01	.05	.02	.08**	.01
	(.03)	(.03)	(.03)	(.03)	(.03)	(.02)
School Size	.00	-.02	-.01	-.03	-.04	.01
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Minority	-.14***	-.07	-.13**	-.12*	-.12**	-.04
	(.04)	(.04)	(.04)	(.04)	(.04)	(.03)
Hillsborough	.19*	.15~	.21**	.25**	-.09	.06
	(.07)	(.07)	(.07)	(.07)	(.07)	(.06)
Orange	-.12	-.08	-.09	.12	-.28***	-.10
	(.07)	(.07)	(.07)	(.07)	(.06)	(.06)
Broward	-.12	.01	.47***	.13	-.00	-.08
	(.07)	(.07)	(.07)	(.07)	(.07)	(.06)
Lee	.06	.03	-.02	-.07	-.26**	.01
	(.09)	(.08)	(.09)	(.09)	(.09)	(.07)
Palm Beach	-.03	.01	.15	.11	-.22*	-.05
	(.08)	(.08)	(.08)	(.08)	(.08)	(.07)
Polk	.03	.01	.15	-.05	-.29***	-.05
	(.07)	(.08)	(.08)	(.08)	(.07)	(.07)
Pinellas	-.23**	-.21*	-.15~	.17	-.19*	-.02
	(.07)	(.08)	(.07)	(.08)	(.07)	(.06)
R^2	.78	.91	.76	.92	.77	.93

~ p<.10, * p < .05, ** p < .01, *** p < .001 after Bonferroni correction