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Analysis of Year 4 (2006-07) Achievement Outcomes for Tennessee Elementary Charter Schools

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Executive Summary

This report presents student-level achievement results for Tennessee charter schools that serve elementary grades. The present achievement report supplements a report (Ross, McDonald, & Bol, 2008) on the implementation progress made by the charter schools, encompassing school climate, classroom teaching methods, and perceptions by teachers, principals, parents, and students.

The schools had different start-up years as follows: (a) Circles of Success in Learning Academy and Smithson-Craighead Academy (2003-04); (b) Star Academy (2004-05); and (c) Promise Academy and Southern Avenue (2005-06). These three "cohorts" were therefore completing their fourth, third, and second academic years respectively at the time the achievement tests were administered in the spring of the 2006-07 school year.

Overview of Schools

The following table provides an overview of the elementary charter schools.

School	Cohort	Level	Grades (06-07)	Enrollment (06-07)	Location
Circles of Success Learning Academy (COSLA)	1	Elementary	K-5	120	Memphis
Smithson-Craighead Academy (SCA)	1	Elementary	K-4	174	Nashville
Star Academy	2	Elementary	K-4	200	Memphis
Promise Academy	3	Elementary	K-1	115	Memphis
Southern Avenue Charter School for Academic Excellence	3	Elementary	K-2	103	Memphis

Methodology

To examine student achievement outcomes, there was no student-level matching of control students. Instead, all students from non-charter, Title I schools in Memphis City Schools (MCS) and Nashville Metro in 2nd through 4th grades who took both the 2005-06 and 2006-07 TCAP Achievement Test and all 1st grade students who took the 2006-07 TCAP Achievement Test were included in the analysis as controls. The Nashville Metro students were utilized for the Smithson-Craighead comparison, whereas the MCS students were used as the comparison group for the Memphis-area charter schools. Student-level matching was not conducted because most students who attended these charter schools would not have attended a previous school, and would therefore have no pre-charter school test data to use for matching purposes. The primary variable of interest in the analysis is *charter school membership*, which if statistically significant, would constitute a reliable predictor of students in general performing higher or lower on TCAP: (a) based on their enrolling or not enrolling in a charter school and (b) after controlling for their prior achievement (where available), gender, and lunch status.

We encourage readers to interpret these results cautiously given that (a) due to student choice and other constraints, we were unable to conduct a randomized experimental study that eliminated family interest or involvement as an influential factor; and (b) we did not have a true "pre-test" measure for the elementary students, which greatly limits our ability to make causal statements regarding differences between charter and comparison students.

Achievement Measures

The Tennessee Comprehensive Assessment Program: Achievement Test (TCAP/AT) Normal Curve Equivalent (NCE) scores in Reading/Language Arts (Reading/LA) and Math were analyzed for students in grades 1 and 2. The number correct scores in Reading/Language Arts and Math were analyzed for students who were in grades 3 through 5 during the 2006-07 school year.

Summary and Conclusions

To summarize the achievement outcomes obtained in this study, a brief achievement profile of each of the four schools is provided below:

Second-Year Schools

Promise Academy. Control students had slightly better performance in Reading/LA while Promise students had slightly better performance in Math. It is important to note, however, that charter school membership was not a significant influence on achievement in 2006-07.

Southern Avenue. 1st grade students at Southern Avenue had better performance in both Reading/LA and Math, while controls had better performance in both subjects in 2nd grade. Charter school membership was only a significant influence on 2006-07 achievement in 2nd grade Math.

Third-Year School

Star Academy. Suggestive positive effects were found in both Reading/LA and Mathematics at all grade levels. Charter school membership did not significantly influence achievement in 2006-07.

Fourth-Year School

Circles of Success in Learning Academy. Suggestive positive effects were evidenced in both Reading/LA and Mathematics in 3rd and 4th grades. Controls had better performance in both subjects in 5th grade. Charter school membership was a significant influence on 2006-07 achievement in 4th grade Reading/LA and for both subjects in 5th grade.

Smithson Craighead Academy (SCA). In third grade, Smithson students had lower average scores in both Reading/Language Arts and Math. Charter school membership was significant in Math. The average number correct for 4th grade Smithson-Craighead students was lower than controls in both Math and Reading/Language Arts. Charter school membership, however, was not significant.

Analysis of Year 4 (2006-07)
Achievement Outcomes for TN Elementary Charter Schools

This report presents student-level achievement results for charter schools that served elementary grades. The present achievement report supplements a report (Ross, McDonald, & Bol, 2008) on the implementation progress made by the charter schools, encompassing school climate, classroom teaching methods, and perceptions by teachers, principals, parents, and students.

The schools had different start-up years as follows: (a) Circles of Success in Learning Academy and Smithson-Craighead Academy (2003-04); (b) Star Academy (2004-05); and (c) Promise Academy and Southern Avenue (2005-06). These three "cohorts" were therefore completing their fourth, third, and second academic years respectively at the time the achievement tests were administered in the spring of the 2006-07 school year.

School Descriptions

Circles of Success Learning Academy (COSLA). COSLA is an urban school located in Memphis that emphasizes literacy and fine arts. COSLA enrolled a total of 120 students in kindergarten through fifth grade. All were African American, and most (80%) were eligible for free or reduced price lunch. COSLA's staff consisted of six fulltime teachers, one part-time teacher, a curriculum coordinator, and five teacher assistants. The student to teacher ratio was 10:1 (including assistants). COSLA follows the Memphis City Schools calendar.

Smithson-Craighead Academy (SCA). Smithson-Craighead Academy is an urban school located in Nashville. The school is housed in an older building which previously served as an elementary school within the Nashville Metro District School System. Approximately 174 students in grades K – 4 attended the school. The students were predominantly African American (99%) and eligible for free or reduced price lunch (97%). The school maintained a staff of ten full-time teachers, two part-time teachers, and 10 paraprofessionals. The student to fulltime teacher ratio was 18:1. The mission of the school is to meet the academic and social needs of at-risk children through mastery of basic academic skills, student self control, obedience, and diligence. Smithson follows the same calendar as the district and continues to offer a summer school session. The school also offers several popular after-school programs and a variety of extra-curricular activities.

Star Academy. Star Academy is located in northeast Memphis. The school is housed in a former preschool building on the grounds of a Baptist church. Approximately 200 students in grades K – 4 attended the school. The student population was predominantly African American (99%), with approximately 88% qualifying for free or reduced price lunch. The school maintained a staff of 10 fulltime teachers, one part-time teacher, and four paraprofessionals. The student to fulltime teacher ratio was 20:1. The primary focus of Star Academy is "back to basics," with an emphasis on literacy and mathematical competencies. The school operates from 7:30 – 3:00 three days per week and 7:30 – 4:00 on two days.

Promise Academy. Promise Academy is located in Memphis and currently housed in St. Paul's Episcopal Church. Of the 115 students served in grades K – 1, 97% were African American and 90% were eligible for free or reduced price lunches. Six fulltime teachers served the students, with a student to teacher ratio of 20:1. The school's mission is "to prepare children to excel in the nation's most rigorous high schools. Our central and only work is to teach and inspire the mind, body and spirit of our children so that they can succeed in any academic or cultural setting." The educators at Promise Academy want their students to learn and excel and want to provide that opportunity in a unique atmosphere that the students would not experience in most elementary schools. The school day is from 7:30 – 4:30.

Southern Avenue Charter School for Academic Excellence. Southern Avenue Charter School for Academic Excellence is located in Memphis and housed at Greenwood Christian Methodist Episcopal Church, near the University of Memphis campus. The school served 103 students in grades K

– 2. In addition to the basic curriculum, “kaleidoscope” activities such as art, music, ballet and tae kwon do are offered. The school also offers Spanish once a week. The school calendar and school days are extended at Southern Avenue, with “kaleidoscope” classes beginning at 3:00 in the afternoon. The school supplements the students’ education with reading and math tutorials during an after school program, which runs from 4:00 pm to 6:00 pm.

Method

Design and Variables

Given the different grade levels served and curricular objectives emphasized by the charter schools, the results for each were examined separately. Student-level matching was not conducted to examine achievement outcomes because most students who attended these schools would not have attended a previous school, and therefore would have no pre-program achievement data to use for matching purposes.

Instead, ordinary least squares multiple regressions were used to determine the effects of charter school enrollment, lunch status, gender, and prior achievement (where applicable, in grade 2 and above) on current year (2006-07) achievement to determine the extent to which: (1) all three or four variables combined explained variability (variance) in achievement, and (2) which individual variables, if any, had a unique, significant influence on current year achievement.

The standardized regression coefficient, Beta, was used to assess the strength of each independent variable that was significant. In addition, the R-square values are discussed for each analysis and reported in the tables to indicate the proportion of variance the independent variables explained in the outcome variable. The higher the variance explained, the better the regression model. In these analyses, the primary variable of interest is *charter school enrollment*, which if statistically significant, would constitute a reliable predictor of students in general performing higher or lower on TCAP: (a) based on their enrolling or not enrolling in a charter school and (b) after controlling for their prior achievement (where available), gender, and lunch status.

Effect sizes were computed by a formula called “Cohen’s d.” Each effect size (or d) indicates the number of standard deviations by which the charter school student mean differs from the control student mean. Thus, an effect size of +0.50, would indicate a half of a standard deviation advantage. Generally, in education, effect sizes exceeding +0.20 would be considered meaningful and fairly strong when obtained for a whole-school intervention. In all cases, Cohen’s d effect size was computed as the mean difference (treatment – control) divided by the pooled standard deviation.

When conducting a regression analysis, one potential problem is the issue of multicollinearity. This occurs when the independent variables (in the case of this analysis: Charter school enrollment, lunch status, gender, and prior achievement) are highly correlated with each other as opposed to the dependent variable (i.e., 2006-07 Reading/LA and Math results). For example, two independent variables may measure the same construct, thereby fighting over shared variance and making it difficult to determine which variable is actually producing the effect on the outcome measure. One result can be a lack of statistical significance for individual independent variables while the overall model may be strongly significant. Multicollinearity “may also result in wrong signs and magnitudes of regression coefficient estimates, and consequently in incorrect conclusions about relationships between independent and dependent variables” (Multicollinearity in Logistic Regression, n.d.). The variance inflation factor (VIF) is one way of determining if multicollinearity exists. If any VIF exceeds 10, multicollinearity may be present (Stevens, 2002, p. 92). Preliminary examination of the results indicated there was no multicollinearity in the data (all variance inflation factors were less than 1.2).

Sample restriction

All Memphis City Schools and Nashville Metro students from non-charter, Title I schools in 2nd through 5th grades who took both the 2005-06 and 2006-07 TCAP Achievement Test and all 1st grade students from non-charter, Title I schools who took the 2006-07 TCAP Achievement Test were initially selected as control students. The Nashville Metro students were utilized for the Smithson-Craighead comparison, whereas the MCS students were used as the comparison group for the Memphis-area charter schools. Charter school or control students that fell into any of the following six categories were not included in the analyses:

1. The grade level tested did not match the grade level in which the student was enrolled (e.g., a fourth grade student who took the 3rd grade level test), or

2. Not continuously enrolled[1] in the 2006-07 year, or

3. Special education students in the 2006-07 year, or

4. ELL students in the 2006-07 year, or

5. Retained students in the 2006-07 year (i.e., the student was in the same grade in both 2005-06 and 2006-07), or

6. Missing data, including NCE Math and Reading (for 1st and 2nd grades), Number Correct Math and Reading/LA (grade 3 and above), gender, lunch status (Free, Reduced, or Full Pay), grade level, or test level for either the 2005-06 or 2006-07 years (excluding the 2005-06 data for the students in 1st grade).

In addition, any control students who attended an Optional School or were not in a Title I school in the 2006-07 school year were also dropped.

NRT data for 1st grade students were not available for Star Academy and Circles of Success. Therefore, no analyses were conducted for first graders at these two schools. Additionally, Nashville Metro schools, including Smithson-Craighead, did not test students in grades 1 or 2 during the 2006-2007 academic year.

Control Group Selection

Separate control groups were established using Memphis City and Nashville Metro students. The development of the grade level control groups is discussed below.

Memphis City Schools

First Grade. Of 2545 1st grade control students available, 719 were dropped. Of these, 334 were not continuously enrolled, 175 were special education students, 158 were ELL students, 51 had been retained from the previous year, and 1 was missing the 2006-07 test data. Therefore, 1826 control students in 1st grade were included in the analyses.

Second Grade. Of the 8058 2nd grade control students available, 5945 were dropped: 1110 were not continuously enrolled, 741 were special education students, 480 were ELL students, 159 had been retained from the previous year, 10 were missing the 2006-07 test data, and 3445 were missing the 2005-06 test data. Thus, 2113 control students in 2nd grade were included in the analyses.

[1] Defined as being enrolled at the school since the first 20-day attendance reporting period until the test administration. Schools are only held accountable under No Child Left Behind (NCLB) for making Adequate Yearly Progress (AYP) based on students who are defined as "continuously enrolled" at their particular school. This is also known as the student's "membership" status.

Third Grade. Out of 7985 3rd grade control students available, 2637 were dropped due to the following reasons: 1144 were not continuously enrolled, 704 were special education students, 359 were ELL students, 8 had been retained from the previous year, 5 were missing the 2006-07 test data, 1 was missing both the 2006-07 and 2005-06 data, 3 were missing grade level data for the 2005-06 year, and 413 were missing the 2005-06 test data. As a result, 5348 control students in 3rd grade were included in the analyses.

Fourth Grade. Of 7813 4th grade control students available, 2495 were dropped: 1066 were not continuously enrolled, 750 were special education students, 276 were ELL students, 155 had been retained from the previous year, 26 were missing the 2006-07 test data, 220 were missing the 2005-06 test data, and 2 were missing the grade level data for the 2005-06 year. Therefore, 5318 control students were included in the analyses.

Fifth Grade. Of the 7587 5th grade control students available, 2410 were dropped due to the following reasons: 1057 were not continuously enrolled, 770 were special education students, 225 were ELL students, 93 had been retained from the previous year, 5 were missing the 2006-07 test data, 2 were missing the test data for both the 2005-06 and 2006-07 years, 254 were missing the 2005-06 test data, and 4 were missing the grade level data in the 2005-06 year. Subsequently, 5177 control students in 5th grade were included in the analyses.

Nashville Metro

Third Grade. Of 3260 3rd grade control students available, 1316 were dropped due to the following reasons: 452 were not continuously enrolled, 226 were special education students, 356 were ELL students, 2 had been retained from the previous year, 2 were missing the 2006-07 test data, and 278 were missing the 2005-06 test data. Thus, 1944 control students were available for analysis.

Fourth Grade. Of 3122 4th grade control students available, 1094 were dropped due to the following reasons: 411 were not continuously enrolled, 286 were special education students, 239 were ELL students, 9 had been retained from the previous year, 14 were missing the 2006-07 test data, 134 were missing the 2005-06 test data, and 1 was missing the data for the 2005-06 and 2006-07 years. As a result, 2028 control students were selected for analysis.

Achievement Measures

The 2006-07 TCAP/AT in grades 1 and 2 is a norm-referenced (NRT), multiple-choice test, while the grade 3 through 8 TCAP/AT is a criterion-referenced (CRT), multiple-choice measure that indicates student proficiency based on minimum passing scores. To be defined as Proficient, a student must demonstrate “general understanding of the essential concepts and skills of the content area.” To be defined as Advanced, a student must demonstrate “application of complex concepts and skills of the content area.” Students scoring below the minimum required for proficiency are considered Below Proficient. This lowest level is defined as demonstrating “a lack of understanding of the essential concepts and skills of the content area” (State of Tennessee Department of Education, 2004, p. 15). The number of questions that must be answered correctly in order to score Proficient or Advanced differs by subject and grade level, as summarized in the table below. The TCAP/AT is administered each spring to students in grades 2 through 8 in MCS and to students in grades 3 through 8 state-wide. Some schools in Memphis City Schools also choose to test 1st grade students at their own expense.

Number Correct Cut Scores					
		Spring 2006[1]		Spring 2007[2]	
Content Area	Grade	Proficient	Advanced	Proficient	Advanced
Reading / Language Arts	3	24	45	26	50
	4	26	46	33	53
	5	22	43	22	47
	6	24	44	26	50
	7	23	42	25	48
	8	23	41	24	46
Mathematics	3	34	50	37	56
	4	31	48	33	53
	5	25	44	27	47
	6	25	45	28	49
	7	24	45	28	51
	8	24	45	25	48

[1] There were 70 questions for both Reading/LA and Math in 2006.
[2] There were 77 questions for both Reading/LA and Math in 2007.

The Tennessee Comprehensive Assessment Program. Achievement Test (TCAP/AT) Normal Curve Equivalent (NCE) scores in Reading/Language Arts (Reading/LA) and Math were the outcome variables (dependent variables) for students in grades 1 and 2. The number correct scores in Reading/Language Arts and Math were the outcome variables for students who were in grades 3 through 5 during the 2006-07 school year. Prior achievement in Reading/LA and Math were measured as follows: (1) Grades 4-5: Student TCAP/AT CRT number correct score in the 2005-2006 year, (2) Grades 2-3: Student TCAP/AT NRT NCE score in 2005-2006, and (3) Grade 1: Not applicable (no prior year data available). Due to the unavailability of the Math and Reading subtest NCE scores for the 2005-06 year for elementary schools in Nashville, the NCE Math and Reading Composite scores were used as the prior achievement data for the analysis for the 3rd grade at Smithson-Craighead. This is different from the other elementary charter schools, where the Math and Reading subtests were used as the prior achievement scores. The Math and Reading Composite scores are made up of multiple subtests. Please see the table below for the prior achievement and outcome measures used for each grade level.

Grade	Prior Achievement Measure Used (2005-06)	Outcome Measure Used (2006-07)
1	NA	1st Grade TCAP/AT NRT NCE
2	1st Grade TCAP/AT NRT NCE	2nd Grade TCAP/AT NRT NCE
3	2nd Grade TCAP/AT NRT NCE (or Composite Scores for Smithson-Craighead)	3rd Grade TCAP/AT CRT Number Correct
4	3rd Grade TCAP/AT CRT Number Correct	4th Grade TCAP/AT CRT Number Correct
5	4th Grade TCAP/AT CRT Number Correct	5th Grade TCAP/AT CRT Number Correct

Results

Second Year Schools

Promise Academy.

First Grade. Of 53 Promise students available in 1st grade, 7 were dropped due to the following reasons: 3 were not continuously enrolled, 2 were special education students, and 2 were missing the 2006-07 test data. Therefore, 46 Promise students and 1826 control students in 1st grade were selected for analysis. In Math, the regression results indicated that the set of independent variables (charter membership, lunch status, and gender) explained only 6.6% ($F(3,1868)=43.94$, $p<.001$) of the variance in 2006-07 achievement. Lunch status ($p<.001$) and gender ($p=0.037$) had a significant influence on current

year achievement, while charter school membership did not. Lunch status had more influence than gender (see Table 1). The mean NCE in Math for Promise students (44.76) was higher than that of controls (42.85), with a small effect size of 0.106. The mean NCE for both groups was below the national norm of 50 (see Table 2).

In Reading/LA, the set of independent variables explained only 7.6% ($F(3,1868)=51.47$, $p<.001$) of the variance in 2006-07 achievement. The 2006-07 achievement scores were significantly different for students depending on their lunch status ($p<.001$) and gender ($p<.001$), with lunch status having more influence on the 2006-07 achievement scores than gender (see Table 3). Charter school membership was not a significant influence. The mean NCE in Reading/LA for Promise Academy students (48.72) was lower than that of control students (49.23), with an effect size approximating zero. The mean NCE for both groups was below the national norm of 50 (see Table 4).

Summary of Results. Charter school membership was not significant for either Math or Reading/LA. Lunch status and gender had significant influence on the current year achievement for both Math and Reading/LA, with lunch status having the greater influence. The mean NCE score for Promise Academy students was higher than controls in Math, while slightly lower in Reading/LA. However, given the absence of prior achievement scores, these results should be interpreted cautiously. The variables selected (Charter membership, lunch status, and gender) were not able to explain a very large percentage of the variability in current year achievement in either subject (6.6% in Math and 7.6% in Reading/LA). In addition, the effect sizes for both subjects were very small (Math: 0.106; Reading/LA: -0.026). Therefore, it appears that other factors not examined in this analysis (e.g., curriculum focus, teacher experience) could account for or explain differences in charter and control student performance.

Southern Avenue Charter School for Academic Excellence.

First Grade. Of 31 Southern Avenue students available in 1st grade, 28 were left for analysis after dropping 2 special education students and 1 student missing the 2006-07 test data. Subsequently, 28 Southern Avenue and 1826 control students in 1st grade were selected for analysis. As seen in Table 1, the regression results indicated that in Math, the set of independent variables (charter membership, lunch status, and gender) explained only 6.5% ($F(3,1850)=43.16$, $p<.001$) of the variance in 2006-07 achievement. The 2006-07 achievement scores were significantly different for students depending on their lunch status ($p<.001$) and gender ($p=0.039$), with lunch status having more influence on current year achievement than gender. Charter school membership was not significant in the analysis. The mean NCE in Math for Southern Avenue students (47.64) was higher than that of control students (42.85), with a low effect size of 0.265 that favored Southern students. In addition, the mean NCE for both groups was below the national norm of 50 (see Table 2).

The set of independent variables (charter membership, lunch status, and gender) explained only 7.8% ($F(3,1850)=51.82$, $p<.001$) of the variance in 2006-07 Reading/LA achievement, with lunch status and gender ($p<.001$ for each) having significant influence (see Table 3), but not charter school membership. Lunch status had more influence than gender. As seen in Table 4, the mean NCE in Reading/LA for Southern Avenue students (56.25) was higher than that of controls (49.23) and well above the national average of 50, with a moderate effect size of 0.360 in favor of Southern Avenue students.

Second Grade. Thirty-three Southern Avenue students in 2nd grade were available. Of these, 12 were dropped: 2 were special education students, 1 had been retained from the previous year, and 9 were missing the 2005-06 test data. Therefore, 21 Southern Avenue students and 2113 control students in 2nd grade were selected for analysis. In Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 44.5% ($F(4,2129)=426.57$, $p<.001$) of the variance in 2006-07 achievement. All variables except gender had significant influence on 2006-07 achievement (Charter membership: $p<.001$; lunch status: $p<.001$; prior achievement scores: $p<.001$; gender: $p=0.059$). Prior Math achievement had the most influence on current year achievement scores, followed by lunch status and charter membership (see Table 1). The mean NCE in Math for Southern Avenue students (30.33) was substantially (over 40%) lower than that of control students (43.42), with a

strong effect size of -0.714 in favor of control students. The mean NCE for both groups was below the national average of 50 (see Table 2).

In Reading/LA, the set of independent variables explained 38.1% ($F(4,2129)=327.15$, $p<.001$) of the variance in 2006-07 achievement. All variables except charter membership had significant influence on the 2006-07 achievement scores with $p<.001$ for lunch status, gender, and prior achievement scores. Prior achievement had the most influence on current year achievement scores, followed by lunch status and gender (see Table 3). The mean NCE in Reading/LA for Southern Academy students (36.48) was lower than that of control students (43.85), with a moderate effect size of -0.411. The mean NCE for both groups was less than the national average of 50 (see Table 4).

Summary of Results. Charter school membership was only a significant influence on 2006-07 Math achievement for 2nd grade. Also in Math, lunch status had significant influence on 2006-07 achievement for both grades. In Reading/LA, lunch status and gender were also significant for both grades. Prior achievement was significant for 2nd grade in both subject areas, and had the most influence of all significant variables. The mean NCE score for Southern Avenue students in 2006-07 was lower than controls in both Math and Reading/LA for 2nd grade, while higher than controls in 1st grade. The effect sizes for 2nd grade (Math: -0.714; Reading/LA: -0.411) were strongly in favor of controls. The reader should note; however, that the variables selected (Charter membership, lunch status, and gender) were not able to explain a very large percentage the variability in current year achievement in either subject for 1st grade (6.5% in Math and 7.8% in Reading/LA). In addition, the effect size for Math (0.265) in 1st grade was not very large, meaning that other factors not examined in this analysis (e.g., curriculum focus, teacher experience) could account for or explain differences in charter and control student performance at this grade level.

Third Year School

Star Academy.

Second Grade. Forty-one 2nd grade Star Academy students were available for analysis. Twelve were dropped due to the following reasons: 2 were not continuously enrolled, 1 was a special education student, and 9 were missing the 2005-06 test data. As a result, 29 Star Academy and 2113 control students in 2nd grade were selected for analysis. As shown in Table 1, regression results indicated that in Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 44.5% ($F(4,2137)=427.61$, $p<.001$) of the variance in 2006-07 achievement, which was significantly different for students depending on their lunch status ($p<.001$) and prior achievement scores ($p<.001$), but not charter school membership. Prior Math achievement had more influence on current achievement scores than lunch status. The mean NCE in Math for Star Academy students (59.10) was over one-third (36%) higher than that of control students (43.42), with a very strong effect size of 0.856 that favored Star Academy (see Table 2).

In Reading/LA, the set of independent variables explained 38.2% ($F(4,2137)=330.57$, $p<.001$) of the variance in 2006-07 achievement. All variables except charter membership had significant influence on current year achievement scores with $p<.001$. Prior Reading/LA achievement had the most influence on 2006-07 achievement scores, followed by lunch status and gender (see Table 3). The mean NCE in Reading/LA for Star Academy students (51.52) was higher than that of controls (43.85), and above the national norm of 50, with a moderate effect size of 0.428 that favored Star Academy (see Table 4).

Third Grade. Of 37 Star students available in 3rd grade, 10 were dropped. Of these, 2 were not continuously enrolled, 4 were special education students, 1 was an ELL student, and 3 were missing the 2005-06 test data. Thus, 27 Star students and 5348 control students in 3rd grade were selected for analysis. In Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained slightly more than half (51.5%: $F(4,5370)=1426.66$, $p<.001$) of the variance in 2006-07 achievement. Lunch status ($p<.001$) and prior achievement scores ($p<.001$) had a significant influence on current year achievement, with prior Math achievement having more influence than lunch status (see Table 1). Charter school membership was not a significant influence. As shown in Table 2,

the mean number correct in Math for Star Academy students (55.37) was higher than that of control students (47.40), with a very strong effect size of 0.729 that favored Star Academy.

In Reading/LA, the set of independent variables explained about half (50.8%: $F(4,5370)=1387.60$, $p<.001$) of the variance in 2006-07 achievement. All variables except charter membership had significant influence on current year achievement scores with $p<.001$. Prior Reading/LA achievement had the most influence on 2006-07 achievement, followed by gender and lunch status (see Table 3). As shown in Table 4, the mean number correct in Reading/LA for Star Academy students (44.37) was higher than that of controls (42.20), with a small effect size of 0.185.

Fourth Grade. Forty Star Academy students were available for analysis in 4th grade, of which nine were dropped: Four were not continuously enrolled, 3 were special education students, and 2 were missing 2005-06 test data. As a result, 31 Star students and 5318 control students in 4th grade were selected for analysis. In Math, the regression results indicated that the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 53.3% ($F(4,5344)=1527.30$, $p<.001$) of the variance in 2006-07 achievement. All independent variables except charter membership had significant influence on 2006-07 achievement scores (lunch status: $p<.001$; gender $p=0.001$; prior achievement scores: $p<.001$) (see Table 1). Prior Math achievement had the most influence on current year achievement, followed by lunch status and gender. The mean number correct in Math for Star Academy students (51.55) was higher than that of control students (44.13), with a strong effect size of 0.703 that favored Star Academy (see Table 2).

In Reading/LA (see Table 3), the set of independent variables explained 62.2% ($F(4,5344)=2196.63$, $p<.001$) of the variance in 2006-07 achievement, with scores significantly different for students depending on their lunch status ($p<.001$), gender ($p=0.001$), and prior achievement scores ($p<.001$), but not based on charter school membership. Prior Reading/LA achievement had the most influence on 2006-07 achievement scores, followed by lunch status and gender. The mean number correct in Reading/LA for Star students (48.03) was higher than that of control students (43.02), with a moderate effect size of 0.452 (see Table 4).

Summary of Results. Charter school membership was not significant at any grade level in either subject area. In Math, lunch status and prior achievement had significant influence on 2006-07 achievement across all grades, with prior achievement having more influence than lunch status. The mean NCE or number correct for Star Academy students was higher than controls at all grade levels, with very large effect sizes that favored Star Academy. In Reading/LA, all variables except charter school membership (i.e., lunch status, gender and prior achievement) were significant for all grades. The mean NCE or number correct for Star Academy students was higher than that of controls at all grade levels, with effect sizes in 2nd (0.428) and 4th grade (0.452) reaching notable levels.

Fourth Year Schools

Circles of Success Learning Academy (COSLA).

Second Grade. Of 18 COSLA students available in 2nd grade, 2 were dropped because one was a special education student and another was missing the 2005-06 test data. Thus, 16 COSLA students and 2113 control students in 2nd grade were selected for analysis. The regression results indicated that in Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 44.3% ($F(4,2124)=422.23$, $p<.001$) of the variance in 2006-07 achievement. Lunch status ($p<.001$), gender ($p=0.039$), and prior achievement scores ($p<.001$) had a significant influence on 2006-07 Math outcomes. Charter school membership; however, was not significant. Prior Math achievement had the most influence on 2006-07 achievement scores, followed by lunch status and gender (see Table 1). As shown in Table 2, the mean NCE in Math for COSLA students (50.44) was higher than that of control students (43.42), with a moderate effect size of 0.383 favoring COSLA. Only the mean NCE for COSLA students was above the national norm of 50.

In Reading/LA, the set of independent variables explained 38.2% ($F(4,2124)=328.28$, $p<.001$) of the variance in 2006-07 achievement. The 2006-07 achievement scores were significantly different for students depending on their lunch status ($p<.001$), gender ($p<0.001$), and prior achievement scores ($p<.001$). Charter school membership was not a significant influence in the analysis. As with Math, prior achievement had the most influence on current year (2006-07) achievement scores, followed by lunch status and gender (see Table 3). The mean NCE in Reading/LA for COSLA students (42.81) was slightly lower than that of control students (43.85), with an effect size approximating zero (-0.058). The mean NCE for both groups was below the national average of 50 (see Table 4).

Third Grade. Twenty-two COSLA students in 3rd grade were available. Of these, 3 were dropped: 1 was not continuously enrolled and 2 were special education students. As a result, 19 COSLA students and 5348 control students in 3rd grade were selected for analysis. In Math (Table 1), the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained over half (51.6%: $F(4,5362)=1426.02$, $p<.001$) of the variance in 2006-07 achievement. Lunch status ($p<.001$) and prior achievement scores ($p<.001$), but not charter school membership, had a significant unique influence on current achievement, with prior Math achievement having more influence on current year achievement scores than lunch status. As shown in Table 2, the mean number correct in Math for COSLA students (54.26) was higher than that of controls (47.40), with a strong effect size of 0.627 that favored COSLA.

In Reading/LA (Table 3), the set of independent variables also explained about half (50.8%) ($F(4,5362)=1386.56$, $p<.001$) of the variance in 2006-07 achievement. All variables except charter membership had significant influence on current year achievement scores (Lunch status: $p<.001$; gender: $p<.001$; prior achievement scores: $p<.001$). Prior Reading/LA achievement had the most influence on 2006-07 achievement scores, followed by gender and lunch status. The mean number correct in Reading/LA for COSLA students (46.74) was higher than that of controls (42.20), with a notable effect size of 0.386 that favored COSLA students (see Table 4).

Fourth Grade. Twenty-one students in 4th grade at COSLA were available. Of these, 2 were special education students and were not included in the analysis. Consequently, 19 COSLA and 5318 control students were selected for analysis. The set of independent variables (charter membership, lunch status, gender, and prior achievement) explained over half (53.3%: $F(4,5332)=1519.23$, $p<.001$) of the variance in 2006-07 Math achievement (see Table 1). All variables except charter school membership had a unique significant influence on current year achievement scores (Lunch status ($p<.001$), gender ($p=0.001$), prior achievement scores ($p<.001$)). Prior Math achievement had the most influence on current year achievement scores, followed by lunch status and gender (see Table 1). The mean number correct in Math for COSLA students (51.21) was higher than that of controls (44.13), with a very strong effect size of 0.670 in favor of COSLA (see Table 2).

As shown in Table 3, the set of independent variables explained 62.1% ($F(4,5332)=2182.86$, $p<.001$) of the variance in 2006-07 achievement in Reading/LA, with all variables having a significant influence (Charter membership ($p=0.010$), lunch status ($p<.001$), gender ($p=0.001$), prior achievement scores ($p<.001$)). Prior Reading/LA achievement had the most influence on current achievement scores, followed by lunch status, gender, and charter membership. The mean number correct in Reading/LA for COSLA (51.00) was higher than that of controls (43.02), with a very strong effect size of 0.720 in favor of COSLA students (see Table 4).

Fifth Grade. Of 19 students in 5th grade at COSLA, 2 were dropped: 1 was not continuously enrolled and 1 was missing the 2005-06 test data. Therefore, 17 COSLA and 5177 control students in 5th grade were selected for analysis. The regression results indicated that in Math (Table 1), the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 56.6% ($F(4,5189)=1690.31$, $p<.001$) of the variance in 2006-07 Math achievement, with all variables except gender having a unique significant influence on current year achievement (Charter membership: $p<.001$; lunch status: $p<.001$; prior achievement scores: $p<.001$; gender: $p=0.649$). Prior Math achievement had the most influence, followed by lunch status, and charter membership. The mean

number correct in Math for COSLA students (40.18) was lower than that of control students (41.97), with a small effect size of -0.170 (see Table 2).

In Reading/LA, the set of independent variables explained 64.0% ($F(4,5189)=2310.62$, $p<.001$) of the variance in 2006-07 achievement (see Table 3). All independent variables had significant influence on 2006-07 achievement scores, with $p=0.001$ for charter membership, and $p<.001$ for lunch status, gender and prior achievement scores. Prior Reading/LA achievement had the most influence on 2006-07 achievement scores, followed by lunch status, gender, and charter membership. As shown in Table 4, the mean number correct in Reading/LA for COSLA students (37.65) was lower than that of controls (39.91), with a small effect size of -0.202.

Summary of Results. In Math, charter school membership only had significant influence on current achievement for 5th grade. Prior achievement, followed by lunch status, had significant influence on 2006-07 achievement in Math for all grades at COSLA. The mean achievement score for COSLA students in the 2006-07 year was higher than that of controls for all grades except for 5th grade. Effect sizes for all grades except 5th were large (particularly in 3rd and 4th grades: 0.627 and 0.670 respectively) and in favor of COSLA. In 5th grade, the mean number correct in Math for COSLA students was lower than that of control students (41.97), with a small effect size of -0.170. In Reading/LA, charter school membership was significant for the 4th and 5th grades only. Lunch status, gender, and prior achievement had significant influence on 2006-07 Reading/LA achievement across all grade levels, with prior achievement having the most influence. The mean achievement score for COSLA students was higher than controls for the 3rd and 4th grades. The effect sizes in 3rd and 4th grades (0.386 and 0.720 respectively) were large and in favor of COSLA. The mean number correct in Reading/LA for 5th grade COSLA students was lower than that of controls, with a small effect size of -0.202. The variables selected (Charter membership, lunch status, gender, and prior achievement) were able to explain at least half of the variability in current year achievement in both subjects for all grades except 2nd.

Smithson-Craighead Academy.

Third Grade. Out of 40 students in 3rd grade available at Smithson-Craighead, 8 were dropped: 1 was not continuously enrolled, 3 were special education students, and 4 were missing the test scores for the 2005-06 year. Thus, 32 Smithson-Craighead and 1944 control students were available for analysis.

The regression results indicated that in Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained 46.4% of the variance in 2006-07 achievement ($F(4,1971)=426.00$, $p<.001$). All variables had significant influence on current year achievement scores, with prior achievement having the most influence followed by lunch status, gender, and charter membership (see Table 1). The mean number correct in Math for Smithson-Craighead students (46.03) was lower than that of controls (51.02), with a fairly strong effect size of -0.491 in favor of controls (see Table 2).

In Reading/LA, the set of independent variables explained 53.4% ($F(4,1971)=564.68$, $p<.001$) of the variance in 2006-07 achievement. Only prior achievement and gender were significant, with prior achievement having more influence on current achievement scores (see Table 3). The mean number correct in Reading/LA for Smithson-Craighead (40.56) was also lower than controls (45.54), with a fairly strong effect size of -0.449 in favor of control students (see Table 4).

Fourth Grade. Thirty-five students in 4th grade at Smithson-Craighead were available for analysis. Seven of these were dropped: 1 was not continuously enrolled, and 6 were special education students. As a result, 28 Smithson-Craighead and 2028 control students were selected for analysis.

The regression results indicated that in Math, the set of independent variables (charter membership, lunch status, gender, and prior achievement) explained over half (56.3%: $F(4,2051)=661.56$, $p<.001$) of the variance in 2006-07 achievement. Only prior achievement had a unique significant influence on current year achievement scores ($p<.001$)). Charter school membership was not a

significant factor in the analysis (see Table 1). As seen in Table 2, the mean number correct in Math for Smithson-Craighead students (38.79) was lower than that of controls (46.29), with a very strong effect size of -0.732 in favor of controls.

In Reading/LA, the set of independent variables explained 57.1% ($F(4,2051)=681.14$, $p<.001$) of the variance in 2006-07 achievement, with all variables except charter membership having significant influence (Lunch status ($p<.001$), gender ($p=0.040$), prior achievement scores ($p<.001$), charter membership ($p=0.327$)). Prior Reading/LA achievement had the most influence on current achievement scores, followed by lunch status and gender (see Table 3). The mean number correct in Reading/LA for Smithson-Craighead (37.43) was lower than controls (45.72), with a very strong effect size of -0.780 in favor of control students (see Table 4).

Summary of Results. In third grade, the mean number correct for Smithson-Craighead students was lower than controls in both Math and Reading/LA, with fairly strong effect sizes that favored of controls. Charter school membership was significant in the third grade math analysis. In the fourth grade analysis, prior achievement had significant effects on current achievement for both subject areas, and had the most influence of all significant variables in the analysis. Charter school membership was not significant for either Math or Reading/LA. The mean number correct for Smithson-Craighead students was lower than controls in both Math and Reading/LA, with large effect sizes (-0.732 and -0.780 respectively), in favor of controls.

Summary and Conclusions

Charter school membership had very limited statistical significance on current year achievement, and was only a factor in three schools: COSLA (4th grade Reading/LA and 5th grade Math and Reading/LA), Smithson-Craighead (3rd grade Math), and Southern Avenue (2nd grade Math). Overall, prior achievement (where applicable) was significant in all schools and grades, and had the most influence of all significant variables. It is important to note that when charter school membership is not significant, we cannot statistically reliably conclude that charter students are performing better or worse than other Title I students in their respective district. Below is a chart that summarizes the significance of charter school membership in the overall evaluation, and the effect size of the mean difference by subject area between charter school and control students.

Significance of Charter School Membership					
		Math Results		Reading/LA Results	
School	Grade	Significant	Effect Size	Significant	Effect Size
COSLA	2	N	0.383	N	-0.058
	3	N	0.627	N	0.386
	4	N	0.670	Y	0.720
	5	Y	-0.170	Y	-0.202
Smithson Craighead	3	Y	-0.491	N	-0.449
	4	N	-0.732	N	-0.780
Promise Academy	1	N	0.106	N	-0.026
Southern Avenue	1	N	0.265	N	0.360
	2	Y	-0.714	N	-0.411
Star Academy	2	N	0.856	N	0.428
	3	N	0.729	N	0.185
	4	N	0.703	N	0.452

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Table 1. Elementary Math Regression Outcomes

Independent Variables	B	Beta	t	p
COSLA				
2nd Grade				
1. Charter/Control	-4.712	-0.022	-1.37	0.171
2. Lunch Status	2.426	0.099	5.93	<.001***
3. Gender	1.229	0.034	2.07	0.039*
4. Prior Math Achievement	0.673	0.632	37.80	<.001***
R^2 =0.443				
3rd Grade				
1. Charter/Control	1.657	0.009	0.94	0.346
2. Lunch Status	0.863	0.059	6.06	<.001***
3. Gender	0.266	0.012	1.27	0.203
4. Prior Math Achievement	0.427	0.701	71.34	<.001***
R^2 =0.516				
4th Grade				
1. Charter/Control	-3.777	-0.021	-2.27	0.023
2. Lunch Status	0.778	0.056	5.82	<.001***
3. Gender	0.646	0.031	3.26	0.001**
4. Prior Math Achievement	0.821	0.712	73.64	<.001***
R^2 =0.533				
5th Grade				
1. Charter/Control	8.570	0.046	5.07	<.001***
2. Lunch Status	0.702	0.053	5.63	<.001***
3. Gender	0.088	0.004	0.45	0.649
4. Prior Math Achievement	0.863	0.740	78.84	<.001***
R^2 =0.566				
Smithson-Craighead Academy				
3rd Grade				
1. Charter/Control	-2.650	-0.033	-1.97	0.049*
2. Lunch Status	0.751	0.067	3.97	<.001***
3. Gender	-0.885	-0.043	-2.63	0.009**
4. Prior Math Achievement	0.374	0.668	39.42	<.001***
R^2 =0.464				
4th Grade				
1. Charter/Control	2.363	0.027	1.82	0.070
2. Lunch Status	0.087	0.008	0.51	0.611
3. Gender	-0.320	-0.016	-1.06	0.288
4. Prior Math Achievement	0.879	0.745	49.71	<.001***
R^2 =0.563				
Promise Academy				
1st Grade				
1. Charter/Control	-2.990	-0.026	-1.15	0.250
2. Lunch Status	6.340	0.252	11.26	<.001***
3. Gender	1.677	0.047	2.09	0.037*
R^2 =0.066				
Southern Avenue				
1st Grade				
1. Charter/Control	-3.190	-0.022	-0.96	0.338
2. Lunch Status	6.247	0.249	11.08	<.001***
3. Gender	1.679	0.046	2.07	0.039*
R^2 =0.065				
Southern Avenue				
2nd Grade				
1. Charter/Control	10.859	0.058	3.61	<.001***
2. Lunch Status	2.411	0.098	5.87	<.001***
3. Gender	1.122	0.031	1.89	0.059
4. Prior Math Achievement	0.674	0.630	37.71	<.001***

Independent Variables	B	Beta	t	p
R^2 =0.445				
Star Academy				
2nd Grade				
1. Charter/Control	-0.252	-0.002	-0.10	0.923
2. Lunch Status	2.454	0.100	5.99	<.001***
3. Gender	1.140	0.031	1.92	0.055
4. Prior Math Achievement	0.672	0.633	37.56	<.001***
R^2 =0.445				
3rd Grade				
1. Charter/Control	-1.453	-0.009	-0.98	0.325
2. Lunch Status	0.856	0.059	6.00	<.001***
3. Gender	0.272	0.012	1.31	0.192
4. Prior Math Achievement	0.427	0.700	71.27	<.001***
R^2 =0.515				
4th Grade				
1. Charter/Control	-1.776	-0.013	-1.36	0.173
2. Lunch Status	0.774	0.056	5.80	<.001***
3. Gender	0.653	0.031	3.30	0.001**
4. Prior Math Achievement	0.821	0.713	73.71	<.001***
R^2 =0.533				
* p <.05; ** p < .01; *** p < .001				

Table 2. Elementary Math Regression Means, Standard Deviations, and Effect Sizes[1]

	Charter				Control			
	N	**M**	**SD**		**N**	**M**	**SD**	**d**
COSLA								
2nd Grade								
TCAP 2005-06 NRT Math	16	46.81	18.18		2113	44.00	17.20	0.163
TCAP 2006-07 NRT Math	16	50.44	13.67		2113	43.42	18.36	0.383
3rd Grade								
TCAP 2005-06 NRT Math	19	63.89	16.14		5348	44.05	17.93	1.107
TCAP 2006-07 CRT Math	19	54.26	7.43		5348	47.40	10.95	0.627
4th Grade								
TCAP 2005-06 CRT Math	19	45.63	6.89		5318	41.84	9.17	0.414
TCAP 2006-07 CRT Math	19	51.21	8.64		5318	44.13	10.57	0.670
5th Grade								
TCAP 2005-06 CRT Math	17	46.53	5.60		5177	38.87	9.04	0.848
TCAP 2006-07 CRT Math	17	40.18	6.06		5177	41.97	10.56	-0.170
Smithson-Craighead Academy								
3rd Grade								
TCAP 2005-06 NRT Math	32	35.56	14.37		1944	55.40	18.09	-1.100
TCAP 2006-07 NRT Math	32	46.03	12.22		1944	51.02	10.14	-0.491
4th Grade								
TCAP 2005-06 CRT Math	28	39.25	7.48		2028	45.01	8.72	-0.662
TCAP 2006-07 CRT Math	28	38.79	9.83		2028	46.29	10.26	-0.732
Promise Academy								
1st Grade								
TCAP 2006-07 NRT Math	46	44.76	11.86		1826	42.85	18.10	0.106
Southern Avenue								
1st Grade								
TCAP 2006-07 NRT Math	28	47.64	14.76		1826	42.85	18.10	0.265
2nd Grade								
TCAP 2005-06 NRT Math	21	40.62	15.48		2113	44.00	17.20	-0.197
TCAP 2006-07 NRT Math	21	30.33	16.52		2113	43.42	18.36	-0.714
Star Academy								
2nd Grade								
TCAP 2005-06 NRT Math	29	66.69	13.79		2113	44.00	17.20	1.323
TCAP 2006-07 NRT Math	29	59.10	15.66		2113	43.42	18.36	0.856
3rd Grade								
TCAP 2005-06 NRT Math	27	60.00	12.26		5348	44.05	17.93	0.891
TCAP 2006-07 CRT Math	27	55.37	7.15		5348	47.40	10.95	0.729
4th Grade								
TCAP 2005-06 CRT Math	31	48.58	7.63		5318	41.84	9.17	0.736
TCAP 2006-07 CRT Math	31	51.55	6.73		5318	44.13	10.57	0.703

[1] Each effect size (or *d)* indicates the number of standard deviations by which the charter school student mean differs from the control student mean.

Table 3. Elementary Reading/Language Arts Regression Outcomes

Independent Variables	B	Beta	t	p
COSLA				
2nd Grade				
1. Charter/Control	4.098	0.020	1.16	0.248
2. Lunch Status	2.835	0.118	6.67	<.001***
3. Gender	3.084	0.086	5.02	<.001***
4. Prior Reading/LA Achievement	0.547	0.562	31.60	<.001***
R^2 =0.382				
3rd Grade				
1. Charter/Control	3.163	0.016	1.66	0.096
2. Lunch Status	1.048	0.067	6.72	<.001***
3. Gender	2.013	0.085	8.88	<.001***
4. Prior Reading/LA Achievement	0.473	0.681	67.85	<.001***
R^2 =0.508				
4th Grade				
1. Charter/Control	-4.040	-0.022	-2.57	0.010*
2. Lunch Status	0.854	0.059	6.72	<.001***
3. Gender	0.628	0.028	3.32	0.001**
4. Prior Reading/LA Achievement	0.757	0.765	86.54	<.001***
R^2 =0.621				
5th Grade				
1. Charter/Control	5.284	0.027	3.24	0.001**
2. Lunch Status	0.603	0.043	4.94	<.001***
3. Gender	0.918	0.041	4.88	<.001***
4. Prior Reading/LA Achievement	0.864	0.782	89.66	<.001***
R^2 =0.640				
Smithson-Craighead Academy				
3rd Grade				
1. Charter/Control	-2.413	-0.027	-1.77	0.077
2. Lunch Status	0.380	0.031	1.95	0.052
3. Gender	1.132	0.051	3.31	0.001**
4. Prior Reading/LA Achievement	0.522	0.721	45.01	<.001***
R^2 =0.534				
4th Grade				
1. Charter/Control	1.315	0.014	0.98	0.327
2. Lunch Status	0.738	0.062	4.14	<.001***
3. Gender	0.637	0.030	2.05	0.040*
4. Prior Reading/LA Achievement	0.700	0.733	48.75	<.001***
R^2 =0.571				
Promise Academy				
1st Grade				
1. Charter/Control	-0.698	-0.006	-0.25	0.803
2. Lunch Status	6.643	0.244	5.80	<.001***
3. Gender	5.005	0.129	10.98	<.001***
R^2 =0.076				
Southern Avenue				
1st Grade				
1. Charter/Control	-5.229	-0.033	-1.46	0.144
2. Lunch Status	6.563	0.242	10.85	<.001***
3. Gender	5.009	0.128	5.75	<.001***
R^2 =0.078				
2nd Grade				
1. Charter/Control	1.931	0.011	0.62	0.535
2. Lunch Status	2.835	0.118	6.64	<.001***
3. Gender	3.040	0.085	4.95	<.001***
4. Prior Reading/LA Achievement	0.542	0.560	31.36	<.001***
R^2 =0.381				

Independent Variables	B	Beta	t	p
Star Academy				
2nd Grade				
1. Charter/Control	-1.314	-0.008	-0.50	0.620
2. Lunch Status	2.966	0.124	6.98	<.001***
3. Gender	2.928	0.082	4.78	<.001***
4. Prior Reading/LA Achievement	0.544	0.560	31.48	<.001***
R^2 =0.382				
3rd Grade				
1. Charter/Control	-2.588	-0.016	-1.63	0.104
2. Lunch Status	1.047	0.067	6.71	<.001***
3. Gender	2.033	0.086	8.99	<.001***
4. Prior Reading/LA Achievement	0.473	0.680	67.89	<.001***
R^2 =0.508				
4th Grade				
1. Charter/Control	-2.103	-0.014	-1.71	0.087
2. Lunch Status	0.851	0.059	6.71	<.001***
3. Gender	0.612	0.028	3.24	0.001**
4. Prior Reading/LA Achievement	0.758	0.766	86.82	<.001***
R^2 =0.622				
* p <.05; ** p < .01; *** p < .001				

Table 4. Elementary Reading/Language Arts Regression Means, Standard Deviations, and Effect Sizes[1]

	Charter				Control			
	N	**M**	**SD**		**N**	**M**	**SD**	**d**
COSLA								
2nd Grade								
TCAP 2005-06 NRT Reading/LA	16	55.63	11.89		2113	50.90	18.49	0.256
TCAP 2006-07 NRT Reading/LA	16	42.81	13.02		2113	43.85	17.98	-0.058
3rd Grade								
TCAP 2005-06 NRT Reading/LA	19	61.00	18.25		5348	44.45	16.90	0.979
TCAP 2006-07 CRT Reading/LA	19	46.74	10.62		5348	42.20	11.77	0.386
4th Grade								
TCAP 2005-06 CRT Reading/LA	19	40.84	8.72		5318	35.91	11.21	0.440
TCAP 2006-07 CRT Reading/LA	19	51.00	7.55		5318	43.02	11.09	0.720
5th Grade								
TCAP 2005-06 CRT Reading/LA	17	39.29	7.74		5177	35.92	10.13	0.333
TCAP 2006-07 CRT Reading/LA	17	37.65	8.70		5177	39.91	11.20	-0.202
Smithson-Craighead Academy								
3rd Grade								
TCAP 2005-06 NRT Reading	32	41.00	16.20		1944	54.67	15.20	-0.899
TCAP 2006-07 CRT Reading/LA	32	40.56	11.54		1944	45.54	11.08	-0.449
4th Grade								
TCAP 2005-06 CRT Reading/LA	28	29.50	9.07		2028	38.88	11.16	-0.843
TCAP 2006-07 CRT Reading/LA	28	37.43	10.15		2028	45.72	10.64	-0.780
Promise Academy								
1st Grade								
TCAP 2006-07 NRT Reading/LA	46	48.72	15.54		1826	49.23	19.51	-0.026
Southern Avenue								
1st Grade								
TCAP 2006-07 NRT Reading/LA	28	56.25	18.22		1826	49.23	19.51	0.360
2nd Grade								
TCAP 2005-06 NRT Reading/LA	21	40.52	24.97		2113	50.90	18.49	-0.559
TCAP 2006-07 NRT Reading/LA	21	36.48	14.66		2113	43.85	17.98	-0.411
Star Academy								
2nd Grade								
TCAP 2005-06 NRT Reading/LA	29	62.00	13.80		2113	50.90	18.49	0.602
TCAP 2006-07 NRT Reading/LA	29	51.52	14.49		2113	43.85	17.98	0.428
3rd Grade								
TCAP 2005-06 NRT Reading/LA	27	44.63	11.26		5348	44.45	16.90	0.011
TCAP 2006-07 CRT Reading/LA	27	44.37	8.02		5348	42.20	11.77	0.185
4th Grade								
TCAP 2005-06 CRT Reading/LA	31	39.58	8.91		5318	35.91	11.21	0.328
TCAP 2006-07 CRT Reading/LA	31	48.03	8.69		5318	43.02	11.09	0.452

[1] Each effect size (or *d)* indicates the number of standard deviations by which the charter school student mean differs from the control student mean.