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Abstract
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Student Achievement, Teacher Experience, Teacher Education, Class Size, Title I, NCLB

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Teacher and School Characteristics:

Predictors of Student Achievement in Georgia Public Schools

Introduction

Recent state-budget constraints have resulted in 34 states and the District of Columbia choosing to cut spending in the area of K-12 education (Johnson, Oliff, & Williams, 2011). Georgia was included in this number. In a report for the Center on Budget and Policy Priorities, Johnson et al. (2011) stated that the decrease in educational funding has caused local school boards to seek ways to reduce spending while still providing a quality education for each student as required by No Child Left Behind. In order to accomplish this task, stakeholders must weigh educational expenditures in terms of their benefit to the overall learning experience and evaluate academic programs to assess their contribution to student achievement.

Literature Review

No Child Left Behind. The No Child Left Behind legislation included polices to address characteristics in the school setting believed to most affect student learning (No Child Left Behind Act of 2001: Statement of Purpose, 2012; No Child Left Behind Act of 2001: Qualifications for Teachers and Paraprofessionals, 2012; No Child Left Behind Act of 2001: National Education Technology Plan, 2012). These characteristics included employing high quality teachers (Southworth, 2010), reducing class size (Milesi & Gamoran, 2006), and integrating technology in education (U.S. Department of Education, Office of Planning, Evaluations and Policy Development, & Policy and Programs Studies Service, 2009).

Funding. As legislators discussed the ramifications of No Child Left Behind, they anticipated that some schools and districts would not be able to meet the standards set without

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assistance (Harding, Harrison-Jones, & Rebach, 2012). In a study of over 14,000 eighth graders during the 2006-2007 school year, Baker and Johnston (2010) confirmed that Title I schools scored significantly lower than non-Title I schools on standardized tests. In an attempt to help these students achieve the same high academic standards as their more economically advantaged counterparts and ensure equality in education, the Title I section of No Child Left Behind provided federal funding to schools serving a large percentage of students from low socioeconomic backgrounds (No Child Left Behind Act of 2001: Statement of Purpose, 2012; U.S. Department of Education, 2011). This funding was to have provided resources and instructional services so that at-risk students would not fall behind academically. Schools receiving these funds were designated Title I schools (U.S. Department of Education, 2011).

High Quality Teachers. One of the objectives of No Child Left Behind was to staff all schools with high quality teachers with an emphasis on improving the quality of those teachers employed in Title I schools (Borman & Kimball, 2005; U.S. Department of Education, 2004). Research on teacher quality both before and since No Child Left Behind has shown that quality teachers affect student learning and have been a powerful predictor of student success (Januszka & Dixon-Kane, 2008; Kane, Rockoff, & Staiger, 2006; Wong, 2004). Before the legislation, states had been allowed to establish their own guidelines for teacher certification and licensing. No Child Left Behind set guidelines for high quality preparation and training for teachers and assigned teachers greater responsibility and accountability for the success of their students (No Child Left Behind Act of 2001: Qualifications for Teacher and Paraprofessionals, 2012).

Researchers who explored teacher quality and student achievement (Borman, 2005; Boyd, Lankford, Rockoff, & Wyckoff 2008; Rivkin, Hanushek, & Kain, 2005; Southworth, 2010) showed that teacher characteristics contributed more variation in levels of student

achievement than any other factor and of the teacher characteristics explored, a teacher's educational experience ranked among the highest of those affecting student achievement. Others (Boyd et al., 2008; Clotfelter, Ladd, & Vigdor, 2006; Jennings & DiPrete, 2010; Wayne & Youngs, 2003; Wong, 2004) agreed on the importance of teacher quality as it related to student success, but disagreed on which teacher characteristics were indicative of quality and which characteristics were most important.

Teachers' education level. Whereas No Child Left Behind stated that a *highly qualified* teacher should hold at least a bachelor's degree, it did not specifically target methods of certification, allowing each state to define certification according to its own needs (No Child Left Behind Act of 2001: Qualifications for Teachers and Paraprofessionals, 2012; U.S. Department of Education, 2004). Believing that full certification through a traditional teaching program at an accredited institution was important, the state of Illinois choose to compare teachers who had attained full certification through this traditional route and those who had acquired certification through an alternate method (DeAngelis, White, & Presley, 2010). During the period of their study, non-Chicago personnel not fully certified decreased by approximately 30% while Chicago personnel not fully certified decreased by over 70% resulting in an increase in state-wide achievement score. These findings led the researchers to believe that teacher education did play a role in student achievement.

Comparing data compiled from the New York City Department of Education, the New York State Education Department, the College Board and programs that provided alternate certification for teachers from 2000 to 2005, Boyd et al. (2008) reported a significant increase in student achievement as the percentage of certified teachers employed rose. Although Boyd et al. believed some of the positive gains in student achievement could be attributed to policy changes;

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they stressed the largest increase appeared to be from the elimination of the policy allowing schools to hire uncertified teachers and providing a program to mentor and retain new teachers. These researchers concluded that employing teachers who were fully certified did indeed make a difference in student achievement in New York.

Others (Harris & Sass, 2007; Kane et al., 2006; Ohlson, 2009) have failed to demonstrate that the education status of teachers made a difference in student success. Harris and Sass (2007) revealed inconsistent results of a link between teacher training and student outcomes, leading them to conclude that there was no relationship between the quality of elementary school teachers and advanced academic degrees. They did report, however, that a teacher's years of experience showed mixed but generally positive results.

Teacher's years of experience. Though a majority of studies on teacher characteristics show that a teacher's years of experience have a positive impact on student achievement (Boyd et al., 2008; Clotfelter et al., 2006; Fry, 2009; Harris & Sass, 2007; Rivkin, Hanushek, & Kain, 2005; Staiger & Rockoff, 2010; Wayne & Youngs, 2003; Wong, 2004), there has been inconsistency on exactly how many years of experience a teacher must have before exhibiting the positive attributes associated with this characteristic. After reviewing the literature on the relationship between teacher experience and student achievement, there appears to be a consensus that at least one year of experience results in positive student success (Boyd et al., 2008; Fry, 2009; Harris & Sass, 2007; Rivkin et al. 2005; Staiger & Rockoff, 2010; Wayne & Youngs, 2003; Wong, 2004).

Class size reduction. One of the most studied factors believed to affect student achievement is teacher to student ratio or class size (Milesi & Gamoran, 2006; Rockoff, 2009), and one of the most extensive studies on class size reduction was Project STAR which began in

Tennessee in 1985 (Tennessee Department of Education, 1990). At the end of their study, the Tennessee State Department of Education reported that smaller class size did have a positive impact on student achievement and began incorporating it throughout their schools. Nye, Hedges, and Konstantopoulos (2004) supported these findings in a later study showing that the results of class size reduction were not only positive but also statistically significant and the effects of this intervention lasted for at least five years after the student's participation in a smaller class.

Although later studies did not refute the claims of the Tennessee Department of Education (1990) and Nye et al. (2004), they instead asserted that the positive impact of class size intervention may have been a result of other factors that took place within the classroom when class size reduction occurred (Achilles, 2009; Folmer-Annevelink, Doolard, Mascareño, & Bosker, 2010; Milesi & Gamoran, 2006; Rockoff, 2009). Chatterji (2005) concurred that class size reduction increased student achievement, however, she was quick to point out that studies on this characteristic rarely addressed what schools and teaches actually do within these smaller classes to facilitate student success.

Computer to student ratio. Another factor addressed in No Child Left Behind was the integration of technology into education (No Child Left Behind Act of 2001: National Education Technology Plan, 2012). In a study using a sample population from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Judge (2005) defined computer to student ratio as the number of students within a school divided by the number of computers available for their use. While reviewing data on the accessibility and adequacy of technology available to her sample population of students, Judge found a positive relationship between student achievement and computer use. Further research by Judge demonstrated that when the

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number of classroom computers increased, student achievement also increased. Other researchers such as Becker (2000) and Page (2002) found support for Judge's findings. Becker found that teachers were more likely to implement technology in their instruction if they were provided with easy accessibility for their students' use.

Assessing Student Achievement in the State of Georgia

Criterion-referenced competency test (CRCT). In an effort to comply with the requirements of No Child Left Behind, the state of Georgia chose as its method of assessment the CRCT (Georgia Department of Education, 2012a). Implementation of this assessment took place in 2002 after consulting an external team of experts on educational standards and assessments to judge its reliability. Before adopting the CRCT, the state of Georgia reviewed educational literature on assessment testing and considered the testing methods employed by other states. After much deliberation, the state of Georgia selected the CRCT to evaluate students' knowledge of the skills taught in the Georgia performance standards to demonstrate student achievement as defined in No Child Left Behind.

Reporting and accountability. Georgia's Education Scoreboard or report card was initiated in 2008 by Governor Sonny Perdue and created by the Governor's Office of Student Achievement as a way to communicate the level of student achievement throughout Georgia (Governor's Office of Student Achievement, 2007a). As the reporting and accountability agency for education in Georgia, the Governor's Office of Student Achievement examines academic records of educational institutions within the state to ensure compliance with federal guidelines (Governor's Office of Student Achievement, 2007b). This agency also reviews all data on student assessments and other school records reported to the Georgia Department of Education

(GaDOE) to establish validity and reliability in both the methods used to collect data and the methods used to report it (Governor's Office of Student Achievement, 2007b).

Information on all aspects of each district and school that affects students and their achievement are then shared with all educational stakeholders through the report card that can be accessed through a link on the Georgia Department of Education homepage (http://www.doe.k12.ga.us/Pages/Home.aspx). All of these reports are made available to educational stakeholders in an effort to verify compliance with the requirements of No Child Left Behind.

Methodology

Based on the review of literature, five predictor variables were selected: (a) Title I status, (b) teacher education level, (c) teacher years of experience, (d) class size, and (e) computer to student ratio. Two criterion variables were selected as measures of student achievement: (a) CRCT reading scores and (b) CRCT mathematic scores.

Unit of analysis. The GaDOE website reports data aggregated for each school; therefore, the unit of analysis for the design is *school*. No individual student or teacher data are reported.

Sample. Data for the 2009-2010 school year came from the GaDOE Web site providing an accessible population of all public schools serving fifth-grade students within the state of Georgia. In an attempt to provide a relatively balanced number of Title I schools to non-Title I schools, a cluster sample was taken from two separate school districts within the state with one being schools served by one of the Regional Educational Service Agencies in the southern portion of the state and the other, a school district in the northern part of the state. Combining these two areas resulted in a target population of 58 Title I schools and 48 non-Title I schools for a total of 106 schools and criterion-referenced competency test scores for over 16,000 fifth-

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graders during the 2009-2010 school year. See Table 1 for a summary of the descriptive statistics.

Table 1
Summary of Descriptive Statistics.

	Minimum	Maximum	Mean	Std. Deviation
Average Years Post-Secondary	4.47	5.91	5.4632	.26420
Average Years Teaching Experience	.88	20.48	12.9760	2.48573
Class Size	8.00	23.00	13.6981	1.73023
Computer to Student Ratio	.00	37.29	4.2649	3.94263
% DNM CRCT Reading	.00	27.00	5.3302	3.81656
% Meets CRCT Reading	40.00	91.00	68.3868	9.37633
% Exceeds CRCT Reading	.00	59.00	26.3396	11.53949
% DNM CRCT Mathematics	.00	32.00	8.6038	5.15785
% Meets CRCT Mathematics	14.00	73.00	45.4528	11.08335
% Exceeds CRCT Mathematics	12.00	84.00	46.2453	14.57644

Procedure. The GaDOE Web site contained data pertinent to each of the 106 schools included in this study and the independent and dependent variables to be analyzed. The GaDOE reported information for each school pertaining to Title I status, personnel data (such as teachers' education level and years of experience), and school demographics (such as class size) through an annual report card. A separate state-wide technology survey provided data on technology use within each school including the overall computer to student ratio. Technology survey data were reported on the GaDOE Web site. Data on each of the independent variables of Title I status,

teachers' education level, years of experience, class size, and computer to student ratio were compiled for the 106 sample schools to be analyzed for its correlation to the dependent variables.

The five independent variables of this study represented characteristics believed to play an important role in student achievement. Trends in the literature had shown that low socioeconomic background adversely affected scores on standardized tests (Baker & Johnston, 2010; Harding et al., 2012; Rouse & Barrow, 2006; Sirin, 2005). Based on the review, Title I status was considered an important variable to include in the present study. Since information is not provided for individual students, Title I and non-Title I status was used as a school category measure. Teachers' education level was defined using a numerical scale representative of the number of years that it typically takes to obtain a specific degree with four for a bachelor's, six for a master's, seven for a specialist, and eight for a doctorate. These numbers were then combined to provide the average years of post-secondary education or average education level representative of the teachers in each of the schools. The GaDOE calculated the average years of experience of the teachers within a school from information provided to them through each school's annual report and have shared this average on the personnel tab of the report card. Class size or the teacher to student ratio within a school was shown as a ratio of classroom teachers to students. For the purpose of analysis, this ratio was converted to its single numerical quotient. The last of the independent variables, computer to student ratio, was also recorded by converting the ratio provided by the GaDOE Web site into a single numerical quotient.

The GaDOE web site reported the percentage of students receiving CRCT reading and mathematics scores on the basis of three categories: *Does Not Meet* (below 800), *Meets* (800-849), and *Exceeds* (850 or above). Results from reading and mathematics section of CRCT reported on the GaDOE website, were compiled for the 106 sample schools for the 2009-2010

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school year. Separate analyses were conducted on the percentage of students in each of the three categories. The approach results in three variables for CRCT reading and three variables for CRCT mathematics. Subsequent analyses provided results on the differential relationship of the predictors to the three different CRCT standards for reading and mathematics.

Results

Collinearity diagnostics. Initial bivariate correlation analyses among the five predictors indicated that none of the intercorrelations reached .80. Six of the paired correlations were significant ($p > .05$). These significant correlations ranged from a low of -.231 to a high of .633. Additional collinearity diagnostics were examined through a Tolerance index. A Tolerance value of .01 or less would have been indicative of collinearity. Tolerance statistics for predictors ranged from a low of .429 to a high of .704. All Tolerance values were well above .01.

Multiple regression models. Six regression models were conducted to account for the variability in percentage of students classified as *Does Not Meet, Meets,* and *Exceeds* on the reading portion of the CRCT and percentage of students classified as *Does Not Meet, Meets,* and *Exceeds* on the mathematics portion of the CRCT. Each regression model included the same five predictors: (a) Title 1 status, (b) teacher education, (c) teacher years of experience, (d) class size, and (e) computer to student ratio. All six multiple regression analyses were statistically significant. Many of the bivariate correlations depicted in the tables that follow show significant relationships between IVs and DV; however, when all five IVs are included in the regression model, the redundancy of the relationships result in fewer variables accounting for unique variance and therefore, do not reach statistical significance.

Does Not Meet CRCT Reading. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 32.6% of the variability in percentage of

students who did not meet the CRCT reading standards, $F(5, 100) = 9.69$, $p < .001$. Four of the predictors were statistically significant. The percentage of students who did not meet the CRCT reading standards was 3.02% higher for Title I schools than for non-Title I schools ($p < .001$). For every one-unit increase in a teacher education level, the percentage of students who did not meet CRCT reading standards increased by 3.36% ($p = .043$). For each additional year of experience that a teacher acquired, the percentage of student who did not meet CRCT reading standards decreased by .549% ($p = .005$). For every increase of one student to the overall class size, the percentage of students who did not meet the CRCT reading standards decreased by .579% ($p = .009$) (see Table 2).

Table 2

Summary Coefficients for Multiple Regression Model on Percent of Students Failing to Meet CRCT Reading Standards.

Variable	B	Beta	*p*
Title I Status	3.018	3.96	< .001
Average Education	3.36	.233	.043
Average Experience	- .549	- .357	.005
Class Size	- .579	.263	.009
Computer/Student Ratio	.004	.004	.968
Constant	.36		.967

Meets CRCT Reading. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 53.8% of the variability in percentage of students who met the CRCT reading standards, $F(5, 100) = 23.25$, $p < .001$. One of the predictors

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was statistically significant. The percentage of students who met the CRCT reading standards was 12.88% higher for Title I schools than for non-Title I schools ($p < .001$) (see Table 3).

Table 3
Summary Coefficients for Multiple Regression Model on Percent of Students Meeting CRCT Reading Standards.

Variable	B	Beta	*p*
Title I Status	12.88	.687	< .001
Average Education	1.23	.035	.713
Average Experience	- .688	- .182	.082
Class Size	- .148	- .027	.737
Computer/Student Ratio	.044	.019	.821
Constant	65.39		< .001

Exceeds CRCT Reading. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 57.8% of the variability in percentage of students who met the CRCT reading standards, $F(5, 100) = 27.37$, $p < .001$. Two of the predictors were statistically significant. The percentage of students who exceeded the CRCT reading standards was 15.68% lower for Title I schools than for non-Title I schools ($p < .001$). For every year of experience attained by a teacher, the percentage of students who exceeded the CRCT reading standards increased by 1.228% ($p = .009$) (see Table 4).

Table 4

Summary Coefficients for Multiple Regression Model on Percent of Students Exceeding CRCT Reading Standards.

Variable	B	Beta	*p*
Title I Status	-15.68	-.679	< .001
Average Education	-4.18	-.096	.289
Average Experience	1.23	.265	.009
Class Size	.719	.108	.167
Computer/Student Ratio	-.038	-.013	.869
Constant	32.11		.124

Does Not Meet CRCT Mathematics. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 38.6% of the variability in percentage of students who did not meet the CRCT mathematics standards, $F(5, 100) = 12.56$, $p < .001$. Three of the predictors were statistically significant. The percentage of students who did not meet the CRCT mathematics standards was 3.54% higher for Title I schools than for non-Title I schools ($p = .001$). For every increase of one student to the overall class size, the percentage of students who did not meet the CRCT mathematics standards decreased by 1.08% ($p < .001$). For every year of experience attained by a teacher, the percentage of students who did not meet the CRCT mathematics standards decreased by .728% ($p = .004$) (see Table 5).

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Table 5

Summary Coefficients for Multiple Regression Model on Percent of Students Failing to Meet CRCT Mathematics Standards.

Variable	B	Beta	*p*
Title I Status	3.54	.343	.001
Average Education	2.27	.116	.285
Average Experience	- .728	- .351	.004
Class Size	- 1.08	- .362	< .001
Computer/Student Ratio	.136	.104	.272
Constant	17.90		.112

Meets CRCT Mathematics. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 39.3% of the variability in percentage of students who met the CRCT mathematics standards, $F(5, 100) = 12.94$, $p < .001$. One of the predictors was statistically significant. The percentage of students who met the CRCT mathematics standards was 13.54% higher for Title I schools than for non-Title I schools ($p < .001$) (see Table 6).

Table 6

Summary Coefficients for Multiple Regression Model on Percent of Students Meeting CRCT Mathematics Standards.

Variable	B	Beta	*p*
Title I Status	13.54	.611	< .001
Average Education	2.99	.071	.509
Average Experience	- .269	- .06	.613
Class Size	- .256	- .040	.668
Computer/Student Ratio	.136	.048	.6.07
Constant	28.10		.241

Exceeds CRCT Mathematics. A direct multiple regression analysis revealed that the combination of the five predictors accounted for 43.0% of the variability in percentage of students who exceeded the CRCT mathematics standards, $F(5, 100) = 15.09$, $p < .001$. One of the predictors was statistically significant. The percentage of students who exceeded the CRCT mathematic standards was 16.56% lower for Title I schools than for non-Title I schools ($p < .001$) (see Table 7).

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Table 7

Summary Coefficients for Multiple Regression Model on Percent of Students Exceeding CRCT Mathematics Standards.

Variable	B	Beta	*p*
Title I Status	- 16.56	- .568	< .001
Average Education	- 7.71	- .140	.183
Average Experience	1.13	.193	.098
Class Size	1.33	.158	.083
Computer/Student Ratio	- .354	- .096	.295
Constant	66.07		.032

Discussion

Designation as a Title I school consistently accounted for the observed variance in percentage of students failing to meet, meeting, and exceeding the scoring standards on the reading and mathematics portion of the CRCT by fifth-grade students in Georgia public schools. However, analyses revealed that Title I school status was not always positively related to those percentages. In Title I schools, a higher percentage of students received scores of *Does Not Meet* CRCT reading (3.02%) and *Does Not Meet* CRCT mathematics (3.54%) when compared to non-Title 1 schools. However, a lower percentage of students in Title I schools received scores *Exceeding* in CRCT reading (15.67%) and *Exceeding* in CRCT mathematics (16.56%) when compared to non-Title I schools. The advantage of Title I school designation appeared to benefit student achievement when looking at the percentage of students who met the CRCT standards. For example, in Title I schools 12.88% of the students received a score of *Meets* on the reading

portion of the CRCT and 13.541% of the students received a score of *Meets* on the mathematics portion of the CRCT.

Based on these results and a review of previous literature on Title I status and low socioeconomic status (Baker & Johnston, 2010; Harding et al., 2012; Rouse & Barrow, 2006; Sirin, 2005), these findings suggest that funding may not be the only obstacle that needs to be addressed when dealing with students from low-socioeconomic backgrounds. An implication of this study, supported by previous research, was that there may be other factors that affect the education and learning of students identified as being from low-socioeconomic backgrounds such as parental education level, parental support and encouragement of their child's education, and access to educational opportunities and preparation outside of the school setting (Baker & Johnston, 2010). Another factor to consider was that this research had no baseline of low-socioeconomic schools without federal funding to compare with Title I schools. Instead we evaluated achievement of students in Title I schools against that of students in non-Title I schools assuming that, excluding low-socioeconomic status as a factor, all other characteristics of students in these two settings would be similar. Without a baseline of low-socioeconomic schools receiving no federal monies to compare, it was difficult to determine the actual correlation of Title I funding to the achievement of students from low-income homes.

Previous literature on teacher quality has shown that while many researchers agreed on the importance of teacher quality, disagreements existed on the role of teacher quality in the success of students (Boyd et al., 2008; Clotfelter, Ladd, & Vigdor, 2006; Jennings & DiPrete, 2010; Southworth, 2010; Wayne & Youngs, 2003; Wong, 2004). The results of this study did not definitively refute those claims. An analysis of teachers' education level showed that every increase in the level of education attained by a classroom teacher resulted in a 3.36% increase in

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percentage of students who received a score of *Does Not Meet* in CRCT reading after controlling for the other predictor variables within this model. Although these findings indicate that a teacher's years of post-secondary education may be negatively associated to low-achieving student, they do not indicate any positive or negative associations with percentage of students receiving scores of *Meets* or *Exceeds* on either the reading or the mathematics portion of the CRCT. When reviewing the data on teachers' education level as reported to the GaDOE, no distinction is made between teachers attaining higher degrees in the field of education and those who hold higher degrees in other fields. There was also no distinction between teachers certified by traditional means through accredited teaching programs and those who received certification through alternate methods. In this case, it may have been beneficial to evaluate the educational program that made up the years of post-secondary and determine if that program actually contributed to the teachers' knowledge of more effective classroom strategies and practices.

When looking at the unique contribution of years of experience, we found an advantage in that each additional year of teacher's experience led to a decrease of .549% in students receiving *Does Not Meet* CRCT reading scores and an increase of 1.228% in students receiving *Exceeds* CRCT reading scores. Similarly, the relationship years of experience and CRCT mathematics scores showed that for each additional year of teacher experience, the percentage of students who received a score of *Does Not Meet* on the mathematics portion of the CRCT decreased by .728%. An implication of this analysis was that teacher experience contributed positively to student achievement. However, when looking at the overall picture, the results showed that for each additional year of teaching experience, approximately 1 student in every 200 would no longer make a score of *Does Not Meet* on CRCT reading and mathematics and approximately 1 student in every 100 will make a score of *Exceeds* in reading. When viewed in

this manner, the contribution of a teacher's years of experience was minimal although generally positive. As suggested by Southworth (2010), the effects attributed to the characteristics of teacher quality such as years of post-secondary education and years of experience may have been intercorrelated with other teacher characteristics or instead be a result of other school conditions such as the student population.

One of the more significant findings to emerge from this research related to class size reduction. Previous research on class size reduction, such as Project STAR, had demonstrated that smaller classes have a positive impact on student achievement (Tennessee State Department of Education, 1990). However, results of this investigation revealed that as class size increased the percentage of students receiving scores of *Does Not Meet* in CRCT reading and *Does Not Meet* in CRCT mathematics decreased by .579% and 1.078%, respectively. In general, it seems that smaller class size does not contribute to student success, contrary to expectation. Some explanations for this discrepancy may have included small group instruction within the classroom and peer to peer tutoring which provided students with the benefits of a smaller class environment within the larger class structure.

The expectation that computer to student ratio played a significant role in student achievement when this predictor variable was not demonstrated to be significant to CRCT test scores at any level in either reading or mathematics. Although these results were highly unexpected, Becker's study (2000) had shown a 1:4 ratio to be the pivotal point at which student success was impacted. However, this study occurred during a time when a 1:4 ratio of computers to students was an increase in technology in a majority of schools. Since that time, studies such as those conducted by Suhr, Hernandez, Grimes, and Warschauer (2010) and Shapley et al. (2010) have shown that a 1:1 ratio of computers to students results in the strongest contribution

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to student achievement. When each child has a computer of their own, then they have an equal opportunity to reap the benefits that technology can provide to education. When sharing a computer, whether at a ratio of 2:1 or 10:1, equal access to that educational resource and its benefits to students unrealistic.

Conclusion

The findings of this research suggest that designation as a Title I school is strongly related to results on CRCT reading and mathematics; however, being a Title I school does not always positively affect the outcomes on these tests. One implication that can be made is that Title I funding is making a difference when related to student achievement but stakeholders may need to determine exactly which programs or curriculum purchased with this funding is making the most positive difference and make every effort to implement those into the educational setting.

Teacher quality as evidenced by teachers' education level and years of experience, showed mixed results when related to student achievement similar to results of previous research (Harris & Sass, 2007; Kane et al., 2006; Ohlson, 2009). Before discounting teacher quality as an indicator of student success, it may be informative to conduct a qualitative study of teachers in classes where students consistently score well on the CRCT to try to determine what other factors may contribute to teacher quality. More information on exactly what characteristics a quality teacher possesses might result in a more accurate picture of those factors and their impact on achievement.

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