JACKSONVILLE Public Education Fund

IN BRIEF

A POLICY BRIEF OF THE JACKSONVILLE PUBLIC EDUCATION FUND

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READING PROFICIENCY:

The third grade tipping point and beyond

EXECUTIVE SUMMARY

In 2010, 69% of 3rd graders in Duval County Public Schools were reading on or above grade level by the end of the year. At the same time, this could be said of only 33% of our 10th graders[1]. What is happening between elementary school and high school to cause such a drastic decline in the reading achievement levels of our students, and what can we learn from studying this trend about how to better support and improve their performance all the way through school?

In this issue, we take a closer look at reading achievement in Duval County Public Schools. Following the achievement trajectories of a cohort of DCPS students from elementary school through high school, we examined the different paths that unfolded for those who were and were not reading on grade level by the end of 3rd grade.

We confirmed that reading on or above grade level by the end of 3rd grade was critical for students to have a good chance at maintaining long-term reading achievement success, but also found that just making proficiency itself was no guarantee. To be truly equipped for long-term success, students should be reading significantly above the grade level standard by the end of 3rd grade.

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Of those students who began reading just above the grade-level proficiency threshold at the end of 3rd grade, we found that more than half of them fell into non-proficiency before they finished 10th grade. On the other hand, of those students who began anywhere below grade-level at the end of 3rd grade, only a tiny fraction of them ever recovered to lasting grade-level proficiency in that same time.

We also found that for those students who began below grade level, the first year immediately after missing the 3rd grade benchmark is a crucial time for recovery, and that the middle school years are a critical time for determining the long-term achievement of all readers.

The first year after missing the 3rd grade benchmark is a crucial time for recovery, and the middle school years are a critical time for determining the long term achievement of all readers.

BACKGROUND

Successfully learning to read during the first few years of school can have significant consequences not just for later academic achievement, but for the rest of a child's life.

Students who are not reading proficiently by the end of 3rd grade become susceptible to a host of additional problems that can put them on a path toward dropping out, and could potentially undermine their employment prospects and financial earning power for decades to come[2].

In addition to the core problem of struggling to keep up as texts become more difficult at each grade level, falling behind in reading early has been associated with an increased likelihood of being placed (and kept) in lower ability level groups, of being referred for special education services, and of being retained one or more years at a grade level – all of which are linked to a significantly elevated risk for ultimately dropping out of school[3]. In addition, students who fall behind in reading early may become vulnerable to an array of less easily quantifiable issues such as increased frustration with school, decreased self-esteem, and a loss of confidence in their own abilities[4].

Falling behind in reading early has been associated with consequences linked to a significantly elevated risk for ultimately dropping out of school.

On the other hand, students who do establish reading proficiency at an early age begin to accrue a compounding interest in academic success across subsequent years, in large part simply by avoiding many of these consequences. The result is often a continually widening achievement gap between early proficient readers and early struggling readers that becomes increasingly difficult to close with each year.

And yet, as we have seen in Duval County data, we know that a high level of reading proficiency at the end of 3rd grade alone does not automatically translate to high levels of reading achievement all the way through school. In order to get a better perspective on what is happening between 3rd and 10th grade, we will need to take a closer look at the paths taken by different readers along the way.

2001-2002 DCPS THIRD GRADERS — TABLE 1

	"ON-TRACK" GROUP	"OFF-TRACK" GROUP
Number of students	6,048	3,859
Gender		
Female	51.1%	46%
Male	48.9%	54%
Ethnicity		
Asian	2.9%	1.7%
African-American	31.1%	60.8%
Hispanic	3.8%	3.6%
White	58.4%	31.8%
Multiracial/N.A./Other	3.8%	2.1%
Free/Reduced Lunch Status*		
Receives free/reduced price lunch	41.2%	72.4%
School Free/Reduced Lunch Status Rate*		
Avg. % students receiving free/ reduced price lunch in school	47.7%	62.2%
English Language Learner Status*		
Currently or recently classified as English-language learner	1.9%	4.9%
Primary Exceptionality*		
None	83.3%	73%
EBD/SLD	4%	16.9%
S/L/H/V Impaired	5.1%	5.8%
Gifted	7%	0.2%
Behavior		
Avg. # citations/student	2.09	1.97

* Indicates variable is significantly different ($p<.05$) between groups and significantly associated with reading achievement.

Over the next several pages we will follow these two groups to see how their achievement trajectories differed after their paths diverged at this juncture, and consider what those differences may mean for improving district achievement levels as a whole. But first, let's take a closer look at the students who comprise these two groups to help us consider any other factors that might be important to know about them.

In addition to reading levels, we find that significant differences by gender, race/ethnicity, free or reduced price lunch status (FRL), English-language learner status (ELL), and **primary exceptionality** status all exist between the two groups.

In looking across the two groups in Table 1, we see that by the end of 3rd grade:

- The Early On-track group contains about 60% white students and 31% African-American students, while the Early Off-track group is nearly the opposite.
- Less than half of the Early On-track students receive free or reduced price lunch, compared to nearly three-quarters of the Early Off-track students.

CLASS OF 2011
Diverging paths and consequences

In 3rd grade, shared traits across Early On-track and Early Off-track student groups may be important factors when considering achievement trajectories.

In the fall of 2001, a class of just over 10,000 first-time 3rd graders began school in classrooms throughout Duval County. By the end of that year, 9,907 of them (99.5%) remained and completed the 3rd grade FCAT[5]. Of those students, 6,048 (61%) tested **on or above grade level** in reading proficiency ("Early On-track") while 3,859 (39%) finished the year reading **below grade level** ("Early Off-track").

Significant differences by gender, race/ethnicity, free or reduced price lunch status, English-language learner status, and primary exceptionality status all exist between Early On-track and Early Off-track 3rd graders.

- Early On-track students also generally attend schools in which less than half of the student body receives free or reduced price lunch assistance (a measure commonly used to approximate levels of concentrated poverty in schools), whereas over 65% of students at the schools attended by the Early Off-track group receive some type of assistance.

- Early Off-track students have already been identified with emotional behavior disorders (EBD) or specific learning disabilities (SLD) at a rate over four times higher than students in the Early On-track group, whereas students in the Early On-track group have been identified for Gifted services at a significantly higher rate by this time.

All of these differences will be considered again in the next section, but for now we will set them aside momentarily and follow the achievement trajectories of these two groups forward simply based on whether or not they were reading above or below grade level by the end of 3rd grade.

READING ACHIEVEMENT GROWTH RATES

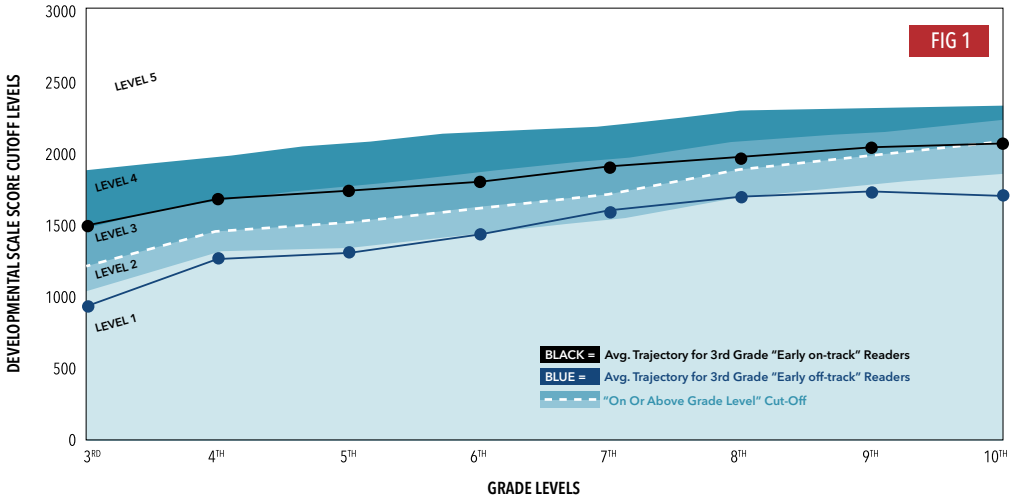
In Figure 1 we have plotted the average FCAT Reading Developmental Scale Score (DSS) results from 3rd through 10th grade for each of the two groups[6].

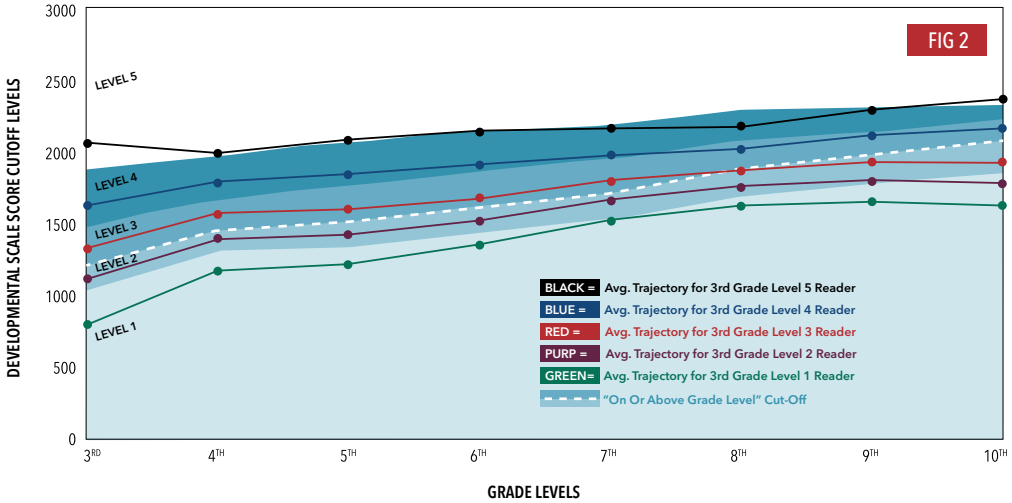
At a glance, it appears that students who start out either above or below grade-level in 3rd grade tend to remain that way across most other grades. However, it also appears that even those students who start out above grade-level – on average – tend to fall back dangerously close to below grade-level by the time they reach high school.

In Figure 2, we take a closer look at what is going on in Figure 1 by grouping students more specifically according to which reading **achievement level** they scored at in 3rd grade. Again we see the same general trends: on average, the level at which a student starts out is where they remain most of the way through school. However, this view also offers some new insights into what is happening with our Early On-track readers between late elementary school and high school.

We see from this perspective that simply being above the defined threshold for grade level proficiency by the end of 3rd grade may not be good enough for students to be adequately prepared for long-term success. Rather, it appears to be primarily those students who were reading in the top two proficiency levels by the end of 3rd grade who remain comfortably above grade level all the way through.

The information in Figures 1 & 2 provides a useful overview to help orient ourselves around what a common achievement trajectory for students starting out at each reading level might be. However, in reality, we know that students don't always stay neatly packaged in the same groups they started with across multiple years. In order to gain a better understanding of what is happening with those borderline students on both sides of the proficiency standard between 3rd and 10th grade, we will need to try looking at these groups another way.

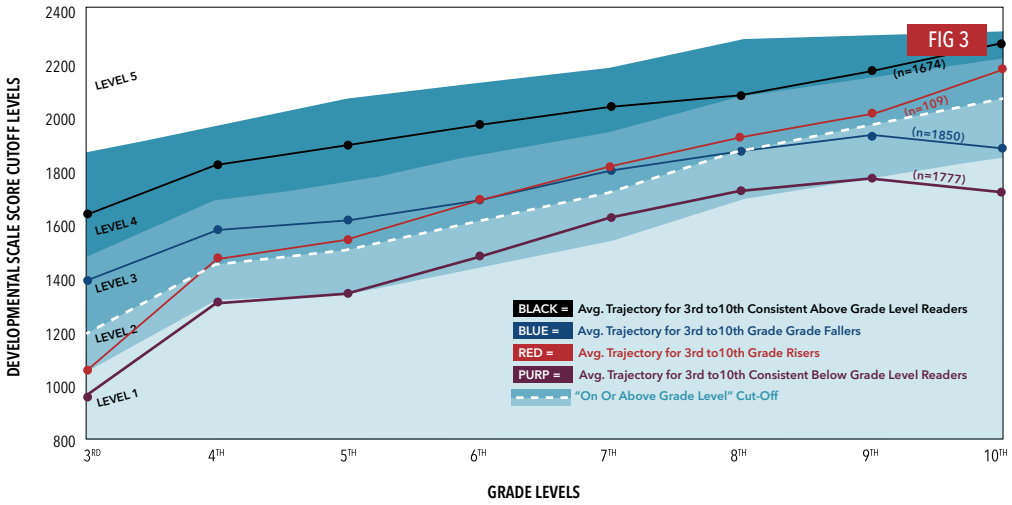


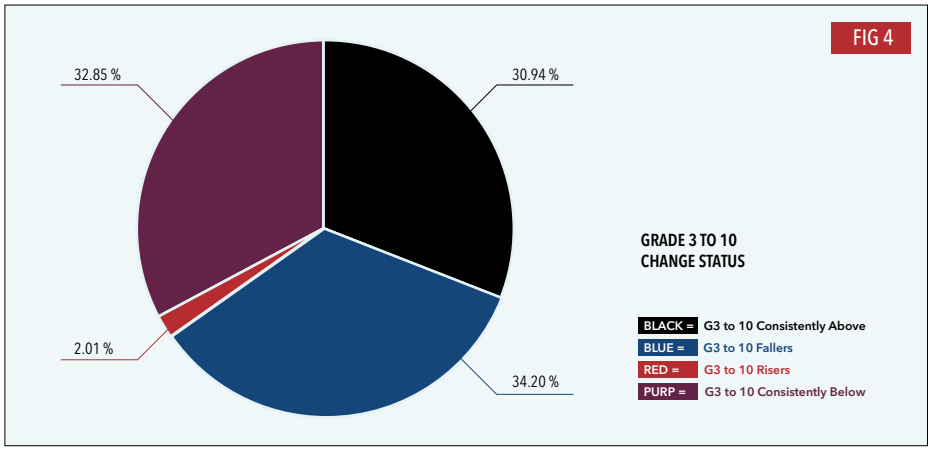


RISERS AND FALLERS

In Figures 3 & 4 we look at these students based on whether or not they changed from above or below grade level proficiency in 3rd grade to the other group by the end of 10th.

Figure 3 sheds some dramatic light on the previously observed trends. Of the 1,886 students who started out reading below grade level in 3rd grade and





remained in DCPS through 2010, only 109 students (less than 6%) successfully finished reading on or above grade level by the end of 10th grade ("Risers"). Looking closer we see that the ones who did so, on average, made it to above grade level proficiency by the end of 4th grade and continued to climb steadily from there. This supports the importance of establishing reading proficiency early for long-term success, as the only students in this cohort to make a lasting recovery from being below grade level in 3rd grade tended to make their greatest gains within the first year of missing that benchmark.

Shared traits identified in 3rd grade persist over time, and other common characteristics develop among Early On-track and Early Off-track groups.

On the other hand, we see that of the 3,524 students who started out above grade level in 3rd grade and remained in Duval County through 2010, over half of them fell to below grade level proficiency by the end of 10th grade ("Fallers"). On average, these students started out scoring in the level 3 range, while those students who remained comfortably above grade level all the way through started out well into the level 4 range, supporting what we saw previously in Figure 2.

We also see in Figure 3 that between the two groups that changed status from 3rd to 10th grade, there was a critical period of overlap during early middle school when borderline students from both groups were performing at about the same level. This may suggest an area of strategic opportunity to increase reading support for all students throughout middle school, and not just those already below proficiency, as a way to guard against the loss of so many borderline above grade-level readers before high school.

To look at this phenomenon another way, we see in Figure 4 that of all the students who remained consistently in DCPS from 3rd through 10th grade, nearly two-thirds of students finished 10th grade reading at the same above- or below-level proficiency status at which they began. The next largest group, consisting of students who started out above grade level and fell below by the end of 10th grade, represents nearly the entire remaining third of the cohort.

What these findings tell us so far is that reading on or above grade level by the end of 3rd grade is critical to, but not sufficient for, continued long-term reading success. Students should actually be reading significantly above the grade level proficiency threshold by the end of 3rd grade to have a solid foundation for continuing high achievement. For students not meeting that benchmark, the first year is a critical window for providing immediate support to improve their chances of recovering to a stable level of reading proficiency in the long term. We also see that for all but the very highest performing readers, some form of ongoing support may be necessary at least through the end of middle school to prevent a major number of borderline above grade-level readers from slipping into non-proficiency by the end of 8th grade.

WHAT ABOUT THE TEST?

As we think about changes in student achievement outcomes from year to year, most of that change is due to the students moving on the test, but some of it is due to the test moving around the students.

The FCAT is the standard assessment Florida uses for measuring student achievement from year to year, but that does not mean that all FCATs are created equally. FCAT administrations at different grade levels can vary in degrees of item difficulty, "cognitive complexity" (a measure of the relative demands of a question in terms of finding the answer, for example reading to find stated information versus reading to infer missing information), and with respect to the set cutoff scores for each achievement level.

For a detailed look at how the FCAT functions at each grade level, and what it means for understanding student achievement outcomes, visit **www.JaxPEF.org** and click on the **Reports & Publications tab.**

ISOLATING READING EFFECTS

Shared traits persist over time

We have seen how reading achievement trajectories turned out differently for students based on the degree to which they were reading proficiently by the end of 3rd grade. What we do not know definitively is to what degree meeting or not meeting that benchmark can be directly associated with those outcomes, as opposed to other underlying factors.

As we saw in Table 1, students who were reading above or below grade level at the end of 3rd grade also had a number of other traits in common which are likely to be connected with the differing outcomes identified for these students. In addition, as time went on beyond that first year, these groups are likely to have accumulated a number of other common characteristics that we would expect to be associated with future achievement such as differing rates of retention, further differences in exceptionality diagnoses, and changes in schools attended. To be sure to account for these differences as well, we check in again with both the Early On-track and Early Off-track groups at their projected 6th, 8th and 10th grade years.

GROUP CHANGES

In Table 2 we see that, of the students remaining in the district three years later[7], 95% of the Early On-track group arrived in 6th grade on time while 21% of the Early Off-track group had been retained at least once by this point. Two years later, the percentage of those students arriving in 8th grade on time diminished greatly for both groups, though it remained significantly higher (86.2%) for the Early On-track group than the Early Off-track group (60.9%). By 2008-2009, the percentages of students arriving on time in 10th grade remained virtually unchanged from their 8th grade year.

We also see that similar patterns of imbalance as those identified earlier – with respect to primary exceptionality referrals, individual free

TABLE 2

	PROJECTED 6TH GRADE (04-05)		PROJECTED 8TH GRADE (06-07)		PROJECTED 10TH GRADE (08-09)	
	"ON-TRACK" GROUP	"OFF-TRACK" GROUP	"ON-TRACK" GROUP	"OFF-TRACK" GROUP	"ON-TRACK" GROUP	"OFF-TRACK" GROUP
Promotion pace						
On-time	95.1%	76.7%	86.2%	60.9%	86.3%	62.2%
Behind grade level	4.4%	21%	12.3%	34.5%	12.5%	33.6%
Primary Exceptionality						
None	83.1%	71.1%	85.3%	74%	90%	77.9%
EBD/SLD	3.5%%	20.8%	3.2%	19.3%	2.7%	17.4%
Gifted	9.8%	<0.01%	8.9%	<0.01%	5.2%	<0.01%
Student Free/Reduced Lunch Status						
% receiving free/reduced lunch	39.2%	71.9%	31.2%	58.8%	27.5%	52.5%
School Free/Reduced Lunch Rate						
Avg. % students receiving free/reduced lunch in school attending	43.4%	60%	38.8%	53%	30.1%	42.4%

TABLE 3

	6TH GRADE		8TH GRADE		10TH GRADE	
	DSS CHANGE EST.	SIGNIFICANT?	DSS CHANGE EST.	SIGNIFICANT?	DSS CHANGE EST.	SIGNIFICANT?
(Intercept)	(1530.99)	✓	(1672.62)	✓	(1702.84)	✓
3rd Grade Reading (≥ Level 3)	232.71	✓	161.42	✓	201.92	✓
Gender (Male)	–	✗	-28.19	✓	–	✗
Race/Eth. (Af.-Am.)	-77.42	✓	-64.36	✓	- 83.94	✓
Race/Eth. (White)	–	✗	–	✗	13.56	✗
Student free/reduced lunch	-34.71	✓	-12.55	✓	-21.19	✓
EBD/SLD	-68.06	✓	–	✗	–	✗
Gifted	356.06	✓	317.73	✓	349.45	✓
No Exceptionality	122.35	✓	159.21	✓	183.5	✓
ELL status	-99.2	✓	-33.13	✗	-15.11	✗
Retentions (≥1)	-66.19	✓	-31.59	✓	-78.77	✓
School free/reduced lunch mean (≥50%)	-24.91	✗	–	✗	–	✗

✓= $p < .05$

The 3rd grade tipping point is a critical factor around which to structure strategic student support systems, from early grades through early high school.

or reduced price lunch eligibility, and school level concentrations of poverty – continue to persist across all other years in the data. All of these differences must be accounted for in order to identify how much of the outcome difference between these groups is related to early reading status, as opposed to other factors.

IDENTIFYING EFFECTS

Using multilevel modeling techniques to control the effects of each of these differences, Table 3 presents the isolated effects of early reading achievement along with the effects the other associated characteristics on Reading DSS scores at 6th, 8th and 10th grade.

As we see in Table 3, after controlling all the other known differences between the two groups, being above grade level in reading at the end of 3rd grade was found to have a larger positive effect on reading achievement scores at the 6th, 8th and 10th grades than any variable except previous identification for gifted services.

To put it another way, if we held all of the other factors listed in this table constant, we could expect a student who was reading on or above grade-level in 3rd grade to be scoring about 233 points higher on his or her Reading Developmental Scale Score by 6th grade than a student who was reading below grade-level – and so forth for the estimates across each grade level in the table.

As expected, several other significant differences between the two groups such as race/ethnicity, free or reduced-price lunch status, primary exceptionality status, number of retentions and school attended were also found to be significantly associated with the different achievement outcomes as well, though none of their effects were as large as 3rd grade reading proficiency level in the final analysis[8].

RECOMMENDATIONS

Providing extra support

Reading is the most important skill that students need in order to be prepared for success in all other subjects and in life after school.

Reading is the basic prerequisite for all future learning, and should be effortless by the end of high school. As we have seen, however, too many of our own students who struggle with reading early continue to struggle all the way through school.

At the district and individual school levels, these findings suggest a number of ways to strategically reconsider current support systems provided to students at each grade level.

- At the earliest grade levels, schools need to continue finding new ways to provide as much extra reading support and practice as possible for all students during the critical years leading up to 3rd grade.

- For those students who fail to establish proficiency by the end of 3rd grade, high levels of additional support should be targeted immediately to help students gain as much ground as possible toward recovery before leaving elementary school.

- At the middle school level, schools need to be thinking about how to provide extra support not just for level 1 and 2 readers, but for all readers at least through level 3 to help guard against the significant loss of borderline above-level readers taking place during the middle and early high school years.

For parents, these findings highlight the importance of understanding exactly what different proficiency levels on the FCAT mean, and understanding that within "on or above grade-level" students, there are those who are just "on" and those who are "above." They also underscore the importance of providing strong reading support for their children early, and continuing to provide ongoing support outside of school well beyond the elementary years - even if test scores indicate that they are currently meeting grade-level standards. The test gets harder, and students cannot be too prepared.

For politicians, businesses, community organizations, school officials, and concerned citizens alike, these findings highlight a need to strategically identify ways to better support students around the clock, and to realistically begin addressing larger community issues, such as highly concentrated poverty zones that we know to be associated with student performance but that are beyond the realm of what the schools can fix alone.

NEXT STEPS

Moving forward

The future economy, safety and growth of our community is directly tied to the educational achievement of our students today[9], and how well they learn to read will be the fundamental determinant of that achievement.

For more information on this issue, including exclusive additional analysis and information on what you can do to get involved or continue the conversation, please visit us at **www.JaxPEF.org**.

KEY TERMS

Achievement level: The FCAT contains 5 achievement levels (1 = Lowest, 5 = Highest) into which students are categorized each year based on their FCAT scale score results.

On or above grade level: Students scoring at achievement levels 3, 4 or 5 are considered to be performing "on or above grade level".

Below grade level: Students scoring at achievement levels 1 or 2 are considered to be performing "below grade level".

Developmental Scale Score: FCAT Reading and Math tests report results in three different forms: scale scores, achievement levels, and developmental scale scores. Developmental scale scores represent progress on a continuous scale from 3rd through 10th grade and are the most appropriate scores for comparing change over time.

Primary exceptionality: Refers to the primary diagnosed condition for any student who requires special instruction or related services because of a physical, mental, emotional or social learning exceptionality. Exceptionalities may indicate a need for either accelerated (e.g., "Gifted") or remediated ("e.g., "Specific learning disability") support services.

Multilevel modeling: A statistical analysis procedure used to account for different sources of variance in "nested" datasets. "Nested" data means that individuals exist within distinct groups in the data, and that accounting for those groups is important in understanding the outcomes in the group as a whole. For example, in this data students across the district are "nested" in groups within different schools.

FOOTNOTES

[1] Florida Department of Education, Bureau of K-12 Assessment. (http://fcat.fldoe.org/fcinfopg.asp)

[2] Feister, L. (2010). Early warning! Why reading by the end of third grade matters. A KIDS COUNT Special Report. Annie E. Casey Foundation.

[3] McGill-Franzen, A. & Allington, R. (1991). The gridlock of low achievement: Perspectives on practice and policy. Remedial and Special Education, 12(20), 20-30.

[4] Alexander, K.A., Entwistle, D.R., & Horsey, C.S. (1997). From first grade forward: Foundations of a high school dropout. Sociology of Education, 70(2), 87-107.

[5] For the purpose of this study, students with certain primary exceptionalities, including students identified with serious or profound mental handicaps, traumatic brain injury or Autism spectrum disorder have been removed from the sample prior to analysis.

[6] Figures 1 - 4 represent group average Reading DSS scores regardless of what year students completed a given grade level after 2001-2002. Numbers represent findings from students with test scores from inside the district for 3rd through 10th grade.

[7] Numbers represent the only those students who began third grade in DCPS with this cohort in 2001. They do not account for new students who would have also moved into the district each year. Students joining this cohort after 2001 were not added as part of this analysis due to the inconsistency of data from different states and districts for measuring reading proficiency and other key outcomes.

[8] School level poverty, for those students at schools with the very highest concentrations of free or reduced price lunch eligibility (>75%), appeared in some tests to have a large and significant negative effect. However there were too few students in this sample with complete data through 2009 in these schools to produce valid estimates for inclusion here.

[9] Alliance for Excellent Education. The economic benefits of reducing the dropout rate by 50% in Jacksonville, FL. (http://www.all4ed.org/MSA/leb/JacksonvilleFL)

Special thanks to the Duval County Public Schools, Department of Instructional Research and Accountability

Reading is the basic prerequisite for all future learning, and should be effortless by the end of high school. Join us as we take a close look at reading achievement in Duval County Public Schools. As we follow the achievement trajectories of a cohort of DCPS students, we examine and discover the different paths – and the ultimate levels of achievement – that unfold for those who were and were not reading on grade level by the end of 3rd grade.

IN BRIEF

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