Research Findings on the Impact of Dr. Randall Sprick's Foundations Program In Broward County Public Schools For Three Academic Years, 2003 – 2006

Conducted and Prepared

By

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Executive Summary

This research project investigates the second year of middle schools implementing Dr. Sprick's Foundations Project in Broward County Public Schools. The data included 15,010 middle school students in 44 middle schools (28 non-Foundations schools, 10 Middle Schools in Cohort 1 and 6 Middle Schools in Cohort 2) who remained in the same school for three consecutive school years. The first year of the three years provided a baseline data year for additional comparisons. Specifically, this report includes the academic year, 2003-2004, and the first and second years of implementing Foundations, 2004-2005 and 2005-2006 respectively. The data involved in this research were Florida's standardized tests of reading and mathematics, and the student behaviors of absences, tardiness, and suspensions that were available from the Broward County Public Schools' Research Services. Disaggregating students by race, gender, and free/reduced lunches further refined this study.

To help ferret out the impact of Foundations on the measured variables, the results of Foundation Middle Schools were compared with non-Foundation Middle Schools, which served as the comparison group. To help account for pre-existing differences prior to implementing Foundations, baseline data were used when deemed appropriate. The data were analyzed using a hierarchical linear modeling (HLM) framework. This method corrects for students "nested" within schools that can mask the impact of Foundations, and is especially important in complex, ever-changing environments. Modeling is considered the "gold standard" for this type of research.

There are two sections in the Executive Summary. The first focuses on the student-level data and analyses. Specifically, that includes: in-school suspensions, out-of-school suspensions, unexcused absences, tardiness, reading and mathematics. The second section highlights both the comparative results for "School Grades" for Foundations and non-Foundations schools, and fifteen counterproductive student behaviors.

Section One…Student-Level Findings

Students in Foundations (Cohorts 1 and 2) had significantly more in-school suspensions than non-Foundations schools, which were expected given that Foundations schools represented some of the more "challenging" schools in the district. The rate of increase for out-of-school suspensions was lower for students in Foundations and this finding was consistent across racial groups. Students in Foundations had a significantly higher rate of unexcused absences than non-Foundations students, while over time students in Foundations schools had a lower rate of increase in unexcused absences than non-Foundations students.

When comparing the participation in Foundations and non-Foundations schools on reading and mathematics, the following results were discovered:

- Students in Foundations schools (Cohorts 1 and 2), in their baseline year, scored significantly lower than the non-Foundations schools on the SSS developmental reading scores (the statewide criteria-referenced reading assessment). However, students in Foundations schools improved their reading scores on average 11 points more than students in non-Foundations schools. Furthermore, Hispanic and Black students in Foundations schools improved their reading scores more than Hispanic and Black students in non-Foundations schools.
- Students in Foundations schools (Cohorts 1 and 2) improved at a slightly greater rate on the SSS developmental math scores (the statewide criteria-referenced math assessment).

Section Two…Comparative Findings

There are two components of this section. The first one centers on the School Grades assigned by the Florida Department of Education and the level of implementation of Foundations at the school level. The second component examines the relationship between detrimental student behaviors and the level of implementation of Foundations for Cohort 1 and Cohort 2.

The Director of Middle Schools and the on-site consultant for Safe & Civil Schools determined the level of implementation of Foundations. Their assessments were independent and identical for each middle school with either a "lower" or "higher" level of implementation. There were three important findings. First, during the first year of implementation for both Cohorts, higher implementing schools improved their School Grades by 32.3% over their baseline year. Lower implementing schools only improved their School Grades 17.6%. Second, for the second year of implementation of Foundations in comparison with the baseline year, there was a 39.7% increase in School Grades. Finally, the second year of implementing Foundations, when compared with the first year, showed an 11.7% increase in School Grades.

The second component focuses on Cohort 1 and Cohort 2 with the comparative findings of detrimental student behaviors ("alcohol, battery, breaking/entering, and disruptions on campus – major fighting, unclassified offenses – other, robbery, larceny, theft, sexual harassment, sex offenses, tobacco, threats/intimidation, trespassing, vandalism, weapons possession"). Because the numbers of individual incidents were insufficient for meaningful and valid comparisons, detrimental student behaviors were aggregated into a single category for comparisons.

There were two meaningful findings in this area. First, when comparing Cohort 1 in the second year of implementing Foundations with its baseline year, there was a 26% decrease in detrimental student behaviors. The second finding was that Cohort 2 in the first year of implementing Foundations experienced a 17.2% reduction in detrimental student behaviors.

When assessing all the available data, the other comparisons were determined to be unproductive, and did not contribute to an understanding of the impact of Foundations. The primary reason for this conclusion was the unusually high percentage of schools in Cohorts 1 and 2 either being reassigned to subsequent Cohorts implementing Foundations or discontinuing their participation in the project. However, with a longitudinal perspective, future analyses between and among cohorts and comparison schools may provide insights that are now not apparent with the existing data and research.

Statistical and Demographic Information

The 2006 data set contained information from 78,652 students, only some of who were included in the previous year's data. The primary analysis strategy followed students over time to determine the effectiveness of Foundations on student outcomes. To simplify the analyses and clarify interpretation, data were retained only from the 15,010 students who remained in the same school for the three years for which data were provided.

Equivalence of Reduced and Excluded Samples

The analysis strategy raises concerns about the equivalence of the reduced data set and the data set containing information from students who switched schools or for whom complete data were unavailable (i.e., the excluded data set). Thus, several analyses were conducted to test for demographic differences between these samples. There were no differences based on gender, $\square^2$ (1, N = 78,652) = .52, p = .47. There were, however, differences based on race, $\square^2$ (5, N = 78,652) = 108.88, $p < .001$. Results revealed that the reduced sample had a greater proportion of White students (36.6%) than the excluded sample did (32.3%). The reduced sample also had slightly reduced proportions of Hispanic students (23.1%) and Black students (34.4%) than the excluded sample (25.4% and 36.4%, respectively). Similarly, the reduced sample had a significantly smaller percentage (40.8%) of students receiving free or reduced lunches than the sample of students that were not included (42.9%), $\square^2$ (1, N = 78,652) = 22.98, $p < .001$.

There was also some evidence of lower 2004 math and reading scores among the sample of students that were not included. However these results are ambiguous because a substantial proportion of students with 2006 data were not part of the school district's records in 2004 (i.e., thousands of students were excluded from this analysis making results difficult to interpret).

Together, results comparing the sample that remained in the same school for three years with the sample of students who switched schools or for whom there was incomplete data reveal several differences that raise concerns as to the representativeness of the analyzed sample. Although the absolute size of the differences do not appear large, results suggest that the reduced sample could be somewhat biased. A cross-classified model may be necessary to provide a more comprehensive analysis solution.

Demographic Information for Analysis Sample

The student-level data set contained data from 15,010 students (52% male), of whom 36.6% were White, 23.1% were Hispanic, 34.4% were Black, and 3.1% were "Other" (Asian, Native, or Multi). Slightly less than half of the students (40.8%) received free

or reduced lunches. Students attended 44 schools, of which 28 were non-Foundations schools, 6 were in Cohort 2, and 10 were in Cohort 1. These schools are listed in the table below.

Middle Schools Included in Student-Level Analyses

Non-Foundations Schools	Cohort 2 Schools	Cohort 1 Schools
Attucks	Apollo	Arthur Robert Ashe*
Chancellor North	Crystal Lake	Bair
Coral Springs	Pines	Deerfield Beach*
Driftwood	Plantation	Margate
Eagle Academy	Rickards**	McNicol*
Falcon Cove	Silver Lakes**	Parkway**
Forest Glen		Pompano Beach
Indian Ridge		Sunrise
Lauderdale Lakes		Westpine**
Lauderhill		William Dandy**
Lyons Creek		
Millennium		
New Renaissance		
New River	*Schools reassigned to	later Cohorts
Nova Center		
Olsen	**Schools dropping out	and not reassigned
Pembroke Pines		
Perry Henry		
Pioneer		
Ramblewood		
Sawgrass Springs		
Seminole		
Silver Trail		
Smart		
Somerset Academy		
Tequesta Trace		
Walter C. Young		
Westglades		

Within the student-level data, significant differences between cohorts emerged for race, χ^2 (10, N = 15,010) = 1253.37, $p < .001$ and free/reduced lunch status, χ^2 (2, N = 15,010) = 831.32, $p < .001$, and a marginal difference emerged based on gender, χ^2 (2, N = 15,010) = 5.72, $p = .06$. These differences are displayed in the table below.

Results revealed a higher percentage of White students in non-Foundations schools and a much higher percentage of Black students in Cohort 1. While a minority of students received free or reduced lunches in non-Foundations schools, a majority received them in Foundations schools (both Cohort 1 and Cohort 2).

Demographic Percentages by Cohort

Variable	Non-Foundations	Cohort 2	Cohort 1
Race			
White	43.3	28.4	22.4
Hispanic	24.9	27.1	15.3
Black	25.4	38.7	58.0
Other	6.4	5.8	4.3
Gender			
Male	52.4	52.6	50.1
Female	47.6	47.4	49.9
Free/Reduced Lunch			
Yes	32.2	53.6	57.7
No	67.8	46.4	42.3

Statistical Models

The analyses used a multilevel modeling framework where repeated measures were nested within students, who were nested within schools. All analyses were conducted using HLM v.6.04. Reading and math scores were treated as normally distributed dependent variables, whereas absences, tardiness, and suspensions were treated as Poisson distributed dependent variables with a specification of over-dispersion. The statistics reported for the Poisson analyses are based on unit-specific models. Where possible, results use robust standard errors. When robust standard errors were not available, model-based statistics are reported.

In general, the intercept and the effect of time were treated as randomly varying across students. On occasion, models would not converge with this specification so the effect of time was treated as fixed (evident from degrees of freedom in the range of 40,000 in reported results). Student level intercepts (both for the level-1 intercept and for the effect of time) were allowed to randomly vary across schools. However the student slopes of race, gender, and free/reduced lunch were fixed across schools.
The general models are displayed below. When Poisson distributed, models analyzed the log of the outcome rather than the outcome itself.

<u>Coding of variables</u>
Time – 0, 1, 2 (corresponding to 2004, 2005, and 2006)
RaceD1 – compares Hispanics (1) to Whites (0)
RaceD2 – compares Blacks (1) to Whites (0)
RaceD3 – compares Others (1) to Whites (0)

Gender – Females (0), Males (1)
Free/Reduced Lunch – No (0), Yes (1)
Helmert 1 – compares non-Foundations (2) to Foundations (-1)
Helmert 2 – compares Cohort 2 (1) to Cohort 1 (-1)

General Model:

Level 1:

$$Y = \pi_0 + \pi_1(Time) + e$$

Level 2:

$$\pi_0 = \beta_{00} + r_0$$
$$\pi_0 = \beta_{10} + r_1$$

Level 3:

$$\beta_{00} = \gamma_{000} + \gamma_{001}(Helmert1) + \gamma_{002}(Helmert2) + u_{00}$$
$$\beta_{10} = \gamma_{100} + \gamma_{101}(Helmert1) + \gamma_{102}(Helmert2) + u_{10}$$

Model for Race Effects:

Level 1:

$$Y = \pi_0 + \pi_1(Time) + e$$

Level 2:

$$\pi_0 = \beta_{00} + \beta_{01}(RaceD1) + \beta_{02}(RaceD2) + \beta_{03}(RaceD3) + r_0$$
$$\pi_0 = \beta_{10} + \beta_{11}(RaceD1) + \beta_{12}(RaceD2) + \beta_{13}(RaceD3) + r_1$$

Level 3:

$$\beta_{00} = \gamma_{000} + \gamma_{001}(Helmert1) + \gamma_{002}(Helmert2) + u_{00}$$
$$\beta_{01} = \gamma_{010} + \gamma_{011}(Helmert1) + \gamma_{012}(Helmert2)$$
$$\beta_{02} = \gamma_{020} + \gamma_{021}(Helmert1) + \gamma_{022}(Helmert2)$$
$$\beta_{03} = \gamma_{030} + \gamma_{031}(Helmert1) + \gamma_{032}(Helmert2)$$
$$\beta_{10} = \gamma_{100} + \gamma_{101}(Helmert1) + \gamma_{102}(Helmert2) + u_{10}$$
$$\beta_{11} = \gamma_{110} + \gamma_{111}(Helmert1) + \gamma_{112}(Helmert2)$$
$$\beta_{12} = \gamma_{120} + \gamma_{121}(Helmert1) + \gamma_{122}(Helmert2)$$
$$\beta_{13} = \gamma_{130} + \gamma_{131}(Helmert1) + \gamma_{132}(Helmert2)$$

Model for Gender Effects:

Level 1:

$$Y = \pi_0 + \pi_1(Time) + e$$

Level 2:

$$\pi_0 = \beta_{00} + \beta_{01}(Gender) + r_0$$
$$\pi_0 = \beta_{10} + \beta_{11}(Gender) + r_1$$

Level 3:

$$\beta_{00} = \gamma_{000} + \gamma_{001}(Helmert1) + \gamma_{002}(Helmert2) + u_{00}$$
$$\beta_{01} = \gamma_{010} + \gamma_{011}(Helmert1) + \gamma_{012}(Helmert2)$$
$$\beta_{10} = \gamma_{100} + \gamma_{101}(Helmert1) + \gamma_{102}(Helmert2) + u_{10}$$
$$\beta_{11} = \gamma_{110} + \gamma_{111}(Helmert1) + \gamma_{112}(Helmert2)$$

Model for Free/Reduced Lunch Effects:

Level 1:

$$Y = \pi_0 + \pi_1(Time) + e$$

Level 2:

$$\pi_0 = \beta_{00} + \beta_{01}(FRL) + r_0$$
$$\pi_0 = \beta_{10} + \beta_{11}(FRL) + r_1$$

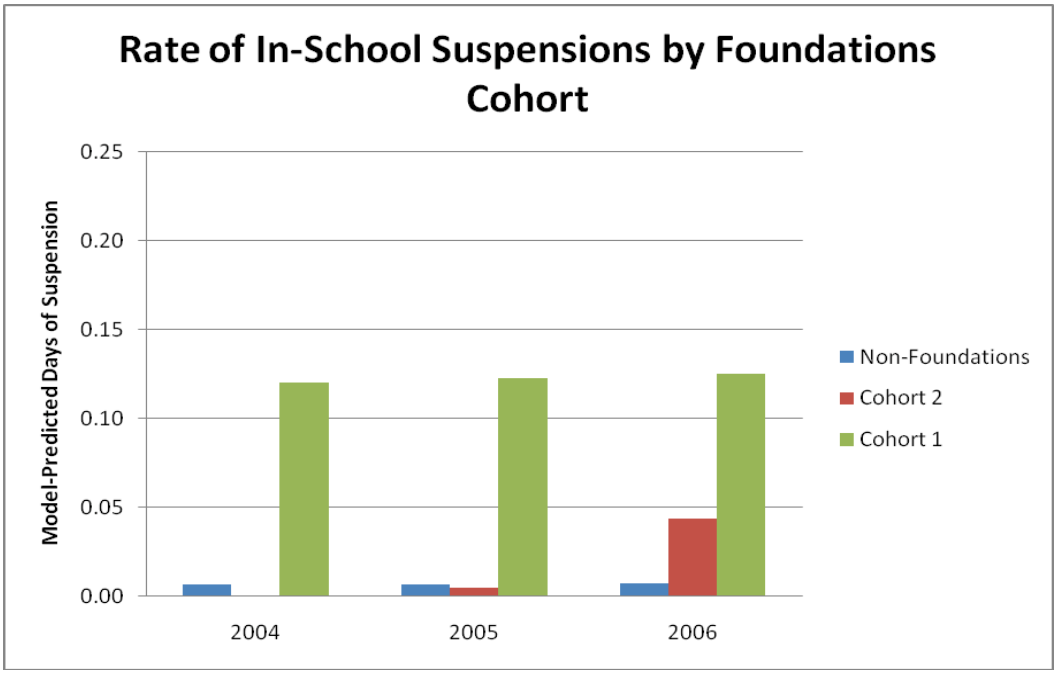
Level 3:

$$\beta_{00} = \gamma_{000} + \gamma_{001}(Helmert1) + \gamma_{002}(Helmert2) + u_{00}$$
$$\beta_{01} = \gamma_{010} + \gamma_{011}(Helmert1) + \gamma_{012}(Helmert2)$$
$$\beta_{10} = \gamma_{100} + \gamma_{101}(Helmert1) + \gamma_{102}(Helmert2) + u_{10}$$
$$\beta_{11} = \gamma_{110} + \gamma_{111}(Helmert1) + \gamma_{112}(Helmert2)$$

Results

In-School Suspensions

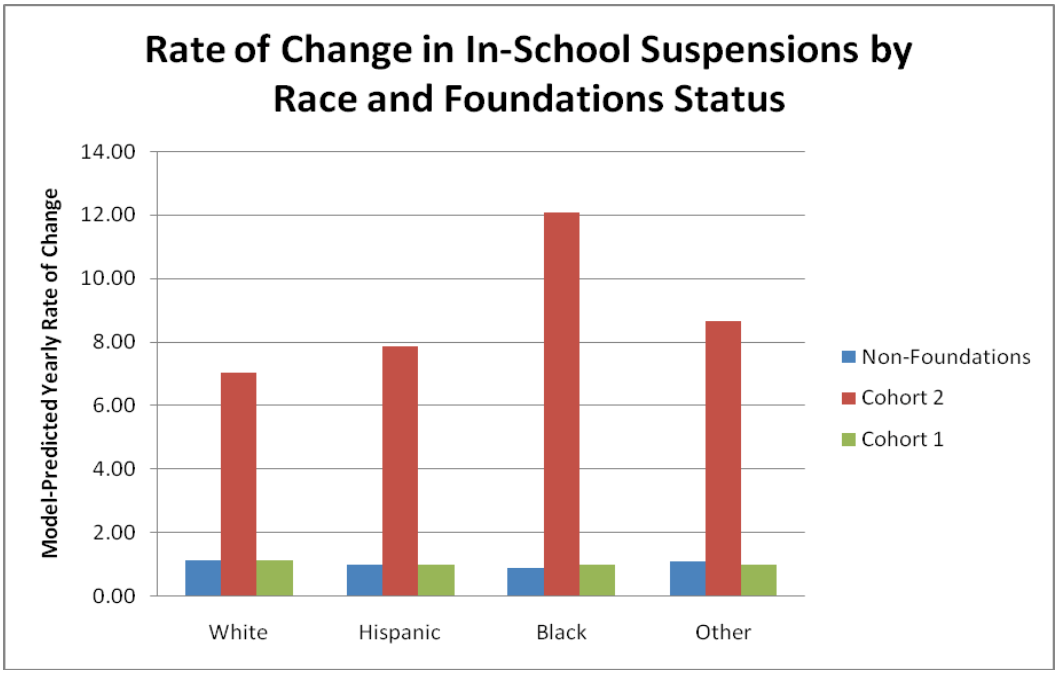
Prior to the implementation of Foundations, there was a significantly higher rate of in-school suspensions for students in Cohort 1 than students in Cohort 2 or non-Foundations schools. This pattern continued over time. The frequency of suspensions in Cohort 1 held relatively steady, but the frequency of suspensions increased in Cohort 2 (see figure below).



Race Effects

Prior to the implementation of Foundations, the rate of in-school suspensions was significantly greater for Black students than for White students, t (15006) = 6.91, p < .001. This effect was largely driven by Black students in Foundations schools, who had a higher rate of suspensions than Black students in non-Foundations schools, t (15006) = 2.50, p = .01. This effect was primarily driven by Black students in Cohort 1 as opposed to Cohort 2, t (15006) = -3.78, p < .001.

Over time, the rate of in-school suspensions increased significantly more for Black students in Foundations schools than non-Foundations schools, t (15006) = -3.64, p = .001. This effect was primarily driven by the difference between Cohort 1 and Cohort 2, t (15006) = 3.40, p = .001 (see figure below).



Gender Effects

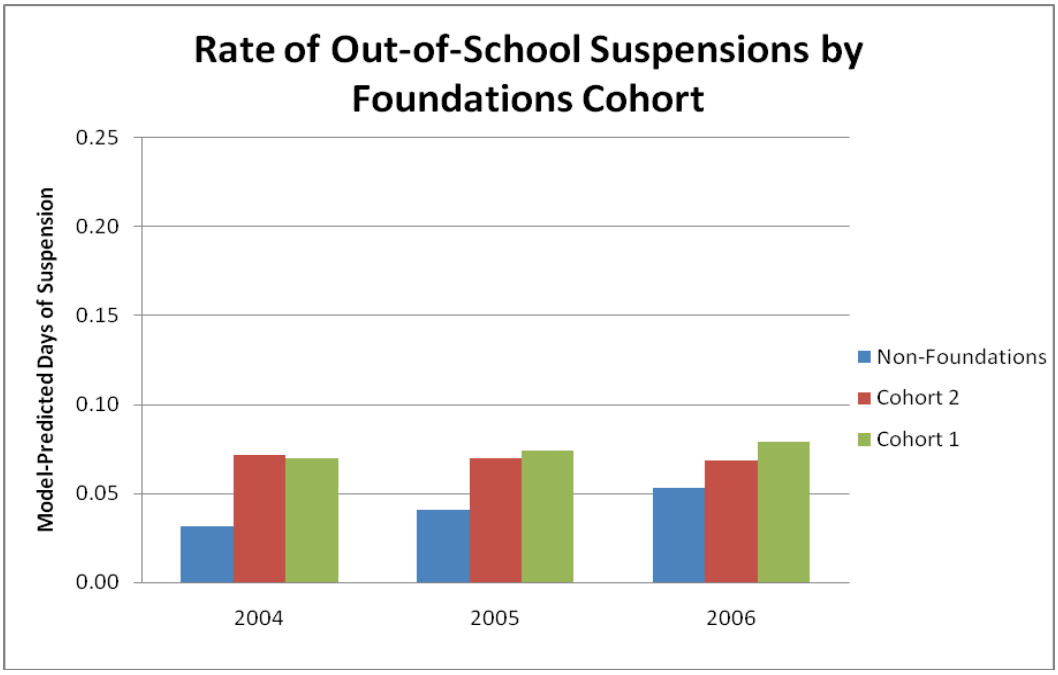
Prior to the implementation of Foundations, the rate of in-school suspensions was significantly higher for men than for women, t (15008) = 11.42, $p < .001$. Over time, the rate of in-school suspensions increased at a greater rate for women than men, t (15008) = -2.80, $p = .01$. Gender effects were not significantly affected by whether a school participated in Foundations.

Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had a greater frequency of in-school suspensions than other students, t (15008) = 6.22, $p < .001$. Also prior to implementation, the gap between students who did and did not receive free or reduced lunches was greater in Cohort 1 schools than Cohort 2 schools, t (15008) = -2.32, $p = .02$. Over time the gap between students who did and did not receive free or reduced lunches grew marginally more in Cohort 2 than Cohort 1 schools, t (15008) = 1.84, $p = .07$. No other effects of time or Foundations participation approached significance.

Out-of-School Suspensions

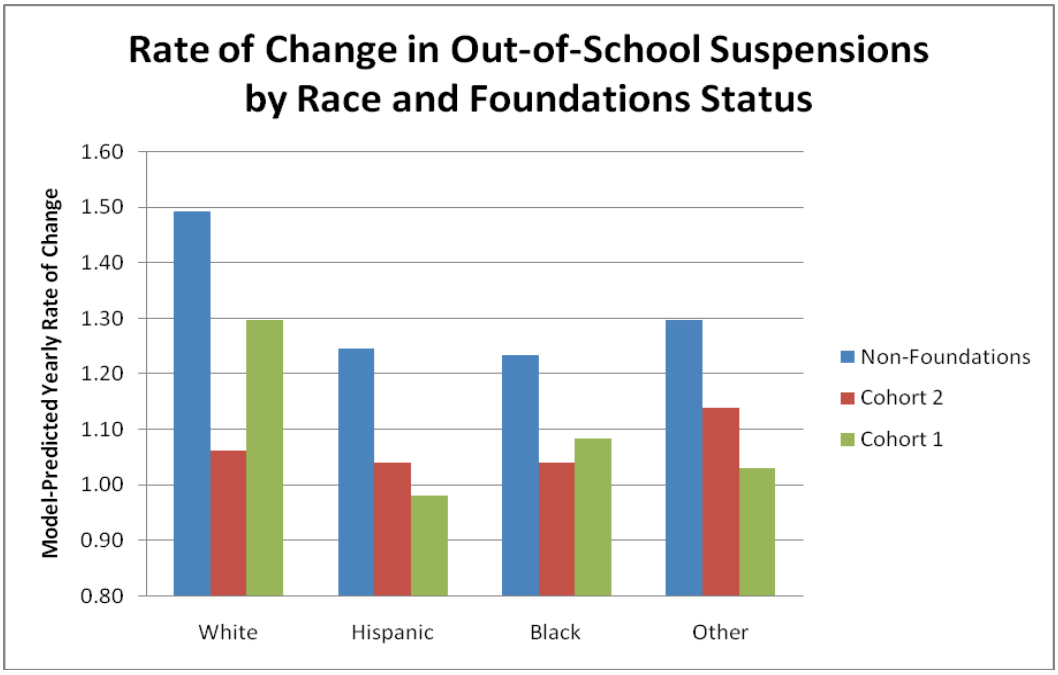
Prior to the implementation of Foundations, there was a significantly higher rate of out-of-school suspension in Foundations than non-Foundations schools. Over time, there were trends toward more days of out-of-school suspensions in non-Foundations schools and in Cohort 1 schools – and toward fewer days of out-of-school suspensions in Cohort 2 schools, but these effects were not significant. Model predicted days of suspension for a typical student are displayed in the figure below.



Race Effects

Prior to the implementation of Foundations, both Hispanic students, t (15006) = 2.53, p = .01, and Black students, t (15006) = 10.08, p < .001, had a significantly higher rate of out-of-school suspensions than White students did.

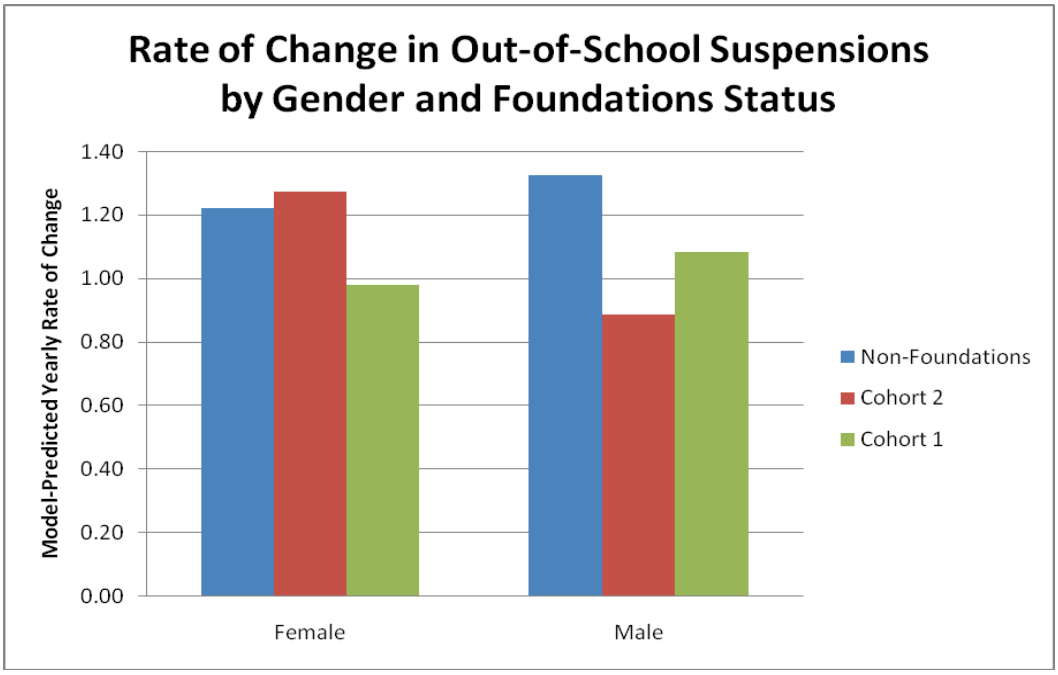
Over time, the rate of increase in out-of-school suspensions was marginally *lower* for Hispanic students than White students, t (15006) = -1.79, p = .07, and marginally lower for Black students than White students, t (15006) = --1.68, p = .09. Although not significant, the rate of increase was lower in Foundations than non-Foundations schools across racial groups (see figure below).



Gender Effects

Prior to the implementation of Foundations, the rate of out-of-school suspensions was significantly higher for men than for women, t (15008) = 21.26, $p < .001$. This effect was even greater in Foundations schools than non-Foundations schools, t (15008) = -2.82, $p = .01$. Within Foundations schools, the gender gap was more pronounced for Cohort 2 schools than Cohort 1 schools, t (15008) = 3.73, $p < .001$

Over time, the rate of out-of-school suspensions increased at a slightly (but significantly) greater rate for women than for men, t (45018) = --3.02, $p < .01$. However, this effect depended on whether a school participated in Foundations. Males in non-Foundations schools increased at a faster rate than females, but males in Foundations schools increased at a slower rate than females, t (45018) = 6.17, $p < .001$ (see figure below). Within Foundations schools, another pattern emerged. Males in Cohort 1 had a higher rate of out-of-school suspensions over time than females, but males in Cohort 2 schools had a lower rate of suspensions than females, t (45018) = -8.60, $p < .001$ (see figure below).

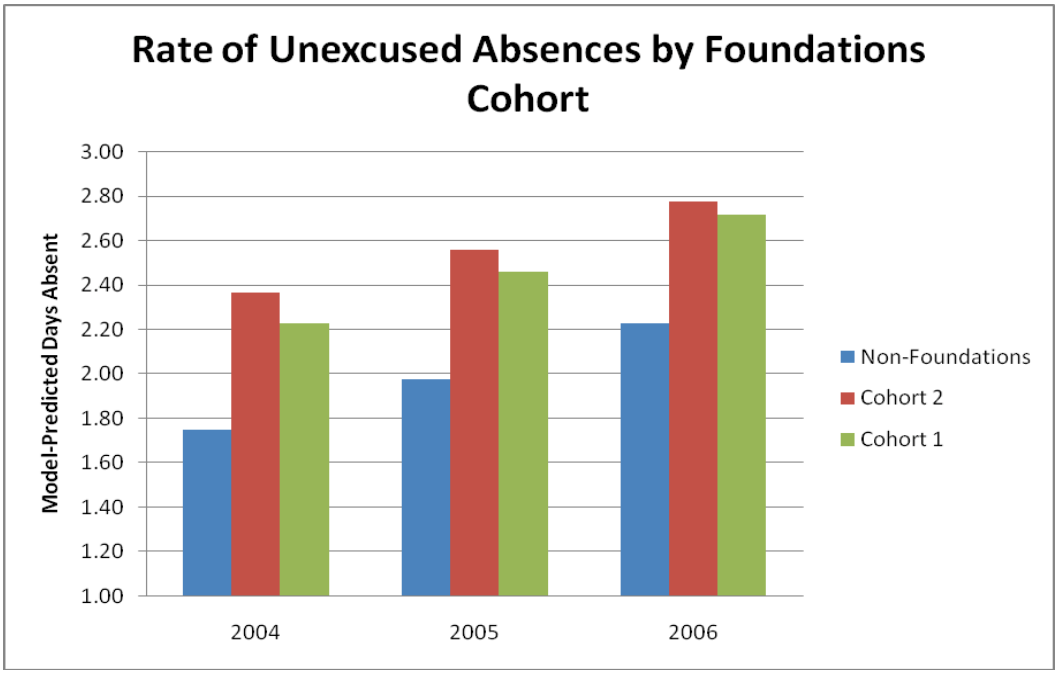


Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had a greater frequency of out-of-school suspensions than other students, t (15008) = 5.20, $p < .001$. Also prior to implementation, the gap between students who did and did not receive free or reduced lunches was marginally greater in Cohort 1 schools than Cohort 2 schools, t (15008) = -1.80, $p = .07$. There were no differences in the rate of out-of-school suspensions over time based on free or reduced lunch of Foundations status.

Unexcused Absences

Prior to the implementation of Foundations, a typical student in a Foundations schools would have approximately 2.30 unexcused absences, while a typical student in a non-Foundations school would have approximately 1.75 unexcused absences, a difference that is statistically significant. By their third year in the school, a student in a Foundations school could be expected to miss 2.75 days and a student in a non-Foundations school could be expected to miss 2.23 days. The increase in the rate of unexcused absences over time did not differ based on Foundations cohort (see figure below).

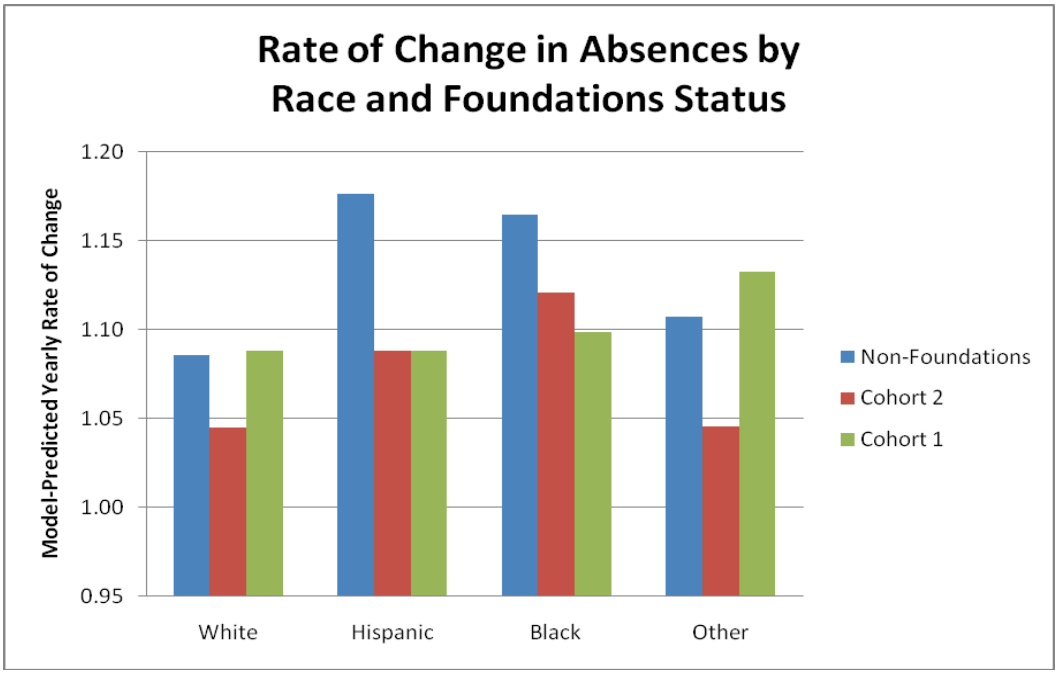


Race Effects

Prior to the implementation of Foundations, both Hispanic students, t (15006) = 10.58, $p < .001$, and Black students, t (15006) = 7.54, $p < .001$, had a significantly higher rate of absences than White students did. Students of an "Other" race had a significantly lower rate of absences than White students, t (15006) = -2.06, $p = .04$.

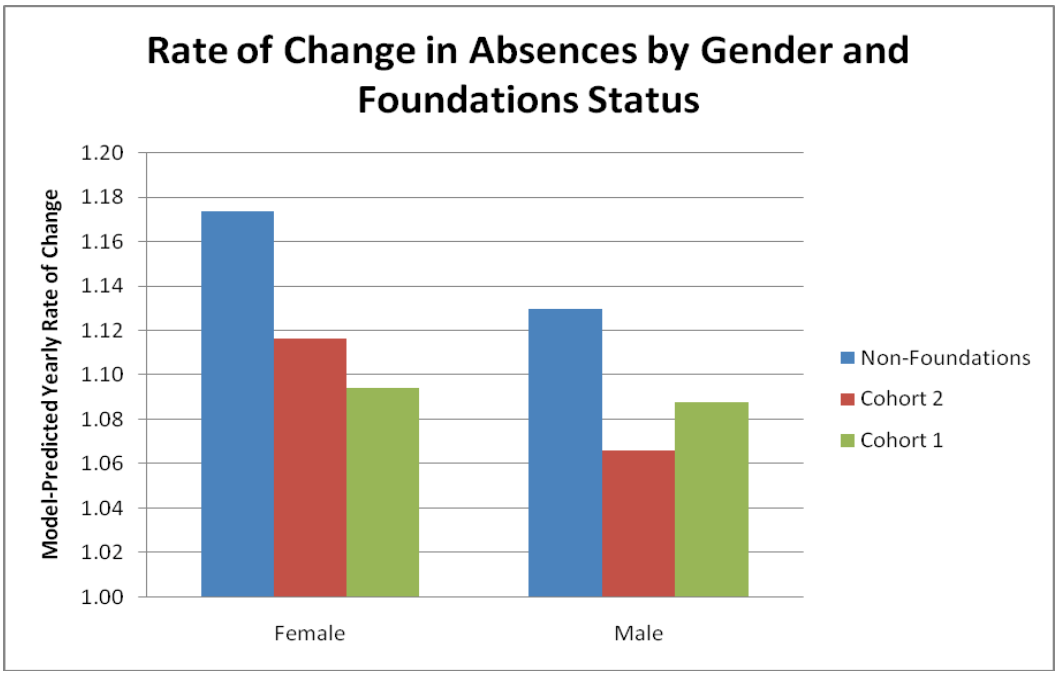
Prior to Foundations implementation, Black students had a marginally greater rate of absences in Foundations schools than non-Foundations schools, t (15006) = -1.90, $p = .06$ and Hispanic students had a significantly greater rate of absences in Foundations schools than non-Foundations schools, t (15006) = -2.06, $p = .04$.

The pattern of change over time was somewhat mixed. In general, Black students, t (15006) = 2.21, $p = .03$, and Hispanic students, t (15006) = 2.80, $p < .01$, had a greater increase in absences than White students. Although not significant, it appears that this increase was largely confined to non-Foundations schools, as the rate of increase was smaller in Foundations schools. There were no significant effects based on "Other" race (see figure below).



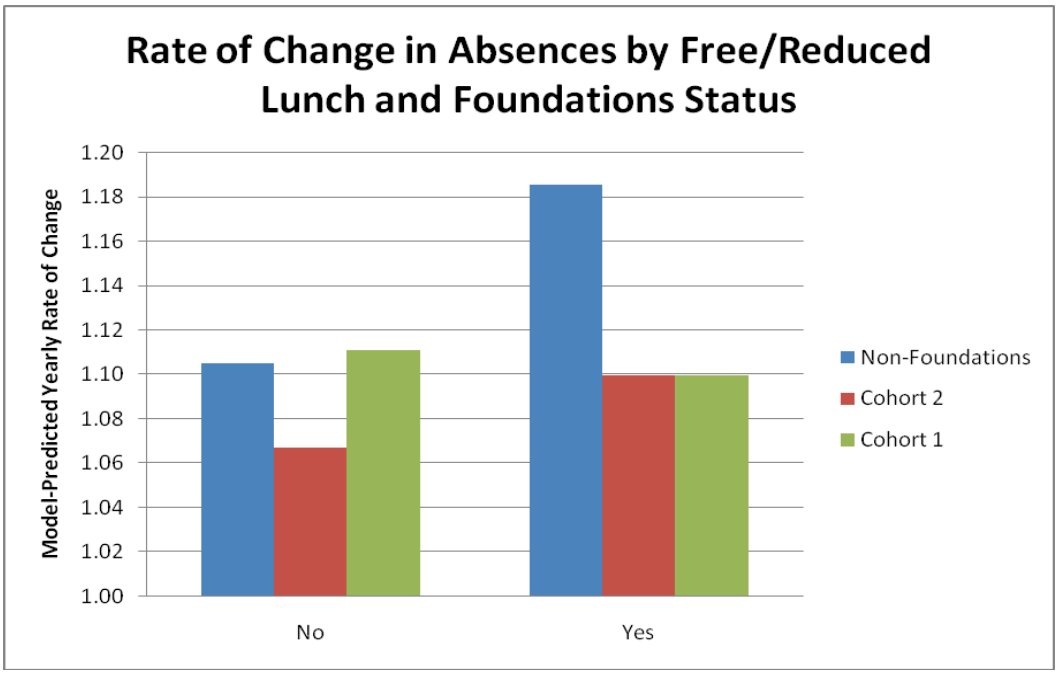
Gender Effects

Prior to the implementation of Foundations, the rate of unexcused absences was significantly higher for males than for females, t (15008) = 8.14, $p < .001$. Over time, the rate of absences increased at a greater rate for women than men, t (15008) = -2.39, $p = .02$. Although gender effects were not significantly affected by whether a school participated in Foundations, there appeared to be a trend of a lower rate of increase in Foundations schools for both males and females (see figure below).



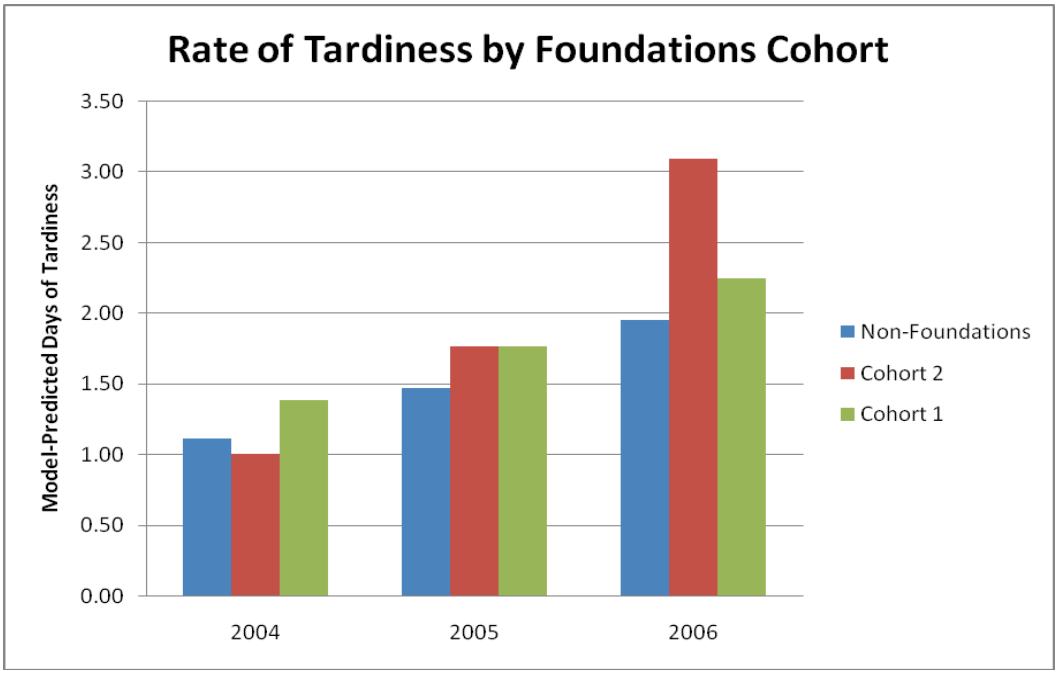
Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had a greater frequency of absences than other students, t (15008) = 8.76, p < .001. Over time students who received free or reduced lunches had a greater increase in tardiness than other students, t (15008) = 2.65, p = .01. However, this effect was moderated by school participation in Foundations. In particular, the absence rate among students who received free or reduced lunches increased at a greater rate in non-Foundations schools than in Foundations schools, t (15008) = 2.48, p = .01 (see figure below).



Tardiness

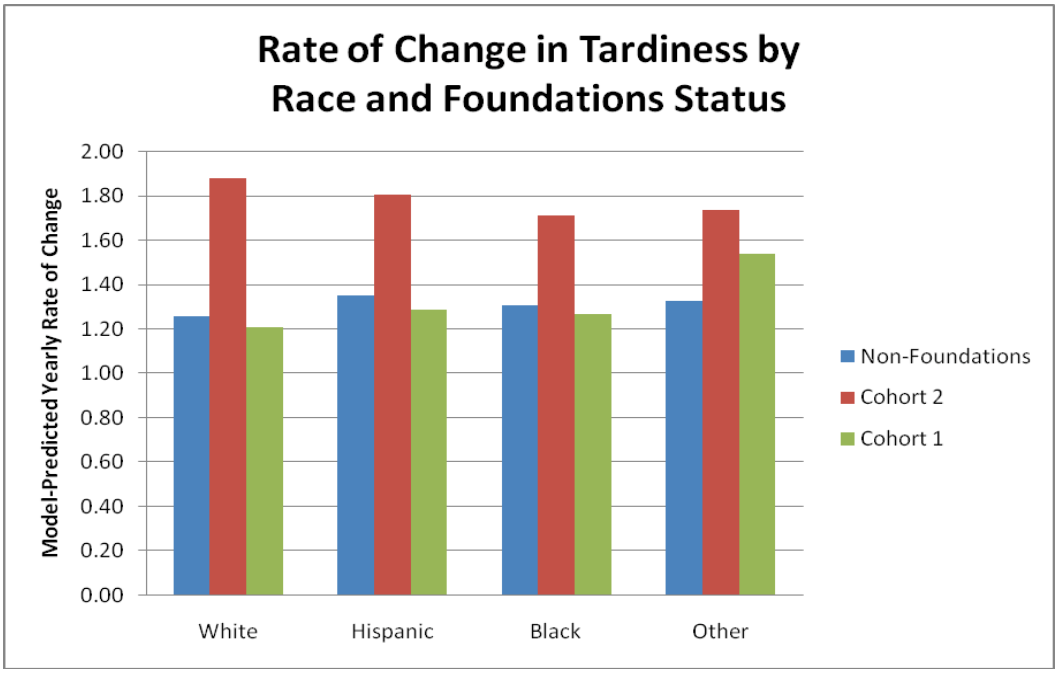
There were no differences between the schools in the rate of student tardiness prior to the implementation of Foundations. Across schools, a typical student was tardy 1.16 days per year in the 2004 school year (typically 6th grade). As students got older, the rate of tardiness increased to an average rate of 2.39 days in 2006 (typically 8th grade). No differences emerged based on participation in Foundations (see figure below).



Race Effects

Prior to the implementation of Foundations, there were no differences between Hispanic students and White students in the rate of tardiness. However, Black students had a higher probability of being tardy than White students did, t (15006) = 5.94, $p <$ .001, and had an even higher probability of tardiness in Foundations schools, t (15006) = -3.86, $p <$ .001. Students whose ethnicity was "Other" had a lower probability of being tardy than White students, t (15006) = -5.54, $p <$ .001. No other differences emerged based on participation in Foundations.

With the exception of students of an "Other" race, the increase of tardiness over time was independent of student race. Students whose race was "Other" had a marginally greater rate of tardiness over time than White students, t (15006) = 1.87, p = .06 (see figure below). There was a significant effect of Foundations, such that students in Cohort 2 schools had a *greater* rate of tardiness over time than students in Cohort 1 schools, t (41) = 2.44, p = .02. This effect was statistically significant for each racial group, with the exception of Hispanic students, for whom the effect was marginally significant (p = .10). White, Hispanic, and Black students all had similar or slightly lower increases in tardiness over time in Cohort 1 as compared to non-Foundations schools.



Gender Effects

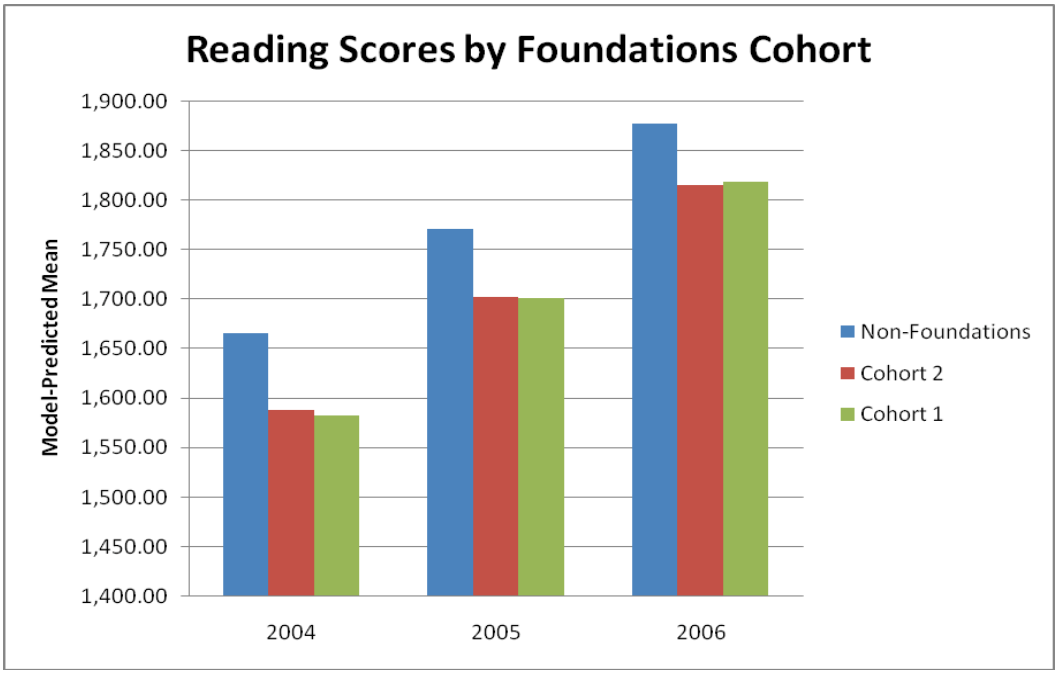
Prior to the implementation of Foundations, the rate of tardiness was significantly higher for males than for females, t (15008) = 2.27, p = .02. There were no gender differences in the rate of tardiness over time.

Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had a greater frequency of tardiness than other students, t (15008) = -7.20, p < .001. Over time students who received free or reduced lunches had a marginally lower increase in tardiness than other students, t (15008) = -1.70, p = .09 (although not enough to offset starting differences). There were no differences based on school participation in Foundations.

Reading

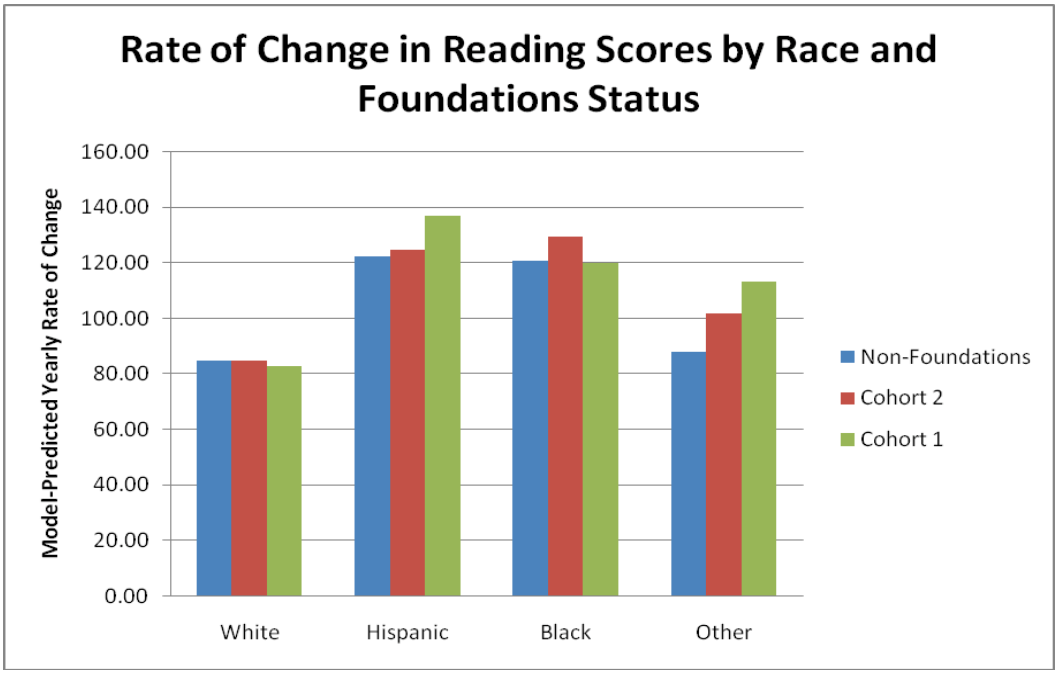
Prior to the implementation of Foundations, students in schools that participated in Foundations (both cohorts together) had significantly lower SSS developmental reading scores than students in schools that did not participate in Foundations. Across schools, students' reading scores improved over time, but the rate of change was marginally greater for students enrolled in Foundations schools, t (41) = -1.82, p = .08. Thus, while students in non-Foundations schools improved by an average of approximately 106 points per year, reading scores of students in Foundations schools improved by an average of approximately 117 points per year. Within the sample of Foundations schools, no differences emerged based on year of cohort.



Race Effects

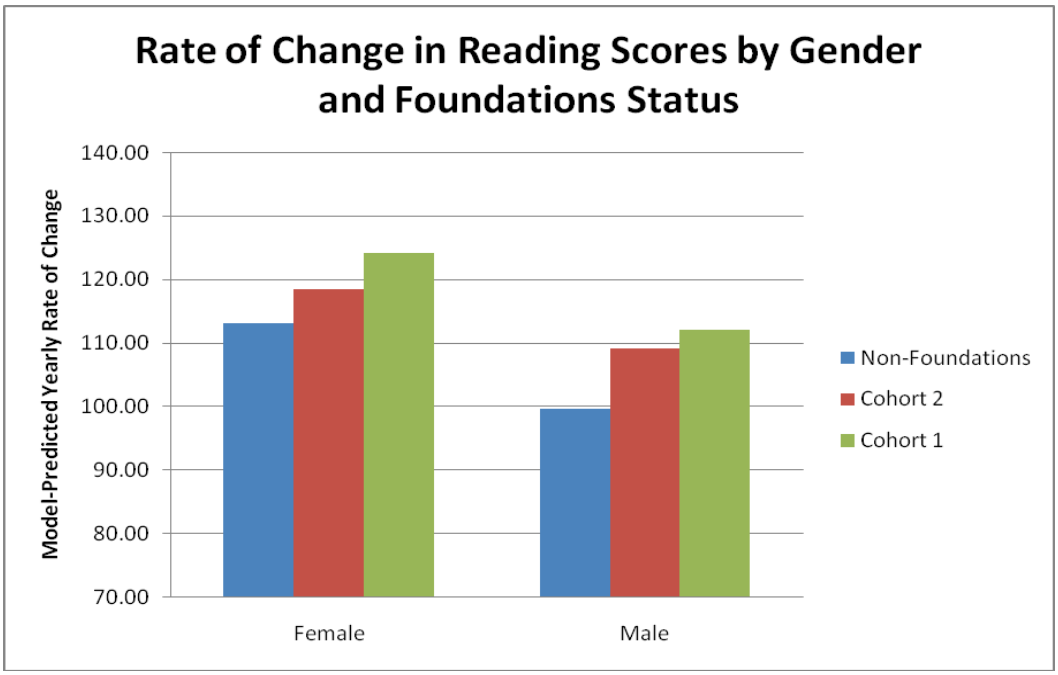
After controlling for race, there were no differences between Foundations and non-Foundations schools in student reading scores at baseline. However, race effects emerged at baseline. The reading scores of Hispanic students were approximately 125 points lower than White students in non-Foundations schools at baseline and this gap widened to 164 in Foundations schools. Similarly, the reading scores of Black students were approximately 168 points lower than White students in non-Foundations schools and 245 points lower than White students in Foundations schools. Students of "Other" ethnicity had reading scores that were somewhat higher than White students at baseline in non-Foundations schools. However, in Foundations schools, these students had lower reading scores than White students. All effects were significant at $p < .05$. Thus, with the exception of students whose ethnicity was "Other", minority students had lower reading scores than White students at baseline across schools and across ethnic groups, minority students had even lower scores in Foundations schools than non-Foundations schools.

Over time, the reading scores of Hispanic and Black students improved at a significantly faster rate than White students (see figure below). Although not significant, the rate of improvement for Hispanic and Black Students tended to be higher in Foundations than non-Foundations schools. "Other" students did not improve at a different rate from White students in non-Foundations schools, but they improved significantly faster than White students in Foundations schools.



Gender Effects

Prior to the implementation of Foundations, females had higher reading scores than males, t (15008) = -7.27, $p < .001$. The gender gap was larger in Foundations than non-Foundations, schools, t (15008) = -2.09, $p = .04$. Over time, females' reading scores also increased at a faster rate than males, t (15008) = -4.42, $p < .001$. There were no significant gender differences over time based on Foundations participation (see figure below).

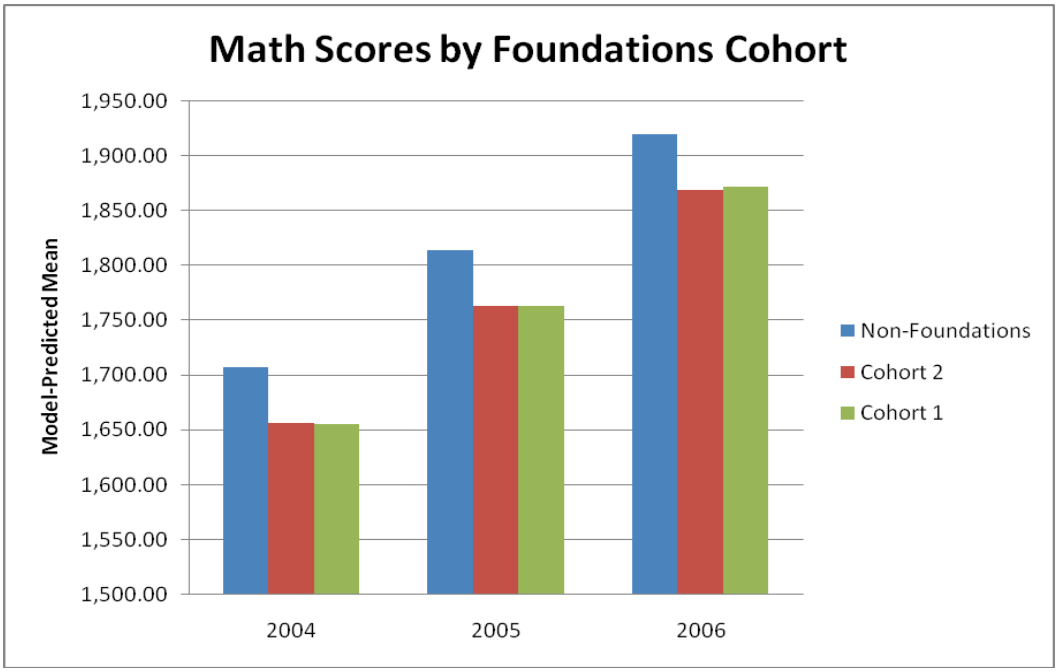


Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had significantly lower reading scores than other students, t (15008) = -16.01, p < .001. Over time students who received free or reduced lunches had a greater rate of improvement than other students, t (15008) = 10.62, p < .001 (although not enough to offset starting differences). There were no differences based on school participation in Foundations.

Math

Prior to the implementation of Foundations, students in schools that participated in Foundations had marginally lower SSS developmental math scores (M = approximately 1656) than students in schools that did not participate in Foundations (M = approximately 1656). As would be expected, students' reading scores improved over time, regardless of school type. Although students in Foundations schools improved at a slightly greater rate (approximately 107 points per year) than students in non-Foundations schools (approximately 106 points per year), this difference was not significant.

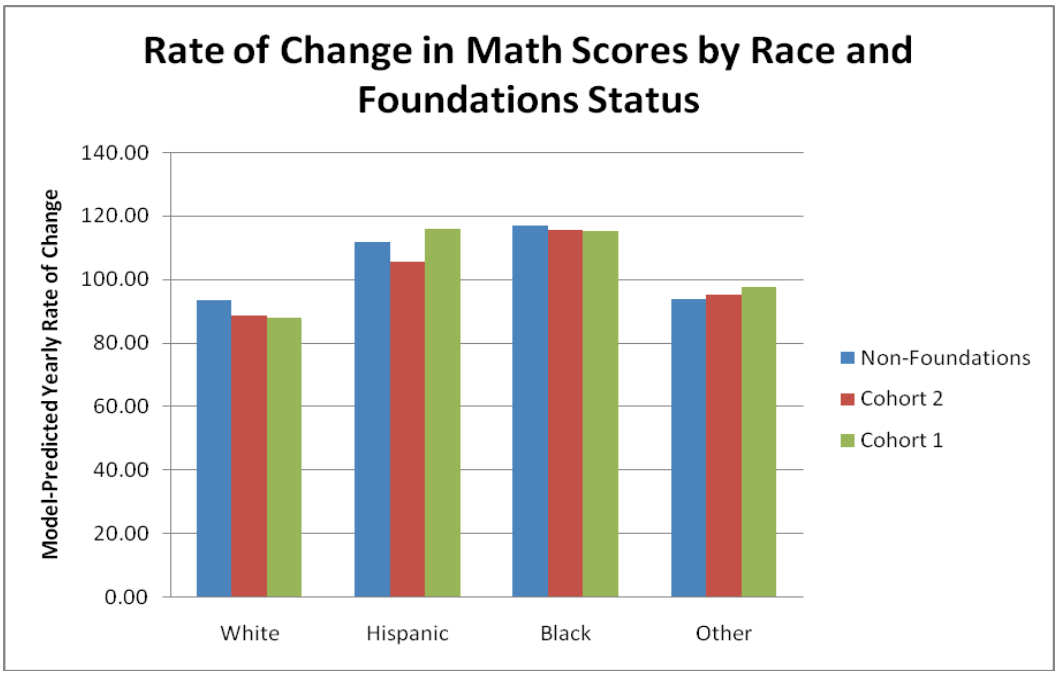


Race Effects

After controlling for race, there were no differences between Foundations and non-Foundations schools in student reading scores at baseline. However, race effects emerged at baseline. In non-Foundations schools, the math scores of Hispanic students were approximately 76 points lower than White students, and this gap widened to 100

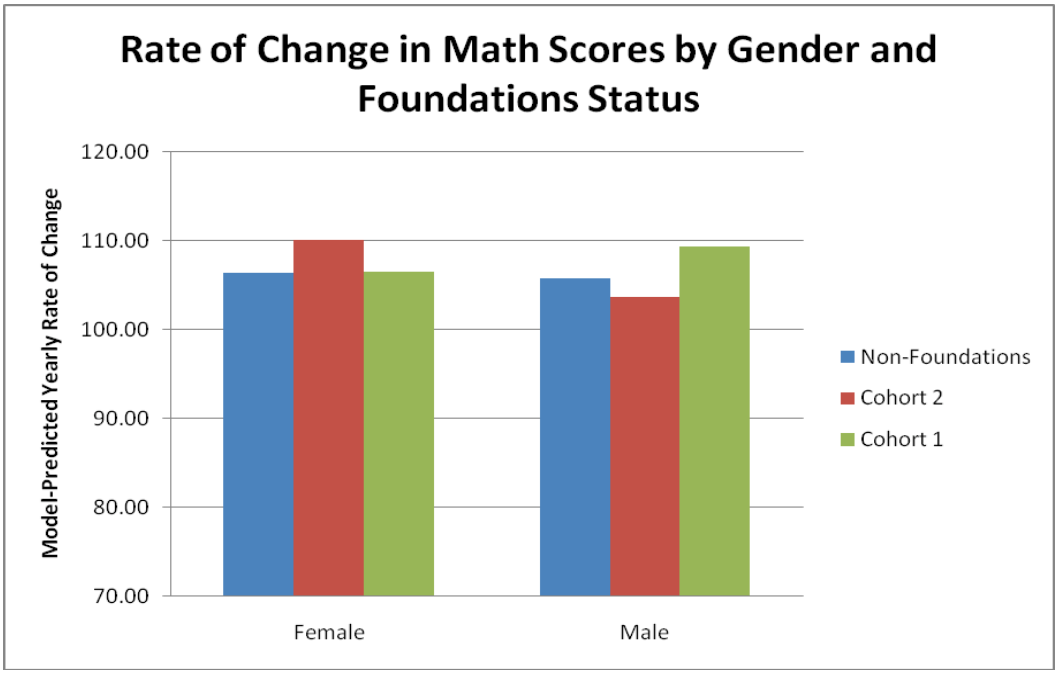
points in Foundations schools (the difference between non-Foundations and Foundations schools was marginally significant, $p = .09$). Similarly, the math scores of Black students were approximately 147 points lower than White students in non-Foundations schools and 205 points lower than White students in Foundations schools. Students of "Other" ethnicity had math scores that were 41 points *higher* than White students at baseline in non-Foundations schools. However, in Foundations schools, these students had math scores that were virtually identical to White students (the difference between non-Foundations and Foundations schools was marginally significant, $p = .07$). Besides where noted, all effects were significant at $p < .05$. Thus, Hispanic and Black students had lower reading scores than White students at baseline across schools and across ethnic groups, minority students had lower scores at baseline in Foundations schools than non-Foundations schools.

Over time, the math scores of Hispanic and Black students improved significantly faster rate than White students (see figure below). The rate of change between students in Foundations and non-Foundations schools did not significantly differ based on race.



Gender Effects

Prior to the implementation of Foundations, females had higher math scores than males, t (15008) = -3.42, $p = .001$. The gender gap was marginally larger in Foundations than non-Foundations, schools, t (15008) = -1.81, $p = .07$, and marginally larger in Cohort 1 than Cohort 2, t (15008) = -1.79, $p = .07$. There were no overall differences in gender over time. However, males in Cohort 1 had a faster rate of improvement than females, while males in Cohort 2 had a lower rate of improvement than females, t (15008) = -2.26, $p = .02$ (see figure below).



Free/Reduced Lunch Effects

Prior to the implementation of Foundations, students who received free or reduced lunches had significantly lower math scores than other students, t (15008) = -13.54, p < .001. Over time students who received free or reduced lunches had a greater rate of improvement than other students, t (15008) = 9.33, p < .001 (although not enough to offset starting differences). There were no differences based on school participation in Foundations.

School Grades and Detrimental Student Behaviors

This part is divided into two sections. The first section focuses on the School Grades assigned by the Florida Department of Education to the middle schools. The second section concentrates on fifteen types of student incidents that occurred in the middle schools. For this report, the baseline school year is 2003-2004; Cohort 1 started 2004-2005; and Cohort 2 started 2005 –2006.

Section One

The Florida Department of Education assigns "School Grades" and they are disseminated through the "School Accountability Report". That document provided the information for the analysis. Specifically, the schools involved in the research are middle schools.

Findings

1. First Year of Implementation of Foundations, using Cohort 1 and Cohort 2 data, when comparing to the baseline year:
    - Lower implementing schools improved their "School Grades" by 17.6%.
    - Higher implementing schools improved their "School Grades" by 32.3%.
2. Second Year of Implementation of Foundations, using Cohort 2 data, when comparing to the baseline year:
    - Overall there was a 39.7% increase in "School Grades". Both levels of implementation were combined because only 4 middle schools finished the second year of the program.
3. When comparing the first year of implementation of Foundations to the second year, there was an 11.7% improvement in "School Grades" in the second year.

Explanations and Clarifications

- The Director of Middle Schools and the consultant who is responsible for the Safe & Civil Schools' Project in Broward County Public Schools determined the level of implementation. They assessed the schools independently and each rated the schools the same, the rating being either "lower" or "higher".
- None of the Foundations schools experienced a decline in the "School Grade"; but the same was true for the comparison schools.
- The researcher's assessment is that the comparisons with the non-Foundations schools is not productive at this time for the following reasons:
    1. Foundations schools had lower "School Grades" than those in non-Foundations schools. This is consistent with the Director of Middle Schools' statement that Foundations schools in Cohorts 1 and 2 were "fragile" and "challenging".

2. By the end of the second year for Cohort 1 schools, only 4 schools remained in the Foundations program; and at the end of the first year for Cohort 2 schools, only 4 of those schools were participating in Foundations.
3. Future comparison with schools either reassigned to other Cohorts or discontinuing their participation in Foundations may prove meaningful.

Section Two

This section concentrates on Cohort 1 and Cohort 2 in Foundations on fifteen areas of detrimental student behaviors. These student data were retrieved from the data provided by Broward County Public Schools' Office of Research Services. As in the previous section, all the students in Section Two are middle school students.

Findings

The detrimental student behaviors included the following fifteen behaviors: "alcohol, battery, breaking/entering, disruptions on campus – major, fighting, unclassified offenses – other, robbery, larceny/theft, sexual harassment, sex offenses, tobacco, threats/intimidation, trespassing, vandalism, weapons possession". The detrimental student behaviors were aggregated because the number of incidents in a category was not sufficient for meaningful comparisons. Plus, from this researcher's perception, this technique is consistent with the underlying principles in Foundations and prior research findings.

1. When comparing Cohort 1 in Year Two with its baseline year, there was a 26% reduction in detrimental student behaviors.
2. When comparing Cohort 2 in Year One with its baseline year, there was a 17.2% reduction in detrimental student behaviors.

With the existing data incorporated in this research project, other comparisons were unproductive and they did not contribute to an understanding of the impact of Foundations or other dynamics within the middle schools in Broward County Public Schools. Field research over a number of years can make invaluable contributions, which cannot be obtained by other research methods, to both active educational researchers and everyday practitioners. Given the longitudinal nature of the Foundations Project, future analyses between and among cohorts and with comparison schools should provide insights that are not apparent with the time span represented by these data.

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