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AN EXAMINATION OF THE RELATIONSHIP BETWEEN GEORGIA'S SCHOOL
CLIMATE STAR RATING AND STUDENT PERFORMANCE IN READING AND
MATH ON THE CRITERION-REFERENCED COMPETENCY TEST

By

Timothy S. Smith

A Dissertation
Submitted in Partial Fulfillment
of the Requirements for
the Degree of Doctor of Education
in Curriculum and Leadership

Columbus State University
Columbus, GA

April 2015

Dedication

This study is dedicated to my late grandfather, Harold Reiner. He was the hardest worker I have ever known, a man who modeled that there is no substitute for hard work. Charles Kingsley, an Anglican clergy man and writer from the 1800s once said, “Being forced to work, and forced to do your best, will breed in you temperance and self-control, diligence and strength of will, cheerfulness and content, and a hundred virtues which the idle will never know.” This exemplifies the lessons my grandfather’s life taught for which I will be forever grateful.

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Next, after God, is my loving, beautiful wife Amy. She has been the amazing illustration of love, encouragement, and support I have needed to persevere until the end. When I lost interest, she was the source of motivation I needed. Thank you, Amy; my life is better because of you! I love you!

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Abstract

This researcher uncovered the fact that most state departments of education in the United States do not track or focus on professional development for school leaders on the issue of school climate. However, the state of Georgia has made substantial efforts in bringing the importance of school climate into the assessment of schools. The purpose of this study was to determine whether Georgia's School Climate Star Rating (SCSR) had an effect on its Criterion-Referenced Competency Test (CRCT) in Reading and Math achievement. Additionally, the researcher sought to determine the effect of Title I/non-Title I status, SCSRs, and the interaction between the two on CRCT Reading and Math achievement. The selected population contained students in 3rd through 8th grade. Schools were placed into one of three different SCSR groups depending on their rating. Collected data were compiled from 43 schools, 31 elementary and 12 middle—all from the same school district. The data included SCSR scores, CRCT Reading and Math mean scores, number of participants, and Title I/non-Title I status. The researcher found that a statistically significant amount of the variance in Reading and Math achievement is attributed to the SCSR. The difference in the Title I/non-Title I groups across combined Reading and Math variables and the interaction between the Title I/non-Title I groups and Reading and Math achievement was statistically significant. The findings of this study as well as the review of related literature underscored the importance of either beginning or continuing to develop a focus on the climate of schools was underscored by the findings of the researcher as well as the review of related literature.

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Chapter 1 – Introduction

Introduction

In 2012, Fisher, Frey, and Pumpian published a book about school cultures which achieve academically. They asserted that schools, within their cultures, must deliberately groom their climates, school climates which augment the school's mission, vision, purpose, and responsibilities. School leaders need to ponder whether their school is a welcome and inviting place, whether it is a place where people can feel comfortable and believe they are about to have an amazing experience (Fisher, Frey & Pumpian, 2012). Educators and researchers alike have come to a consensus that the culture and climate of a school impacts, either positively or negatively, all stakeholders, including the students, faculty and staff, parents, and the community, as well as student achievement (Dieringer, 2011). Amidst demands of schools which include more rigorous instructional standards and curriculum, instruction which students connect with on a personal level, 21st century learning, the incorporation of technology, and relevant professional development, effective school cultures and climates exist when teachers have a desire to teach, and students have a desire to learn (Mendler, 2012).

The Wallace Foundation (2013), a group who have dedicated their time and efforts to improving public school leadership, identified five key practices embodied in effective principals. One of these practices is developing a climate conducive to student achievement, a practice which requires placing learning at the center of everything done in a school. Consequently, principals guiding schools with strong instructional climate

ratings outperform other principals in the development of an atmosphere exuding trust and caring (The Wallace Foundation, 2013); hence, the importance of such a study.

Statement of the Problem

Members of the National School Climate Center (NSCC), the Center for Social and Emotional Education (CSEE), and the Education Commission of the States (ECS) collaborated on a project in which they identified the challenges facing schools in regards to school climate (National School Climate Center, or NSCC, the Center for Social and Emotional Education, or CSEE, & the Education Commission of the States, or ECS, 2007). Participants in this study identified five significant complications in relation to the research and policy regarding school climate. First, there are evident discrepancies with how school climate is defined. Second, state legislators have historically done a subpar job of quantifying the value of school climate. Next, there is a dearth of leadership in state departments of education in regards to school climate. Fourth, leaders in many states do not incorporate school climate into how schools are being held accountable; rather, school climate has been sequestered to areas like special education, school safety, and health. Lastly, many states are not progressive enough to have already developed standards for schools which emphasize quality and improvement, standards which would connect schools to avenues where assistance could be provided (NSCC et al., 2007).

Fisher et al. (2012) believe that in many schools, school culture is the unspoken, embedded, controlling influence working behind the scenes. However, this is not an accurate location for culture to entrench itself. School culture should be visible and viable; it should be part of the ongoing conversations of school improvement efforts. In its prime, school culture is embraced by stakeholders, is used to promote a positive

learning environment on a consistent basis, is shown to reveal a common belief of a shared participation in excellence, and is a means of enjoyment, self-fulfillment, and devotion to a communal mission and vision (Fisher et al., 2012).

Sparks (2013), maintains that beneficial training on creating a strong culture and climate in the workplace is seen in the colleges of business, but not in colleges of education where solid academic foundations are the focus. Actually, the training of principals in school culture and climate is virtually non-existent in leader preparation programs at universities as well as in professional development provided by school districts (Sparks, 2013). This is tragic because school climate as well as stakeholder morale, behavior, and motivation have been dominant themes in schools for decades (Whitaker, 2012a).

Furthermore, Sparks (2013) asserts that most state departments of education in the United States do not track professional development for school leaders on school climate. Because of this, administrators in organizations responsible for training principals in needed skills are just now beginning to acknowledge the need of a focus on building relationships in addition to academics and data. An additional challenge in the creation and development of a school climate is the personal culture each student brings with him from home (Fisher et al., 2012). These personal cultures need to be acknowledged and addressed in some capacity within the culture of the school.

Purpose of the Study

The Georgia Department of Education (GADOE) has developed a new leader evaluation to align with the federal requirements, the Leader Keys Evaluation System, or LKES (Georgia Department of Education, or GADOE, 2014b). Within the LKES, a

comprehensive system has been constructed which incorporates eight standards with which to assess the leadership guiding public schools—this system is called the Leader Assessment on Performance Standards (LAPS). The assessed standards include instructional leadership, school climate (which directly impacts school culture), planning and assessment, organizational management, human resource management, teacher/staff evaluation, professionalism, communication, and community relations (GADOE, 2014b).

Additionally, principals and assistant principals are required to set two personal leadership goals and provide documentation for progress towards meeting these goals. One of these two goals must address an aspect of a school’s annual School Improvement Plan, or SIP (GADOE, 2014b). School-wide achievement data focused on individual student growth are factored in along with certified and classified personnel surveys.

In the process of this study, the researcher analyzed the School Climate Star Rating (SCSR) and its impact on Reading and Math achievement. The SCSR is determined by the Georgia Elementary School Climate Survey (for elementary school students) or the Georgia Student Health Survey 2.0 (for middle and high school students), the Georgia Parent School Climate Survey, and the Georgia School Personnel Survey (GADOE, 2014b).

Climate surveys shall be used by the evaluator as documentation of leader effectiveness. The climate survey data will be used to inform leaders’ ratings on the *Formative Assessment*, if available, and shall be used to inform leaders’ *Summative Performance Evaluation* ratings on all Performance Standards. Commentary specifically related to the climate surveys will be included for all Performance Standards in the *Summative Performance Evaluation*. If the LAPS

ratings and survey results on any of the standards are inconsistent, the evaluator is required to provide justification. (GADOE, 2014b, p. 13)

The purpose of this study was to determine if there were relationships between the data after examining all elementary and middle schools, except one, within a Southeastern United States urban school district—a total of 43 schools: 31 elementary schools and 12 middle schools.

Research Questions

The researcher produced the following research questions for consideration:

1. What effect does Georgia's SCSR have on students' Reading and Math achievement on the Criterion-Referenced Competency Test (CRCT)?
2. What effect does Title I or non-Title I status, the SCSR, and the difference between the two have on Reading and Math CRCT achievement?

Reading and Math were selected because these are the two subject areas which have received the most attention by the selected school district used in this study at the elementary school level, kindergarten through the fifth grades. To increase the sample size for this study, middle school CRCT results were utilized.

Significance of the Study

Leaders in public education are facing a profound conundrum to not only improve student achievement, but also to diminish the student achievement gap, despite being challenged with a variety of learning levels within any given classroom environment (Dieringer, 2011). "The gap between greater success for some and repeated failure for

others is attributable, in part, to the great divide between efforts to improve teaching and learning and efforts to improve climate and culture” (Dieringer, 2011, p. 2).

Under the changes spelled out in the *Recovery Act* and the Common Core State Standards, or CCSS, utilizing student achievement to guide teaching and learning is being mandated of teachers. Standards infused with rigor provide the goals for student success. Persons in charge of this approach all but guarantee initial data reports will cast a negative light on schools (Duncan, 2009a).

In light of these dramatic changes, school and classroom climate has never been more important. As concerns for student learning intensify, accountability for school leaders is taking center stage in the analysis of teaching and learning. The field of education has become an increasingly complex environment in which educational leaders must navigate (Vollmer, 2010; Center for Educational Policy Analysis, 2003). Requirements for schools now encompass achievement benchmarks, curriculum standards, program requirements, and other miscellaneous mandates, all of which comes from sources which vary, providing unpredictable complications. Student characteristics are becoming increasingly diverse whether it is because of varying learning capacities, mental and physical disabilities, disproportionate family income, cultural background, citizenship status, or a combination of one or more of these. Also, social agencies have become major players in providing student support in a number of these areas (Center for Policy Analysis, 2003).

At a time when advocates of so many issues are converging on the classroom, it becomes imperative to ensure a strong school climate by remembering any success schools experience is directly attributed to people, not programs (Whitaker, 2012a;

Whitaker, 2012b). Not only should there be an acknowledgement of the importance of people over programs, there also needs to be an understanding of the relationship behaviors and beliefs have to emotion. Emotion is a strong influence on behaviors; it deserves acknowledgement and respect and will often stimulate change (Whitaker, 2012a; Whitaker, 2012b).

Assumptions

To a degree, assumptions within a research study are beyond the jurisdiction of the researcher; however, the relevance of the study is dependent upon their existence (Simon, 2011). The researcher's first assumption was that all schools that were examined administered both the certified and classified personnel surveys during the 2013 – 2014 school year. Along with this, it was assumed that the surveys were given under the conditions prescribed by the GADOE – that there was no tampering with respondents in a manner which would skew survey results or call into question their validity.

The second assumption was that all elementary and middle schools in this study administered the CRCT to all 3rd through 5th grade and 6th through 8th grade students respectively in the 2013 – 2014 school year. Again, it was assumed that proper testing protocols and procedures were implemented with fidelity and any potential irregularities and/or invalidations were reported as required in a prompt, ethical manner utilizing state and district reporting expectations.

Lastly, with the increase in the recognition of the importance of school climate to school effectiveness, it was understood that schools with positive school climates do not operate in isolation. These schools experience success through the support of the community within the climate of the community. It was assumed that school climate is

central to state accountability and assessment systems for schools (National School Climate Center et al., 2007).

Limitations

Limitations are conceivable, or inconceivable, faults within a research study. It is important to identify them and provide clarification for how, despite their possibilities, they will not hinder the study (Simon, 2011). One limitation of the study was that this was the first year schools in Georgia were required to use this leader evaluation process. However, data were available from state climate surveys which were administered in numerous schools across Georgia who had piloted the new leader evaluation. These schools received an SCSR score based on certified and classified staff feedback from the 2013 – 2014 school year.

In the district used for this study, a number of the schools had first year principals, which may affect the school's culture and climate. Additionally, two schools closed at the end of the 2013 – 2014 school year and merged at a new location which opened for the 2014 – 2015 school year. Also, one elementary school had closed the previous year, 2012 – 2013, which caused a number of teachers to be displaced to other locations, providing an impact, some potentially positive, some potentially negative, on other schools' cultures and climates. That being said, we can operate under the assumption that public school teachers in Georgia are professional individuals who operate under the Code of Ethics which has been adopted by the Georgia Professional Standards Commission (GAPSC).

Another limitation is that the schools used in this study came from the same school district. Some contend this is a sample of convenience; however, each of the 31

elementary schools and 12 middle schools were investigated within the study. Within these 43 different schools, there were a variety of populations based on race and family economic conditions spanning the school district. Since the schools that were investigated are all from the same school district, this study's results are only suggestive in nature (Simon, 2011).

There is one last limitation to note. In the *Georgia Student Health Survey II* (GSHS II), middle school students are asked to acknowledge their use or abuse of alcohol as well as illegal and prescription drugs. Part of the SCSR is dependent on student responses given (Watson & Hodges, 2014; Kramer, Watson, & Hodges, 2013). In observing the student data of two random middle schools, each in different regions of the same school district used for this study, none of the students disclosed any use of alcohol and illegal or prescription drugs.

Delimitations

The schools that were utilized in this study came from an urban school district in Central Georgia, a state within North America, a district which educates approximately 32,000 total students in pre-kindergarten through twelfth grade. All the elementary and middle schools in the district were utilized in this study. The results of this study may or may not be generalizable to public educators teaching in public schools which operates under the *Recovery Act*.

Definition of Terms

There were specific terms used within the parameters of this study. These terms are defined below:

Common Core State Standards (CCSS) – State superintendents and governors from 48 of the 50 United States reached consensus on the new CCSS. These standards provide the necessary framework for teachers to ensure their kindergarten through twelfth grade students are college and career ready. The CCSS address literacy, English language arts and math. As of 2014, 43 of 50 states, Georgia being a part of the majority, have embraced these new standards and are working toward their full implementation. Their end goal is to guarantee students the opportunity to either enter two or four year college programs or enter the workforce (Common Core State Standards Initiative, 2014).

Additionally, they have a strong expectation for depth and understanding and call for students to build speaking and presentation skills in order to enhance communication, collaboration, and critical thinking skills (Larmer & Mergendoller, 2012).

Recovery Act of 2009 – The *Recovery Act of 2009* is federal legislation designed to save and create jobs. It pushes educational reform with four specific actions: robust data systems, teacher and principal quality, dramatically improving worst performing schools, and rigorous standards and assessments (Duncan, 2009b).

- Robust data systems – these systems assist school districts in identifying the strongest and weakest administrators. They also assist principals in identifying the strongest and weakest teachers. Theoretically, teachers could be traced back to colleges of education which would foster improved teacher education programs (Duncan, 2009b).
- Teacher and principal quality – increasing teacher and principal quality calls for a strong focus on the recruitment, training, and support of teachers and principals.

Alternative education and performance or incentive pay for educators (Duncan, 2009b) are considerations to be addressed by officials with open minds.

- Rigorous standards and assessments – these items are internationally competitive and provide a foundation for success in college and/or careers (Duncan, 2009b).

School climate – this refers to the value and atmosphere of a school’s day-to-day life.

There are four primary aspects which must be considered in assessing a school’s climate: the external setting, relationships, safety, and teaching and learning (National School Climate Center, 2014). The climate of a school is realized by the perceptions of stakeholders as well as the impressions of visitors (Dieringer, 2011), shaped by instructional practices which are aspects of school culture. The general management of a school facility and levels of student achievement also play a distinct role in the climate of a school (Saufler, 2006).

School culture – the culture of a school is defined by beliefs, attitudes, norms, values, and traditions. These things reflect the overt as well as the unspoken (Dieringer, 2011). An effective school culture is a byproduct of a strong school climate; they work interactively, but are not one and the same (Saufler, 2006; Gruenert, 2008).

The Leader Keys Effectiveness System (LKES) – an evaluation system which encompasses three mechanisms which work together to produce an overall score, a Leader Effectiveness Measure, (LEM). These three mechanisms are the Leader Assessment on Performance Standards, or LAPS, governance and leadership as well as student growth/academic achievement (GADOE, 2014b).

- Leader Assessment on Performance Standards (LAPS) – a rubric-based approach affording evaluators a qualitative method to gauge leader performance in light of

the eight performance standards. During this process, two performance goals are set, leadership practices are documented and evaluator observations occur (GADOE, 2014b).

- Governance and leadership – annual climate surveys are given to determine certified and classified staff perception data. These surveys address aspects of all eight performance standards and are assessed at the end-of-year summative conference. School climate, one of eight standards, is assessed additionally using student attendance data (GADOE, 2014b).
- Student growth/achievement – the state of Georgia has implemented three measures to depict student growth:
 - Student growth percentile (SGP) – this measure was implemented for teachers teaching courses assessed by standardized tests (GADOE, 2014b).
 - Student learning objective (SLO) – these are assessments developed by local school districts, approved by the state department of education, for teachers of students taking courses which do not provide standardized tests to allow a measure of student growth (GADOE, 2014b).
 - Achievement gap reduction – this measure depicts how successfully a school is reducing the achievement gap (GADOE, 2014b).

Conclusion

“An effective school culture will provide students a respectful mediating experience through which they can understand, examine, affirm, modify, or change understandings of the world and how they want to engage in it” (Fisher et al., 2012, p. 9).

These authors further assert respect, tolerance, and understanding must be taught to students. Expectations of these actions being displayed in student interactions should remain inflexible; they are crucial to an effective school culture and its climate (Fisher et al., 2012).

Due to the recent focus placed on the climates of schools by federal and state education departments, it is clear that the culture and climate of a school are no longer aspects of the school setting that can be avoided and ignored. The purpose of this study was to examine the effect the SCSR had on CRCT Reading and Math achievement. The researcher also examined the effect of Title I/non-Title I status, the SCSR, and the difference between the two on CRCT Reading and Math achievement. School culture and climate must be pushed to the forefront of educational leadership practices if we truly desire to see the academic and social growth of our country's students. It is incumbent upon local boards of education to insist that this focus remains visible as well as targeted in their classrooms. An additional inescapable conclusion is colleges of education must prepare their students to develop educational settings for students which encourage safety, engagement, and dedication.

Chapter 2 – Review of Literature

Introduction

Officials of the National School Climate Center, or the NSCC (2014), asserts previous research has established a link between school climate and academic achievement. In light of this assertion, the purpose of this study was to investigate to what extent there was a relationship between school climate and student achievement. In assembling this review of literature, the researcher probed the concept of workplace climate and then focused specifically on school climate, looking at the characteristics of successful leadership needed to incorporate a strong school climate, and addressing common leadership barriers to the levels of success targeted by schools.

Harris Interactive (2013) conducted a survey for MetLife addressing the current challenges facing school leadership. Assessors illustrated a remarkable deterioration over the last five years in teacher satisfaction. In some areas, levels were at the lowest they had been in the last 25 years. Never has a strong school climate been more crucial for the future success of American schools and the students attending them.

In recent years, the world of education has witnessed some amazingly controversial practices implemented for the sake of school improvement which have been extremely damaging to the morale of teachers (Harvey, 2014). To point, a few years ago, Washington, D.C. hired an aggressive chancellor, Michelle Rhee, to lead their school system. A Public Broadcasting Service (PBS) special, *Learning Matters*, centered about her leadership. At one point during its filming, she invited the producer, John Merrow, and a camera crew to join her as she terminated a principal (Harvey, 2014). Additionally,

about a year before the aforementioned special was aired on PBS, public schools in Los Angeles released individual teacher evaluation results by name to the *Los Angeles Times* wherein the results were published. This action led to a previously decorated teacher committing suicide. Surprisingly, New York City followed suit and released their teacher results to the *New York Post* for publication. This newspaper actually identified the worst teacher in the city, one who had given his life to teaching some of the most challenging students public schools are required to educate (Harvey, 2014).

These are mere examples of actions which have been taken in the name of improving schools. Actions, which if not implemented judiciously and with appropriate data for decision-making, can be detrimental to the school improvement process. It is imperative that drastic action be undergirded with strong data which has been analyzed for its impact on the climate of a school (Lindahl, 2011).

Workplace Climate

Gallup (2013) issued a report sharing the results of a poll which was conducted in 2012 on the levels of engagement of American employees in the workplace. In organizations around the world, employees who are engaged are the essence of organizational success. Organizations with higher levels of engagement display substantially superior levels of production, profitability and stakeholder approval. These organizations also experience fewer issues with employee retention, absenteeism, and workplace safety (Gallup, 2013).

The Gallup report (2013) also disclosed that a meager 22 percent of employees in the United States are physically and emotionally connected, or engaged, to their work and flourishing. Not only are 52 percent of United States employees not engaged with their

job, there are another 18 percent who are wholeheartedly disengaged with their job. It is estimated these disengaged workers contribute to lost productivity of an estimated \$450 to \$550 billion per year. These are the employees most prone to absenteeism, poor customer service, and destructive behaviors impacting their coworkers, as well as misappropriation of funds and even embezzlement (Gallup, 2013). Unhealthy school climates may result from a combination of the following: an ineffective leader, miserable teachers and/or stakeholder demands (MacNeil, Prather & Busch, 2009).

Within a workplace culture, there are three basic types of employees: the engaged, those not engaged, and the actively disengaged (Gallup, 2013). Most organizations will have employees in each category; however, officials should strive to hire engaged individuals and eliminate the actively disengaged—two practices needing a leader’s full attention due to the importance of morale in the workplace. Gallup (2013) defined the three different categories of employees in the following ways:

- Engaged employees are the best colleagues. They cooperate to build an organization, institution, or agency, and they are behind everything good that happens there. These employees are involved in, enthusiastic about, and committed to their work. They know the scope of their jobs and look for new and better ways to achieve outcomes. They are 100% psychologically committed to their work. And, they are the only people in any organization who create new customers.
- Not engaged workers can be difficult to spot: They are not hostile or disruptive. They show up and kill time with little or no concern about customers, productivity, profitability, waste, safety, mission and purpose of

the teams, or developing customers. They are thinking about lunch or their next break. They are essentially “checked out.”

- Actively disengaged employees are more or less out to damage their company. They monopolize managers’ time; have more on-the-job accidents; account for more quality defects; contribute to “shrinkage,” as theft is called; are sicker; miss more days; and quit at a higher rate than engaged employees do. Whatever the engaged do—such as solving problems, innovating, and creating new customers—the actively disengaged try to undo. (Gallup, 2013, p. 21)

Obviously, every characteristic listed above does not necessarily pertain to the school setting; however, many of them directly pertain to school culture and climate. The success, or lack thereof, of organizational health is dependent on the quality of an organization’s employees (Gallup, 2013; MacNeil et al., 2009; Kotter, 1996; DuFour & Eaker, 1992).

Through observing organizational health and success, leaders in every organization are looking for a competitive edge to push employees beyond their peer group with the intent to maintain a lead in their respective sectors (Rosenthal & Masarech, 2003). One way to do this is to hire better people than the competition. The leaner the organization, the wiser administrators need to be in the selection of employees. However, the quest for success goes beyond selection and includes recruitment and retention of the organization’s all stars. Oftentimes success is dependent on innovation. Innovation is dependent on employees who are responsible and trustworthy, are willing to take risks, and exude ingenuity and resourcefulness (Fisher, Frey & Pumpian, 2012; Collins, 2005; Rosenthal & Masarech, 2003; Collins, 2001).

Kotter (1996) asserts climate is established when a group of stakeholders implement customary values and behaviors or norms of practice. Values are difficult to see; however, they are imbedded in the philosophies and actions of an organization. Behaviors are reinforced by the actions and expectations of leadership and peers. A strong climate will provide incentives for stakeholders who embrace these values and behaviors and will remove those who do not embrace them (Kotter, 1996).

Another possible way to embrace extinction is to allow complacency, a real morale killer detrimental to school culture, to burrow itself into the heart of the organization. Kotter (1996) identifies numerous causes which allow complacency to take root and any sense of urgency to diminish. First is a lack of, or perception of a lack of, imminent catastrophe which produces no or little motivation for action. Minimal expectations which hinder execution of duties becomes a drain on motivated faculty and staff members. A culture which points stakeholders to weak, poorly-defined objectives provides little incentive to keep pushing ahead towards benchmarks and goals (Kotter, 1996). Corporate structures which emphasize ineffective or inaccurate data erect barriers which prohibit progress. An absence of extrinsic reviews of effectiveness inserts a lack of communication which provides another large barrier to overcome. A conflict-filled environment stunts growth and hinders successful gains which provide headway towards benchmarks and goals. Stakeholders wearing blinders, oftentimes fueled by chaos and anxiety, create major roadblocks towards success (Kotter, 1996). All of these characteristics inspire complacency, a workplace disease which needs to be avoided at all costs due to its toxicity to school cultures.

“A great organization is one that delivers superior performance and makes a distinctive impact over a long period of time . . . For a social sector organization, however, performance must be assessed relative to mission” (Collins, 2005, p. 5). This distinctive impact is directly affected by available resources. One available resource is data, and a successful culture will collect data, both qualitative and quantitative, to determine progress towards predetermined goals and checkpoints. A successful culture creates a cycle in which positive outcomes furnish additional commitment and resources, which in turn, provides greater positive outcomes which furnish even greater commitment and resources (Collins, 2005).

School Climate

To attain a firm understanding of school climate, there needs to be an understanding of organizational health and how it is embedded and grounded in culture (MacNeil et al., 2009; Saufler, 2006; DuFour & Eaker, 1992). A good way to describe the difference between culture and climate is that culture is the structure encompassing a school’s norms and values while climate is the behaviors within that structure (MacNeil et al., 2009). Although many use the terms school culture and school climate interchangeably (Watson & Hodges, 2014), they are two distinctively different things. (Watson & Hodges, 2014; Kramer, Watson, & Hodges, 2013; Gruenert, 2008; Saufler, 2006). School culture, the most powerful influence on how students treat each other, differs because school climate is primarily about the faculty and staff and the overall school atmosphere created by them (Saufler, 2006). Watson and Hodges (2014) and Kramer, Watson, and Hodges (2013) believe school culture is concentrated on common assumptions, meanings, and beliefs, while school climate is concentrated on common

perceptions of the school's stakeholders. To summarize what these writers are discussing, "Climate is the measure and culture is the change agent" (Watson & Hodges, p. 4).

School culture is organizational health with another added dimension which provides the specific connection to schools – student achievement (DuFour & Eaker, 1992). A school with a strong school culture will convey an unspoken, embedded controlling influence working behind the scenes organizing the daily endeavors of the stakeholders (Fisher et al., 2012; DuFour & Eaker, 1992). Officials of the NSCC, the Center for Social and Emotional Education (CSEE) and the Education Commission of the States (ECS) collaborated on a project in which they identified the challenges facing schools in regards to school climate (National School Climate Center et al., 2007). They found:

. . . when students, in partnership with educators and parents, work to improve school climate they promote essential learning skills (e.g. creativity and innovation skills, critical thinking and problem solving skills, communication and collaborative skills) as well as life and career skills (e.g. flexibility and adaptability, initiative, social and cross culture skills, productivity and accountability, leadership and responsibility) that provide the foundation for 21st century learning. (p. 6)

They further assert school climate either stimulates or hinders academic achievement in students (NSCC et al., 2007; Marshall, 2004).

In Gruenert's work (2008), he contrasted school climate with school culture. These contrasts show the differences while illustrating the fine line between the two.

Climate is the outlook or disposition of a group, whereas culture is the group's personality. A school's climate is simple to modify while its culture develops over time, typically years. Climate is perception driven; culture is driven by values and beliefs. Climate surrounds us—it is extrinsic, and culture inhabits us—it is intrinsic. Climate is emotional feelings, while culture is how actions are executed (Gruenert, 2008).

In other words, the climate of a school is shaped by the instructional approaches, academic achievement and overall management of the school, all of which are built on attitudes, beliefs, norms, and values (NSCC et al., 2007; Saufier, 2006). Watson and Hodges (2014) and Kramer et al. (2013) maintain a positive school climate is correlated with students' achievement and levels of engagement as well as their development of social skills. There is a substantial gap in student achievement between positive and poor school climates. Additionally, the impact of school climate intersects other areas to include emotional, cerebral, physical security, and mental health development. It also influences relational health (Watson & Hodges, 2014; Kramer et al., 2013). Miron, Jones, and Kelaher-Young (2011) claim teacher and student behaviors are collectively linked within a school's climate and have a direct impact on methods of learning.

The Wallace Foundation (2013), a group who have dedicated their time and efforts to improving public school leadership, have identified five key practices embodied in effective principals. One of these practices is developing a climate conducive to student achievement, a practice which requires placing learning at the center of everything done in a school. Consequently, principals guiding schools with strong instructional climate ratings outperform other principals in the development of an atmosphere exuding trust and caring (The Wallace Foundation, 2013).

Mendler (2012) contends that effective school cultures exist when teachers have a desire to teach, and students have a desire to learn amidst demands of schools which include more rigorous instructional standards and curriculum, instruction which students connect with on a personal level, 21st century learning, the incorporation of technology, and relevant professional development. Furthermore, Mendler (2012) maintains cultures are strengthened when educators increase their levels of influence with students. This can be done through the implementation of six efficacious strategies. First, genuine relationships must be established. Second, the connection of learning to real-life situations is critical. Third, the development of responsibility is a key factor in student, and school, success. Fourth, it is important to identify and celebrate success. Fifth, a safe environment for academic and social interactions must be provided. Finally, an enjoyable atmosphere in which students can connect in a tangible manner is a necessity (Mendler, 2012).

DuFour and Eaker (1992) define school culture as “the collective set of attitudes, beliefs, and behaviors within a building that make up the group norm” (p. 64). School culture, and its resulting climate, is so important that school improvement is directly impacted by it. The reason for this is the impact of culture and climate on a school’s student achievement (MacNeil et al., 2009). There is also a direct correlation between principal leadership and a school’s culture and climate. So, indirectly, principal leadership impacts student achievement which impacts school improvement (MacNeil et al., 2009). In addition, DiTullio (2014) asserts the culture from individual classrooms also has an impact on the quality of learning in a school. The resulting blend of a

teacher's personal educational philosophy and his or her ability to manage student behaviors as well as the learning environment defines the classroom culture.

The United States Department of Education (2014), or USDOE, published guidance for schools on how to improve school culture and discipline. We all know that school campuses must be places where students, as well as other stakeholders, feel safe and supported; this is imperative for student learning to transpire. The impact of positive school cultures addresses more than learning; it promotes the prevention of undesirable student and employee behaviors, which improves the organizational climate, and provides interventions for at-risk and struggling students (United States Department of Education, or USDOE, 2014).

According to Fisher et al. (2012), there are five areas for school leaders to target when they are attempting to develop and maintain an effective school culture. First, schools officials must develop and implement a mission and vision, items which are developed by a variety of relevant stakeholders with a vested interest in the success of the school (Fisher et al., 2012). Second, a welcoming environment is crucial, one where communication, activities and expectations cause all stakeholders, especially students, to feel like a welcome addition to the culture and climate of the school. Within this culture and climate, students should feel significant, secure and appreciated. Third, school administrators looking to develop an effective school culture needs to be establishing five foundational columns in the climate: "welcome, do no harm, choice words, it's never too late to learn and best school in the universe" (Fisher et al., 2012, p. 2). Fourth, there needs to be an emphasis on excellence in instruction and relationships to drive an ongoing progression of development. Finally, attentiveness should be given to the

development of a faculty and staff which emanates competence and passion towards the construction of the school culture and climate (Fisher et al., 2012).

Successful principals grasp the necessity of developing personal relationships with all stakeholders in ensuring a strong school culture and climate. This includes students first and foremost, as well as faculty and staff, parents and members of the community with ties to the school (Stronge, Richard & Catano, 2008). Relationships are the pivotal element which drives positive change within the school. The bottom line is—if relationships get better, schools will improve (MacNeil et al., 2009; Stronge et al., 2008).

Schools with strong cultures and climates possess principals and teachers who operate under high levels of purpose and motivation (MacNeil et al., 2009). These educators are looking for answers to questions on what schools should want each student to learn and how they will know students have learned it. They will also analyze existing barriers when students exhibit learning difficulties (MacNeil et al., 2009). Ultimately, schools are pursuing high performing cultures for a number of reasons, one being the results desired on state-mandated standardized tests (Lindahl, 2011; Rosenthal & Masarech, 2003). People in schools with high performing cultures share three things: a mission or purpose which is persuasive in nature, common values which drive decisions and actions within the organization and a workplace which inspires employees to take ownership of ideas, decisions and actions (Rosenthal & Masarech, 2003).

Why are the culture and climate so important to the success of a school? The right people are recruited to and retained in schools with a successful culture and climate, which will also provide stability in uncertain times like personal crisis or professional

change. Lastly, a successful culture inspires institutional allegiance. (Rosenthal & Masarech, 2003).

In 2001, the National Association of Elementary School Principals (NAESP) published a guide for principals. This guide outlined five practices principals should follow to encourage adult learning amongst their teachers, practices which would positively impact a school's culture and climate:

- Provide time for reflection as an important part of improving practice,
- Invest in teacher learning,
- Connect professional development to school learning goals,
- Provide opportunities for teachers to work, plan and think together,
- Recognize the need to continually improve principals' own professional practice. (p. 42)

Blankstein (2004) asserts that schools have entered a new age in which the stability of the past has dissolved into an era of vigorous change and intense challenges. This change has required a shift in school culture and climate to ensure future success. Typically, schools pursued constant balance and stability, but this approach has now been denounced as an indicator of pending crisis. In fact, another great way to embrace extinction is to repel change (Blankstein, 2004).

Furthermore, Blankstein (2004) contends the goal for leaders of schools should essentially be to position themselves to be able to acclimate to widespread, ongoing change. Obstacles which present themselves must perpetuate positive learning experiences which promote ongoing, future success. Unfortunately, the two most frequently used approaches to these new requirements facing schools are to either avoid

altogether the challenges presenting themselves or to pursue every solution that surfaces. Neither of these is the right approach (Blankstein, 2004).

Harris Interactive (2012) conducted a poll and published the subsequent report about positive school culture and the performance of teachers. Surprisingly, or not so surprisingly, 53 percent of Americans possessing at most a high school degree are more apt to rate the satisfaction of students with their schools as very important. Additionally, 47 percent of this same group of Americans are more likely to identify parent satisfaction with a school as very important.

The report (Harris Interactive, 2012) also identified the recruitment and retention of good teachers as a crucial strategy for improving a school's culture. The strategy acknowledged as one of the most important and effective for accomplishing this endeavor is the removal of poorly performing teachers from the profession. Other strategies to improve school culture receiving strong support were tying teacher evaluations to student growth on standardized test results, improving professional learning opportunities, increasing overall workplace satisfaction, and increasing teacher compensation (Harris Interactive, 2012).

Great leaders recognize that the value of an organization's culture lies in its people, not in special programs. There is nothing comparable to the quality of a school's teachers when determining the condition of its culture (Whitaker, 2012a; Whitaker, 2012b; Saufier, 2006).

An important attribute, appreciation, is missing in many schools. Education has become an underappreciated field, yet one that has extremely high expectations. White (2014) highlights the need for appreciation of faculty and staff. He explains appreciation

should be conveyed in a regular, ongoing manner. It should be imparted orally and through demonstrable action. It should also be clearly personalized.

. . . true, significant change can occur in workplaces when the right people (which could mean anyone, regardless of position) implement the right actions (that is authentic actions) at the right time (when people choose to and when they have the time and energy to commit to the process). (White, 2014, p. 34)

A strong approach principals can take with teachers is to encourage them to participate; in other words, provide teachers a choice of the level of personal investment into the school and its activities. As the school leader, the principal is tasked with getting the faculty and staff to cooperate with each other in working towards a shared vision and purpose. By inviting professionals, their desire for autonomy is acknowledged and respected, which will encourage positive change. This will yield cooperation and collaboration (Tschannen-Moran & Tschannen-Moran, 2014).

Shannon-Missal and Gosney published a report (2014) in which they presented some startling implications about American perception of respect for teachers. Currently, merely 49 percent of Americans surveyed think parents respect teachers. Just 31 percent think teachers are respected by students. Only 64 percent think parents are respected by teachers, and 61 percent think students are respected by teachers. If these figures are accurate, schools face an uphill battle towards success for their students, a battle where the front lines are rooted in the school culture.

School Leadership

Stronge, Richard, and Catano (2008) identify qualities of effective principal leadership practices. These qualities are: instructional leadership, school culture, human

resource administration, teacher evaluation, organizational management, communication and community relations, professionalism, and student achievement. Instructional leadership involves the development and maintenance of a high quality school vision which is focused on learning—this vision is shared by all stakeholders (Stronge et al., 2008). School culture includes the implementation of a positive, healthy and safe climate for all stakeholders. Human resource administration entails the recruitment, selection, retention, and support of high quality, highly qualified faculty and staff. Teacher evaluation defines the effectiveness of a school. Its improvement efforts are supported through ongoing faculty and staff evaluations which are productive and meaningful. Organizational management is the day to day operation of the school (Stronge et al., 2008). The principal must responsibly manage the school's resources and provide the necessary support to students and teachers throughout the learning process. How effectively the principal collaborates with all stakeholders is seen in his communication and community relations. Professionalism is a must—the principal models highly ethical practices built on integrity and fairness. The principal must monitor student achievement by establishing and monitoring expectations of student learning which are founded on the required instructional standards (Stronge et al., 2008).

Every school has a principal; some are effective, some are not. The quest becomes to discover what things the effective principals do that the others do not, or at least do not do well (Whitaker, 2012a). Numerous qualities have been identified in the actions of principals characterized as effective. Effective principals implement a focus on the quality of the school's faculty and staff. They adopt the philosophy where people generate quality, not programs—programs are only successful because of the people

putting them into practice. Effective principals have a clear understanding of the person they are, the job they are tasked with as well as others' perceptions of them. Ongoing practices of visibility, accessibility, and openness are executed in the school setting with all stakeholders (Whitaker, 2012a). High expectations of self are consistently maintained. Responsibility is shouldered for personal decisions and actions as well as the overall responsibility for what occurs in the school. Ongoing, continuous respect for others is required. A positive working environment for students as well as faculty and staff is a consistent daily focus. Infusion of the positive and elimination of inconsequential negatives for the overall school culture is an enduring focus. Effective principals lead teachers by example and with a variety of methods to directly impact classroom instruction as well as other areas of teacher performance (Whitaker, 2012a). The recruitment, hiring, and retention of the best possible candidates in every position, be it certificated or support personnel, is a goal which never changes. There is an understanding of the subtleties of change; navigation through change is done with as little turbulence as necessary. Effective principals are not driven by standardized testing. In fact, they maintain the importance of student learning and effective classrooms by staying focused on what is optimal for students (Whitaker, 2012a). There is an implementation of the knowledge and practice of focusing on behaviors prior to beliefs. Beliefs can be focused on once behaviors are identified and managed. Actions are driven by the belief that loyalty to the students, faculty, and staff trump loyalty to one's self in every situation. Every decision is made by keeping in mind what the best teachers will think of each decision. The last thing an effective principal needs, or wants, to do is disenfranchise the school's best teachers (Whitaker, 2012a). There is a consideration of

who is most comfortable and who is least comfortable with any given decision made by leadership, be it at the school or district level. Effective principals identify the high achieving, acquire an understanding of them, and then tap into their potential for the betterment of the school as a whole. A recognition of the influence of emotion and its ability to spearhead change is another characteristic—there is an acknowledgement of the connection emotion has with behaviors and beliefs (Whitaker, 2012a). Significant time is spent ensuring the health of stakeholder relationships. Energy is exerted in bettering or terminating ineffective and/or negative faculty and staff members. Finally, effective principals launch each year with distinct expectations and ensures adherence to them throughout the year (Whitaker, 2012a).

Marzano, Waters, and McNulty (2005) conducted a meta-analysis on what works in school leadership. They identified twenty-one responsibilities of school principals in regard to student achievement—the end goal. These responsibilities are affirmation, change agent, contingent rewards, communication, culture, discipline, flexibility, focus, ideals/beliefs, input, intellectual stimulation, involvement in curriculum, instruction, and assessment, knowledge of curriculum, monitoring/ evaluating, optimizer, order, outreach, relationships, resources, situational awareness, and visibility (Marzano, Waters, & McNulty, 2005, pp. 42-43).

The principalship is a crucial role in every school which must be filled by a person who causes transformation in the depths of teaching and learning in every classroom. Additionally, this person must also positively impact quality of life for all students (Stronge et al., 2008). These things are done by developing and maintaining a school vision, distributing leadership to teacher leaders, being the lead learner within a

learning community, implementing data-driven decision making, and supervising classroom learning – specifically the curriculum and instruction (Stronge, et al., 2008).

According to Urick and Bowers (2014), the school principal can impact a school's climate in three ways. The first way is how the principal manages behaviors through the student discipline process. The second way is how the principal incorporates instructional leadership, and therefore, impacts the delivered curriculum within the classroom. Finally, the climate is influenced by how the principal leverages resources from external sources for the betterment of the school (Urick & Bowers, 2014).

A strong school climate is contingent on the quality of the learning environment within a school and its individual classrooms (Stronge & Xu, 2011). There are characteristics which should be embodied in teaching and learning to ensure a vigorous learning environment. This is encouraged by the instructional leadership of the school principal. Classroom learning activities should be deliberate as well as reinforce cognition (Stronge & Xu, 2011). Students should be able to make visible connections between the learning at hand and their personal lives, either present or future. Learning should incorporate opportunities to collaborate with peers to construct knowledge (Schlechy, 2011; Stronge & Xu, 2011). Autonomy should be an avenue for students to voluntarily provide personal engagement in the task at hand. Classroom activities invoke realism while infusing rigor and requiring students to activate prior knowledge to make connections to new knowledge. Students are permitted to experience in the classroom diverse perspectives allowing them to learn how to look at things from more than one angle (Stronge & Xu, 2011). Students learn to be reflective—reflective about other people's actions and decisions as well as their own. Students accept ownership of their

own learning; they have consciously decided to remove that task from the teacher.

Learning is transformed from one form to another by students. Lastly, students take old and new knowledge and merge it into a visible and viable work product (Stronge & Xu, 2011).

DuFour and Mattos (2013) sum it up this way: “The key to improved student learning is to ensure more good teaching in more classrooms more of the time” (p. 37). This is accomplished through a professional learning community (PLC). Schools which have welcomed PLCs accept responsibility for student learning as a collaborative team, elevate levels of student learning, experience stronger professional fulfillment, participate in ongoing crucial dialog, willingly share instructional practices, contribute in shared leadership, benefit from robust professional learning, and continue in the education field (DuFour & Mattos, 2013).

Barriers to Leadership

A relatively new challenge facing school leaders is the implementation of the new Common Core State Standards (CCSS), or as Georgia refers to them, the Common Core Georgia Performance Standards (CCGPS) (Eilers & D’Amico, 2012). The challenge arises because school leaders are having to guide teachers, students and parents through unfamiliar terrain. The imminence of change finds principals instigating change, change which has not been analyzed well and is oftentimes implemented too early or under-resourced (Eilers & D’Amico, 2012). The issues these approaches present may be avoidable if principals will determine a purpose, bring the faculty and staff into alignment, establish priorities, expedite professional dialog, embolden others to take risks, and afford constructive feedback to all stakeholders (Eilers & D’Amico, 2012).

There are three traps that many principals find themselves caught in, traps which are self-inflicted (Hess, 2013). First, principals are trained to regard “things like consensus, collegiality, relational trust, coherence making, child-centered learning, and professional growth” (p. 31)—all things worth pursuing. However, “high expectations, competition, decisive leadership, and discipline” (p. 31) are also worth pursuing. The issue that now arises is these two lists of worthwhile pursuits can conflict at times, providing quite the conundrum for school leaders. Because of this, it is imperative that principals provide leadership grounded in what they value as most important (Hess, 2013).

Second, Hess (2013) further suggested principals get bogged down in the current definitions of what exemplary and outstanding schools are. Principals must raise the bar for which school leaders are reaching. Modeling school programs after those schools used by officials who have found certain levels of success may produce improvement, but those are not necessarily the maximum possible levels of improvement (Hess, 2013).

Finally, principals need to avoid the mindset of school improvement only happening when more financial resources are funneled in their direction. Outside of education, some of the most innovative organizations are ones lacking significant financial resources—organizations which rely on good, old-fashioned creativity and hard work (Hess, 2013).

On any given school day, the principal can be inundated with continuous demands. These demands come from a variety of sources—students, faculty and staff, parents, district administration, and school board members as well as community

members—and those demands frequently arrive simultaneously and at inconvenient times (Stronge et al., 2008).

According to Hesselbein (2002), there are two types of general leadership barriers: those which are self-inflicted and those which are organizational in nature. All types of leaders including school leaders, can potentially be impacted by these barriers. Self-inflicted barriers include a dearth of well-developed goals with a plan of how to meet them, no grasp of personal strengths and weaknesses, attempting to keep work morals separated from personal morals outside of work—they are not separate; an absence of sharing and collaboration, avoiding decisions and leading from the front, not focusing on others' strengths, particularly the areas in which they shine; being a “glass half empty” person, not resolving problems that arise, and ignoring the need to develop professionally on a personal level (Hesselbein, 2002).

Organizational barriers are numerous. They include a lack of encouragement to think and act outside of the box. Established incentives which reward mediocrity and practices which discourage people from being the bearer of bad news contribute to organizational inefficiency. Unrecognized, and therefore undealt with, discrimination of any kind, blurred accountability, and poorly communicated policies and procedures are handicapping to the overall climate. A lack of professional development and failing to see its people as the organization's greatest strength are two other issues which abound. Additionally, not embracing the strength of diversity, a “do as I say, not as I do” mentality, a dearth of internal staffing changes, and no official succession strategy to replace key leadership positions are contributors to unhealthy working environments (Hesselbein, 2002). In order to recognize and address these barriers which may present

themselves, a strong internal fortitude is required. To be able to do this for an organization is of unspeakable value to its future success (Hesselbein, 2002).

Conclusion

So what does all of this mean for schools facing today's challenges in educating children? A school lacking a positive school climate will have students who feel unsafe while at school; they will feel unwelcome in their classrooms; disrespect will be rampant. Learning opportunities will not be noticed, let alone capitalized. Student maturation and growth will be restricted, and potential for academic and social gains will be nonexistent. Additional problems include a negative trend in teacher retention, deficits in student performance and school safety, as well as poor student attendance and discipline (Watson & Hodges, 2014).

Chapter 3 – Methodology

Introduction

The researcher identified the relationship between the climate of a school, as defined by the Georgia School Climate Star Rating (SCSR) and student achievement data, specifically the Georgia Criterion Referenced Competency Test (CRCT) for the 3rd through 8th grades and examined the impact of Title I/non-Title I status with respect to the SCSR groupings outlined in this study. The state SCSR which was utilized came from the 2013 – 2014 school year. The CRCT results used also came from the 2013 – 2014 school year and included results in Reading and Math. These data are used by the Georgia Department of Education (GADOE) to determine the quality of the public schools across the state. An analysis of these variables provided the statistics on which this study was constructed.

Research Questions

The researcher produced the following questions for consideration:

1. What effect does Georgia's SCSR have on students' Reading and Math achievement on the Criterion-Referenced Competency Test (CRCT)?
2. What effect does Title I or non-Title I status, the SCSR, and the difference between the two have on Reading and Math CRCT achievement?

Reading and Math were selected because these are the two subject areas that have traditionally received the most attention with respect to measuring student achievement (Georgia Department of Education, or GADOE, 2011).

Population & Sample

The researcher examined a total of $n = 43$ schools. In this total, there were elementary schools ($n = 31$) and middle schools ($n = 12$). The elementary schools serve students in kindergarten through 5th grade. The middle schools serve students in 6th through 8th grade.

During the 2013 – 2014 school year, 3rd through 8th grade students were administered the CRCT in the areas of Reading, Language Arts, Math, Science, and Social Studies. For the purposes of this study, only Reading and Math were utilized. The groups from these populations were grouped as follows: 3rd through 5th grade students and 6th through 8th grade students. A Reading group and a Math group were included within each of these grade level groupings. Approximately 7,000 to 8,000 3rd through 5th grade students in the school district resulted in $n = 6,474$ Reading participants and $n = 6,469$ Math participants. Approximately 7,000 to 8,000 6th through 8th grade students resulted in $n = 6,650$ Reading participants and $n = 6,554$ Math participants. Table 3.1 contains the totals for each grade level and collective group, 3rd through 5th grade and 6th through 8th grade, by subject.

Table 3.1

Participation Numbers of Students by Grade Level in CRCT Reading and Math

Grade	Reading	Math
3 rd Grade	2,289	2,309
4 th Grade	2,114	2,102
5 th Grade	2,071	2,058
Totals for 3 rd –5 th Grades	6,474	6,469
6 th Grade	2,146	2,116
7 th Grade	2,304	2,256
8 th Grade	2,200	2,182
Totals for 6 th –8 th Grades	6,650	6,554
Totals for All Grades	13,124	13,023

Additionally, schools were grouped as either Title I or non-Title I, depending on their federal status. The selected schools were separated into three different groups based on their state SCSR. The first group consisted of the schools that earned four or five stars; the second group contained the schools that earned three stars; and the third group had the schools that earned one or two stars. Schools are identified by a letter and number rather than their name. Schools with 3rd through 5th grade students begin with the letter E for elementary school, while schools with 6th through 8th grade students begin with the letter M for middle school.

Table 3.2 contains the elementary schools from the selected school district with their Title I/non-Title I classification, SCSR, and SCSR group number. There were a total of $n = 22$ Title I and $n = 9$ non-Title I elementary schools. SCSR group 1 consisted

of $n = 14$ schools: $n = 5$ Title I schools and $n = 9$ non-Title I schools. Within SCSR group 1, $n = 2$ schools earned an SCSR score of 5, while the remaining $n = 12$ schools earned an SCSR score of 4. SCSR group 2 contained $n = 12$ schools: $n = 12$ Title I schools and $n = 0$ non-Title I schools. Within SCSR group 2, each of the $n = 12$ schools earned an SCSR score of 3. SCSR group 3 included $n = 5$ schools: $n = 5$ Title I schools and $n = 0$ non-Title I schools. Within SCSR group 3, $n = 4$ schools earned an SCSR score of 2, while the remaining $n = 1$ school earned an SCSR score of 1.

Table 3.3 contains the middle schools from the selected school district with their Title I/non-Title I classification, SCSR, and SCSR group number. There were a total of $n = 7$ Title I and $n = 5$ non-Title I middle schools. SCSR group 1 consisted of $n = 4$ schools: $n = 1$ Title I school and $n = 3$ non-Title I schools. Within SCSR group 1, $n = 1$ school earned an SCSR score of 5, while the remaining $n = 3$ schools earned an SCSR score of 4. SCSR group 2 contained $n = 4$ schools: $n = 2$ Title I schools and $n = 2$ non-Title I schools. Within SCSR group 2, each of the $n = 4$ schools earned an SCSR score of 3. SCSR group 3 included $n = 4$ schools: $n = 4$ Title I schools and $n = 0$ non-Title I schools. Within SCSR group 3, $n = 3$ schools earned an SCSR score of 2, while the remaining $n = 1$ school earned an SCSR score of 1.

Table 3.2

Elementary Schools' Title I/Non-Title I Classifications, SCSR, and SCSR Groups

School	Title I/Non-Title I	SCSR	SCSR Group
E1	Title I	5	1
E2	Non-Title I	5	1
E3	Non-Title I	4	1
E4	Non-Title I	4	1
E5	Non-Title I	4	1
E6	Title I	4	1
E7	Non-Title I	4	1
E8	Non-Title I	4	1
E9	Title I	4	1
E10	Title I	4	1
E11	Non-Title I	4	1
E12	Non-Title I	4	1
E13	Non-Title I	4	1
E14	Title I	4	1
E15	Title I	3	2
E16	Title I	3	2
E17	Title I	3	2
E18	Title I	3	2
E19	Title I	3	2
E20	Title I	3	2
E21	Title I	3	2
E22	Title I	3	2
E23	Title I	3	2
E24	Title I	3	2
E25	Title I	3	2

Table 3.2 (continued)

School	Title I/Non-Title I	SCSR	SCSR Group
E26	Title I	3	2
E27	Title I	2	3
E28	Title I	2	3
E29	Title I	2	3
E30	Title I	2	3
E31	Title I	1	3

Table 3.3

Middle Schools' Title I/Non-Title I Classifications, SCSR, and SCSR Groups

School	Title I/Non-Title I	SCSR	SCSR Group
M1	Title I	5	1
M2	Non-Title I	4	1
M3	Non-Title I	4	1
M4	Non-Title I	4	1
M5	Title I	3	2
M6	Title I	3	2
M7	Non-Title I	3	2
M8	Non-Title I	3	2
M9	Title I	2	3
M10	Title I	2	3
M11	Title I	2	3

Instrumentation

SCSR. The SCSR for schools in Georgia was the first instrument utilized in this study, analyzing four main components which are included in the overall school climate rating (Watson & Hodges, 2014; Kramer et al., 2013). The first component is School Climate which is derived from student, personnel, and parent survey responses. Elementary school students take the *Georgia Elementary School Climate Survey* (GESCS); see Appendix A. Middle school students take the *Georgia Student Health Survey 2.0* (GSHS); see Appendix B (GADOE, 2014c). With both surveys, 75 percent participation is required for schools to receive credit in the SCSR. There is no participation requirement for parents, although there is a survey available to them—the *Georgia Parent School Climate Survey* (GPSCS); see Appendix C. School personnel take the *Georgia School Personnel Survey* (GSPS), and again, 75 percent participation is required for schools to get credit in the SCSR; see Appendix D (GADOE, 2014c). Variability is looked for in the composite answers from the surveys.

The administration of all four previously mentioned surveys are enabled for online access by the GADOE each year between October and February. School officials administer the surveys to students. The individual administering the survey must be certified and cannot be one of the people being surveyed by a particular group. The surveys are available for all public and private schools with students in 3rd through 12th grade. All four surveys are self-reported and anonymous. Results are tabulated by the

GADOE and published publicly on the GADOE website. Administrators from participating schools receive a full report for data analysis and planning purposes. Since the data are released to the public, administrators can compare individual school data with other schools and districts as well as the state (GADOE, 2014c).

The second component of school climate is Student Discipline. In this component, in-school and out-of-school suspension, alternative school assignment, and expulsion rates are analyzed. Higher scores indicate higher, more frequent discipline issues within a school (Watson & Hodges, 2014; Kramer et al., 2013). The third component is a Safe and Substance-Free Learning Environment. This component factors The percentage of students who are not involved in incidents of violence (ex. bullying and/or threats and intimidation), alcohol, or drug related incidents are included in this component, through the student discipline data. The percentage of students who are not abusing alcohol and/or illegal or prescription drugs is monitored through GSHS data. The percentage of students who have not been subjected to harassment or bullying is also included in GSHS data.

The final component is School Attendance. The average daily attendance rate of all students, teachers, administrators, and staff is scrutinized. The only teachers, administrators, and staff who are not scrutinized are ones who have more than 45 days of absence, which excludes them from this component (Tio, 2014; Watson & Hodges, 2014; Kramer et al., 2013).

CRCT Reading and Math. The second instrument used in this study was the Reading and Math portions of the CRCT. These state assessments were constructed to determine how well students have acquired the state mandated academic standards in

Reading and Math for elementary and middle schools. Information from the state level all the way to individual student performance, to include district and school level data are included (GADOE, 2014a). The researcher looked at school performance reports for the mean score for each grade level for both of the chosen subject areas. The data were not disaggregated into the various subgroups or domains within each academic category. The CRCT assessments contain questions which require selected-response (GADOE, 2014a).

Reliability and validity. Reliability is defined as the possibility that if a study were replicated, the same or similar results would emerge (Bush, 2012). A level of confidence that a study could be replicated with an appropriate level of consistency is understood. Similar results may be found if someone looked at the same research questions using different methods (Bush, 2012). Gay, Mills, and Airasian (2006) assert that reliability ensures a study will dependably measure over time what it says it will measure.

Reliability is important for a research study; however, it must be accompanied by validity. Reliability in isolation results in a useless research study (Bush, 2012). Validity is defined as whether a research study measures what it says it measures (Bush, 2012; Mills, 2003). The validity of a study should be seen in the design of the study, its methodology, and the drawn research conclusions (Bush, 2012).

Reliability has been established for these assessments as reported by Chronbach's alpha. For the Reading assessments, the reliability coefficients are as follows: third grade, 0.88; fourth grade, 0.89; fifth grade, 0.86; sixth grade, 0.88; seventh grade, 0.86;

eighth grade, 0.87. For the Math assessments, the reliability coefficients are as follows: third, fourth, sixth, seventh, eighth grades, 0.92; fifth grade, 0.93 (GADOE, 2009).

The Georgia Department of Education ensured reliability for the SCSR because: . . . a school's overall average score from the components will be compared to other schools within its grade cluster by seeing how far away a school's score is from the cluster's mean school climate score. The number of standard deviations a school's score is away from the mean will correlate to how many stars a school will receive for its school climate rating. (Tio, 2014, p. 9)

Despite this approach, at the time of this study there was not a Chronbach's alpha score or other reliability measure established for the SCSR which created a limitation for this study. The selected schools were separated into three different groups based on the SCSR for the Factorial MANOVA. The first group had the schools that earned four or five stars; the second group contained the schools that earned three stars; the third group consisted of the schools that earned one or two stars.

Data Collection

The data that were used for this study—the state SCSRs and CRCT results—were not tied to individual students, just their schools. CRCT data were downloaded on February 28, 2015 from the GADOE website (GADOE, 2014a) into a Microsoft Excel spreadsheet with the following categories as headers: n Tested, Mean Scale Score, Percentage Met or Exceeded the Standard. These headings were created for both Reading and Math. CRCT data about each school were downloaded directly from the website into the spreadsheet for analysis. Next, Title I/non-Title I data were downloaded on March 7, 2015 from the GADOE website (GADOE, 2014d) into a Microsoft Excel

spreadsheet with the following categories as headers: Title I and non-Title I. Title I/non-Title I data about each school were downloaded directly from the website into the spreadsheet for analysis. Finally, SCSR data were downloaded on March 16, 2015 from the GADOE website (GADOE, 2015) into a Microsoft Excel spreadsheet with the following categories as headers: SCSR and SCSR Group. SCSR data about each school were downloaded directly from the website into the spreadsheet for analysis. All the elementary and middle schools within the selected Southeastern United States school district who had 2013 – 2014 data were utilized in this study.

Research Design

The purpose of this study was to determine whether the independent variable (IV), Georgia's SCSR, had an effect on the dependent variable (DV), CRCT Reading and Math results. In addition, the researcher determined the effect of Title I/non-Title I status, SCSRs, and the difference between the two on Reading and Math achievement. The researcher utilized the Path Analysis Model (PAM) for the first research question. For the second research question, the Factorial Multivariate Analysis of Variance, or Factorial MANOVA, was employed.

CRCT results were accessed on the GADOE website (GADOE, 2014a). The SCSRs were taken from the GADOE website containing individual school College and Career Readiness Performance Index (CCRPI) scores (GADOE, 2014c). The following null hypotheses were tested in this study:

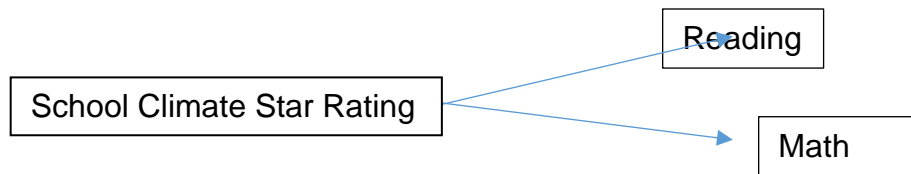
- H₀₁: Georgia's SCSR for schools have no effect on Reading and Math achievement.
- H₀₂: Title I status and the SCSR has no effect on the combined Reading and Math achievement scores.

Data Analysis

The data that were analyzed in this study were compiled from the GADOE website on Microsoft Excel spreadsheets, one for Title I/non-Title I classification and SCSRs and one for each grade level's CRCT results. Individual schools were assigned a code with a letter and number by the researcher to maintain the school's anonymity. The code for elementary schools began with an "E" with numbers ranging from 1 to 31 (ex. E31). Middle school codes began with an "M" with numbers ranging from 1 to 12 (ex. M12). Once compiled, the data were transmitted to SPSS 17.0 for data analysis purposes. The research questions were addressed using a PAM and Factorial MANOVA. Both the PAM and Factorial MANOVA used in this study utilized district and school level data. Additionally, for the purposes of this study, the achievement data used were the mean scale score for both Reading and Math.

Path analysis. Ullman (2007) asserts the PAM is a compilation of statistical techniques which permits a set of relationships between at least one exogenous variable and at least one endogenous variable. These variables can be continuous or discrete. The PAM provides a method for testing hypotheses or a theory (Field, 2009; Ullman, 2007). Questions involving multiple regression analyses of the different factors are answered (Ullman, 2007). Figure 3.1 illustrates the path analysis diagram for the first research question of this study.

Figure 3.1 Path analysis diagram for the SCSR and CRCT Reading and Math results



Path analysis limitations. Due to the structure of the PAM, a researcher cannot employ this model without prior knowledge of relationships which may possibly occur between variables. This study had a smaller sample size, and typically, smaller sample sizes do not work with the PAM. However, if the study has consistent variables as well as robust parameter estimates, smaller sample sizes can work (Ullman, 2007). The data selected for use in this study fell under this criteria. Additionally, the PAM assumes multivariate normality, solely examines linear relationships between the variables, and delivers diagnostics of the residuals, which typically are small and centered around zero (Ullman, 2007).

Factorial multivariate analysis of variance (MANOVA). The Factorial MANOVA assesses if there are differences between composite means for the DVs when there are at least two IVs (Tabachnick & Fidell, 2007). The “MANOVA emphasizes the mean differences and statistical significance of differences among groups” (Tabachnick & Fidell, 2007, p. 243). Additionally, “MANOVA tests whether mean differences among groups on a combination of DVs are likely to have occurred by chance” (Tabachnick & Fidell, 2007, p. 243).

There are some benefits to using the Factorial MANOVA over multiple analyses of variance (ANOVAs). One of the advantages of using multiple DVs rather than just one is because it increases the probability of finding what is changing under the

influences of various treatments and their subsequent interactions is increased. Another advantage that several DVs provide the environment where Type I errors are minimized as opposed to the multiple ANOVAs which can take place, therefore increasing the possibility of Type I errors. A third benefit that certain conditions are implemented where differences reveal themselves, differences which would not have surfaced during several individual ANOVAs (Tabachnick & Fidell, 2007).

The Factorial MANOVA has several assumptions which must be considered in a research study. Statistical independence should be established for pertinent observations. Random sampling from the chosen population sample with intermittent statistical measurement is crucial. It is assumed the DVs have collective normality within the groups. Additionally, homogeneity of variance (HOV) provides the assumption that the differences and correlations between the DVs are generally equivalent (Field, 2009).

Factorial MANOVA limitations. Because of the structure of the Factorial MANOVA, one cannot attribute causality to the IVs. The selection of IVs relies on the researcher's ability to logically identify them as well as to develop a research design for the study (Tabachnick & Fidell, 2007). The researcher will keep generalizability at the forefront; generalizing to the population, specifically elementary students in the 3rd through 5th grades and middle school students in the 6th through 8th grades. Furthermore, several other limitations are worth mentioning. Missing data needed to be guarded against as this would skew the results of the study. Within each cell, sample sizes were made sufficient to guarantee adequate power which was dependent on the relationships between the DVs. The normality in a Factorial MANOVA communicates that linear combinations are normally distributed. A very noteworthy limitation is the MANOVA is

prone to producing outliers which can lead to Type I and/or Type II errors. As mentioned previously, all DV relationships were assumed to be linear. Additionally, HOV was a factor along with homogeneity of regression (HOR). HOR affords that regression among the groups was equitable (Tabachnick & Fidell, 2007).

Univariate and Multivariate Assumptions. Prior to analysis, the researcher looked at normality to check for univariate and multivariate outliers across the SCSR groups. In order to check for univariate outliers, z-scores were examined to determine how far scores were from the mean. Z-scores < -3.29 or > 3.29 were considered univariate outliers. Skewness and kurtosis values were also examined to assess normality, and both should fall between -1 and 1. Histograms were utilized to determine if data was normal or skewed. In order to check for multivariate outliers, the researcher utilized Mahalanobis distance such that Chi-square values > 13.816 ($\chi^2_2 = 13.816, p < .001$) were determined to be multivariate outliers. To test for homogeneity of the variance/covariance matrix, the Box's M test ($p > .05$) was implemented. The researcher also examined evidence of multicollinearity to determine whether the research items were too highly correlated. For this, the Variance Inflation Factor (VIF), was used. The items were determined to be suitable for research use if $VIF < 10$.

Conclusion

This was a quantitative study which contained two research questions addressing the importance of school climate and its impact on Reading and Math achievement. The researcher also examined the impact of Title I/non-Title I status on Reading and Math achievement. This was accomplished through the PAM and Factorial MANOVA.

Univariate and multivariate assumptions were tested. These assumptions included Z-

scores, skewness, kurtosis, Mahalanobis' distance, homogeneity of variance/covariance, and multicollinearity.

Chapter 4 – Data Analysis and Results

Introduction

The researcher identified the relationship between the climate of a school, as defined by the Georgia School Climate Star Rating (SCSR) and student achievement data, specifically the Georgia Criterion Referenced Competency Test (CRCT) for the 3rd through 8th grades. The researcher also examined the impact of Title I/non-Title I status with respect to the SCSR groupings outlined in this study. This study was quantitative in nature and looked at two research questions. The results from the data analysis of these questions are outlined in this chapter. SPSS 17.0 was used to analyze all the data within this study.

The first question was: “What effect does Georgia’s SCSR have on students’ Reading and Math achievement on the CRCT?” This question was analyzed using the Path Analysis Model (PAM). This analysis produced a regression equation and path coefficient for both Reading and Math.

The second question was: “What effect does Title I or non-Title I status, the SCSR, and the interaction between the two have on Reading and Math achievement?” This question was analyzed using the Factorial Multivariate Analysis of Variance, or Factorial MANOVA. The Wilks’ Lambda distribution was used in determining significance with this data analysis method.

Univariate and Multivariate Assumptions

Prior to analysis, the researcher looked at normality to check for univariate and multivariate outliers across the SCSR groups. In order to check for univariate outliers, z-scores were examined to determine how far scores were from the mean. Z-scores < -3.29 or > 3.29 would have been considered univariate outliers. However, in this study, there were no univariate outliers. All of the z-scores were < -3.29 or > 3.29 .

Skewness and kurtosis values were examined to assess normality, and it was expected that both would be between -1 and 1. To assess these assumptions, 3rd through 5th grade and 6th through 8th grade composite groups were used in Reading and Math to look at each SCSR group independently. As seen in Table 4.1, skewness levels for the 3rd through 5th grade Math composite group (1.314) and the 6th through 8th grade Reading composite group (-1.117) were marginally greater than the threshold of $|1|$, but were deemed to have minimal impact on the findings. As such, the data were left unaltered.

Table 4.1

Skewness and Kurtosis Values for Reading and Math Composite Scores – SCSR Group 1

Grade	3 rd -5 th Grade		6 th -8 th Grade	
	Reading	Math	Reading	Math
Skewness	.008	1.314	-1.117	-.624
Kurtosis	1.262	3.418	2.186	.924

The only composite group whose kurtosis level fell within the threshold of $|1|$ was 6th through 8th grade Math. The kurtosis level for the 3rd through 5th grade Reading composite group was also a little high, while the kurtosis levels for the 3rd through 5th grade Math composite group and the 6th through 8th grade Reading composite group were a little peaked. These three composite groups whose kurtosis values were greater than the threshold of $|1|$ fell in the range $1.262 \leq x \leq 3.418$.

Skewness levels for SCSR Group 2 were all within the desired range of -1 to 1 as seen in Table 4.2. Kurtosis levels for the 3rd through 5th grade Reading (-1.727) and Math (-1.051) composite groups were a little high. The kurtosis level for the 6th through 8th grade Math composite group (-4.449) was peaked as seen in Table 4.2.

Table 4.2

Skewness and Kurtosis Values for Reading and Math Composite Scores – SCSR Group 2

Grade	3 rd -5 th Grade		6 th -8 th Grade	
	Reading	Math	Reading	Math
Skewness	.135	.312	-.356	-.272
Kurtosis	-1.727	-1.051	.026	-4.449

Skewness levels for SCSR Group 3 for the 3rd through 5th grade Reading composite group (-1.130) and the 6th through 8th grade Reading (1.713) and Math (1.546) composite groups were a little high as seen in Table 4.3. The kurtosis level for the 3rd through 5th grade Math composite group (1.499) was high. The kurtosis levels for the 6th through 8th grade Reading (3.230) and Math (2.180) composite groups were peaked as seen in Table 4.3.

Table 4.3

Skewness and Kurtosis Values for Reading and Math Composite Scores – SCSR Group 3

	3 rd -5 th Grade		6 th -8 th Grade	
	Reading	Math	Reading	Math
Skewness	-1.130	-.055	1.713	1.546
Kurtosis	.464	1.499	3.230	2.180

To check for multivariate outliers, the researcher utilized Mahalanobis distance such that Chi-square values > 13.816 ($\chi^2_2 = 13.816, p < .001$) would have been determined to be multivariate outliers. In analyzing the data, all values were < 13.816 ($\chi^2_2 = 13.816, p < .001$) resulting in no multivariate outliers. This was the same result in all three SCSR groups for both the 3rd through 5th grade and 6th through 8th grade groups.

To test for homogeneity of the variance, Box's M test ($p > .05$) was implemented. The dependent variables were the four CRCT composite groups: the 3rd through 5th grade Reading and Math composite groups and the 6th through 8th grade Reading and Math composite groups. For the 3rd through 5th grade groups, $F_{6, 593.487} = 1.308$; $p = .251$. For the 6th through 8th grade groups, $F_{6, 2018.769} = 1.144$; $p = .334$. In all identified cases, there was homogeneity of variance.

The researcher also examined evidence of multicollinearity to determine whether the research items were too highly correlated. For this, the Variance Inflation Factor (VIF), was used. If the items resulted in $VIF < 10$, they would be suitable for research. In this study, $VIF = 1$, so there are no statistical issues inhibiting the research due to multicollinearity. Additionally, histograms were utilized which depicted normal distributions. Consequently, even though there were some kurtosis values outside the range of -1 to 1, the research data were left unaltered since there were no univariate or multivariate outliers and skewness values did not raise concerns.

Descriptive Statistics

One descriptive statistic identified in this study was the interaction between Title I/non-Title I status of schools and the SCSR. Table 4.4 identified the elementary schools used in this study. Each school was identified by a letter/number combination—with the letter E representing elementary. 29 percent of the schools are non-Title I schools, with the remaining 71 percent composing the Title I group. None of the non-Title I schools had an SCSR score less than 4. Due to this fact, none of the non-Title I schools are in the second or third SCSR group as defined by this research study. Conversely, 77 percent of the Title I schools fall below an SCSR score of 4. Additionally, in looking specifically at

Title I elementary schools; 4.5 percent received an SCSR score of 5; 18.2 percent received an SCSR score of 4; 54.5 percent received an SCSR score of 3; 18.2 percent received an SCSR score of 2; 4.5 percent received an SCSR score of 1.

Table 4.4

Elementary Schools' Title I/Non-Title I Classifications, SCSR, and SCSR Groups

School	Title I/Non-Title I	SCSR	SCSR Group
E1	Title I	5	1
E2	Non-Title I	5	1
E3	Non-Title I	4	1
E4	Non-Title I	4	1
E5	Non-Title I	4	1
E6	Title I	4	1
E7	Non-Title I	4	1
E8	Non-Title I	4	1
E9	Title I	4	1
E10	Title I	4	1
E11	Non-Title I	4	1

E12	Non-Title I	4	1
E13	Non-Title I	4	1
E14	Title I	4	1
E15	Title I	3	2
E16	Title I	3	2
E17	Title I	3	2
E18	Title I	3	2
E19	Title I	3	2
E20	Title I	3	2
E21	Title I	3	2
E22	Title I	3	2
E23	Title I	3	2
E24	Title I	3	2
E25	Title I	3	2
E26	Title I	3	2

Table 4.4 (*continued*)

School	Title I/Non-Title I	SCSR	SCSR Group
E27	Title I	2	3
E28	Title I	2	3
E29	Title I	2	3
E30	Title I	2	3
E31	Title I	1	3

Table 4.5 identifies the middle schools utilized in this study. The same type of letter/number combination was used to identify the schools, with the M representing middle school. 42 percent of schools were non-Title I, while the remaining 58 percent

were identified as Title I. None of the non-Title I schools had an SCSR score less than 3. None of the non-Title I schools were in the third SCSR group. Consequently, 33 percent of the Title I schools fell below an SCSR score of 3. Additionally, in looking specifically at Title I middle schools: 14.3 percent received an SCSR score of 5; 0 percent received an SCSR score of 4; 28.6 percent received an SCSR score of 3; 42.8 percent received an SCSR score of 2; 14.3 percent received an SCSR score of 1.

Table 4.5

Middle Schools' Title I/Non-Title I Classifications, SCSR, and SCSR Groups

School	Title I/Non-Title I	SCSR	SCSR Group
M1	Title I	5	1
M2	Non-Title I	4	1
M3	Non-Title I	4	1
M4	Non-Title I	4	1
M5	Title I	3	2
M6	Title I	3	2
M7	Non-Title I	3	2
M8	Non-Title I	3	2
M9	Title I	2	3

M10	Title I	2	3
M11	Title I	2	3
M12	Title I	1	3

Another descriptive statistic is the number of students on each grade level. In the administration of the CRCT Reading test, the number of participants ranged from $n = 2,071$ to $n = 2,304$.

Table 4.6

Grade Level Percentage of Total Participation

Grade	n	Reading		Math	
		Percentage	n	Percentage	n
3 rd Grade	2,289	17.4%	2,309	17.7%	
4 th Grade	2,114	16.1%	2,102	16.1%	
5 th Grade	2,071	15.8%	2,058	15.8%	
6 th Grade	2,146	16.3%	2,116	16.3%	
7 th Grade	2,304	17.6%	2,256	17.3%	
8 th Grade	2,200	16.8%	2,182	16.8%	

3 rd -5 th Grades	6,474	49.3%	6,469	49.7%
6 th -8 th Grades	6,650	50.7%	6,554	50.3%
Total N Students	13,124		13,023	

This same similarity occurred with the CRCT Math test administration. The number of participants ranged from $n = 2,058$ to $n = 2,309$. This similarity is seen in Table 4.6. Additionally, there were only 176 fewer 3rd through 5th grade participants ($n = 6,474$) than 6th through 8th grade participants ($n = 6,650$). Again, this trend was seen in the CRCT Math results. There were only 85 fewer 3rd through 5th grade participants ($n = 6,469$) than 6th through 8th grade participants ($n = 6,554$).

Research Question Analyses

Research Question #1 – Path Analysis Model. The first research question—“What effect does Georgia’s SCSR have on students’ Reading and Math achievement on the CRCT?”—was analyzed using the PAM. Figure 4.1 illustrates the defined model for the analysis of data for the first question. The impact the SCSR has on CRCT Reading and Math achievement was assessed. This analysis produced regression equations and path coefficients for both Reading and Math.

Figure 4.1 Path analysis diagram for the SCSR and CRCT Reading and Math results

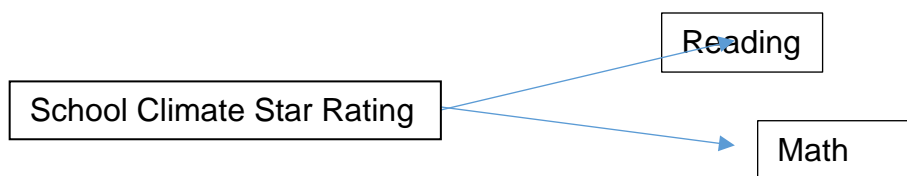


Table 4.7 contains the correlation values between Reading, Math, and the SCSR. The correlation between Reading and Math is .905, $p < .001$. The correlation between Reading and the SCSR is .509, $p < .001$. The correlation between Math and the SCSR is .547, $p < .001$.

Table 4.7

Reading, Math, and the SCSR Correlation Values

	Reading	Math	SCSR
Reading	—	.905*	.509*
Math		—	.547*
SCSR			—

Note. * $p < .001$.

The effect of the SCSR on Reading achievement was run in SPSS 17.0. The results indicated 82 percent ($R^2 = .819$) of the variance in Reading was attributed to the SCSR which was statistically significant, univariate $F_{1,41} = 185.551$, $p < .001$. The standardized path coefficient of .905 indicated that for each one standard deviation unit

increase in the SCSR, there was a .905 standard deviation increase in Reading. Table 4.8 contains the Reading model summary; Table 4.9 includes coefficient values for Reading.

Next, the effect of the SCSR on Math achievement was run in SPSS 17.0. The results indicated 26 percent ($R^2 = .259$) of the variance in Math is attributed to the SCSR which was also statistically significant, univariate $F_{1,41} = 14.337, p < .001$. There was a path coefficient of .509 which means for each one standard deviation unit increase in the SCSR, there was a .509 standard deviation increase in Math. Table 4.8 contains the Math model summary; Table 4.9 includes coefficient values for Math.

Table 4.8

Reading and Math Model Summary

Achievement	R^2	F	df ₁	df ₂
Reading	.819*	185.551	1	41
Math	.259*	14.337	1	41

Note. * $p < .001$.

Table 4.9

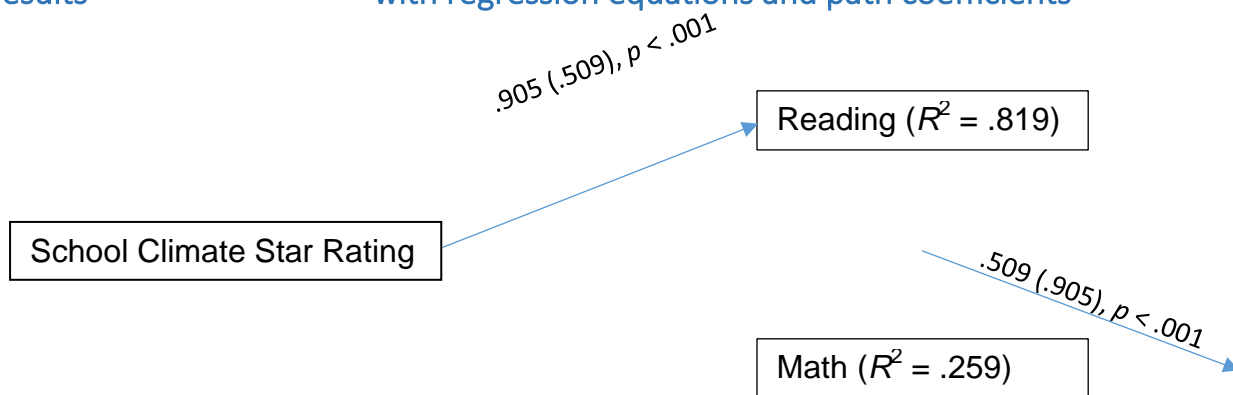
Reading and Math Coefficient Values

Achievement	<i>B</i>	<i>t</i>	<i>p</i>
Reading	.905*	13.622	.000*
Math	.509*	3.786	.000*

Note. * $p < .001$.

The analysis produced regression equations and path coefficients for both Reading and Math. Figure 4.2 gives the regression equation for the relationship between the SCSR and Reading, .905 (.509), $R^2 = .819$, $p < .001$. It also gives the regression equation for the relationship between the SCSR and Math, .509 (.905), $R^2 = .259$, $p < .001$.

Figure 4.2 Path analysis diagram for the SCSR and CRCT Reading and Math results with regression equations and path coefficients



Research Question #2 – Factorial MANOVA. The second question—“What effect does Title I or non-Title I status, the SCSR, and the difference between the two have on Reading and Math achievement?”—was analyzed using Factorial MANOVA. The Wilks’ Lambda distribution was used in determining significance with this data analysis method. First, in SPSS 17.0, differences in the SCSR groups across the combined Reading and Math variables were analyzed. Next, the difference in the Title I/non-Title I groups across the combined Reading and Math variables was investigated. Finally, the interaction between the SCSR groups and the Title I/non-Title I groups on the combined dependent Reading and Math variables was examined.

The difference in the SCSR groups across combined Reading and Math variables was not significant, $\lambda = .805$, multivariate $F_{4,74} = 2.125$, $p = .086$. Table 4.10 contains the descriptive statistics for the Reading and Math values utilized in this step of the data analysis.

Table 4.10

Reading and Math Descriptive Statistics Values

Achievement	SCSR Group	Title I Status	M	SD	n
Reading	1.00	1.00*	832.131	10.009	7
		2.00**	849.944	9.142	12
	2.00	1.00*	827.529	8.018	14
		2.00**	841.657	2.783	2
	3.00	1.00*	826.840	9.150	8
Math	1.00	1.00*	825.257	9.057	7
		2.00**	850.749	16.666	12
	2.00	1.00*	820.969	12.155	14
		2.00**	827.014	.075	2
	3.00	1.00*	813.540	12.705	8

Note. *Title I. ** non-Title I.

Next, the difference in the Title I/non-Title I groups across combined Reading and Math variables was significant, $\lambda = .683$, multivariate $F_{2,37} = 8.593$, $p = .001$. Finally, the

interaction between the SCSR groups and the Title I/non-Title I groups was not significant, $\lambda = .883$, multivariate $F_{2,37} = 2.448$, $p = .1$. Table 4.11 includes values for the Wilks' Lambda multivariate test.

Table 4.11

Wilks' Lambda Multivariate Test

Effect	df ₁	df ₂	<i>p</i>	η^2
SCSR Group	4	74	.086	.195
Title I/non-Title I	2	37	.001*	.317
Interaction	2	37	.100	.117

Note. * $p < .05$.

Given that the only relationship identified as having statistical significance was the difference in the Title I/non-Title I groups across combined Reading and Math variables, a follow up on the Title I/non-Title I groups variable was performed. A test between the subjects was conducted. The results from this test indicated that the difference between the Title I/non-Title I groups and CRCT Reading achievement was statistically significant, multivariate $F_{1,38} = 16.475$, $p < .001$. The same held true for the difference between the Title I/non-Title I groups and CRCT Math achievement; it was also statistically significant, multivariate $F_{1,38} = 7.181$, $p = .011$. Table 4.12 includes the values from these tests. Essentially, the SCSR groups had significance on the Reading

and Math variables as a whole, but not on the individual groupings, while the Title I/non-Title I groups did have significance on the Reading and Math individual groupings.

Table 4.12

Post Hoc Effect of Title I/non-Title I Status

Achievement	<i>F</i>	df ₁	df ₂	Sig.
Reading	16.475	1	38	.000*
Math	7.181	1	38	.011**

Note. * $p < .001$. ** $p < .05$.

To illustrate this descriptively, Table 4.13 contains composite Reading (n = 13,046) and Math (n = 12,942) mean scores, composite Title I Reading (n = 7,893) and Math (n = 7,838) mean scores, and composite non-Title I Reading (n = 5,153) and Math (n = 5,104) mean scores.

Table 4.13

CRCT Reading and Math Mean Scores by Subgroups – All, Title I, and non-Title I

Achievement	All	Title I	non-Title I
Reading	837.08	829.83	848.17

Math	829.08	818.33	845.58
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Conclusion

The goal of the researcher was to identify if there was statistical significance in the effect of the SCSR on Reading and Math achievement. For this research question, the PAM was utilized, and it confirmed that there was statistical significance. The second objective of the researcher was to identify the effect of Title I/non-Title I status on the combined Reading and Math achievement variables. A Factorial MANOVA followed by a test between the subjects was used to determine that there was a statistically significant difference between Title I/non-Title I groups and CRCT Reading achievement. The same was found between Title I/non-Title I groups and CRCT Math achievement. These areas of significance, will be discussed in the next chapter.

Chapter 5 – Discussion and Conclusions

Introduction

The researcher focused on the importance of school climate with an investigation into its potential impact on Reading and Math achievement. The climate of a school is powerful because it is the attitude of the group (Gruenert & Whitaker, 2015). Climate produces a state of mind, can easily change depending on the day of the week or the month of the year, and is grounded in perceptions. Climate is what is felt when a person walks in a room, what surrounds one. Climate has been described as the way the people

feel, and it is the first thing that recovers when positive change is implemented.

Additionally, an effective school climate is deeply psychological (Gruenert & Whitaker, 2015) and is a byproduct of a strong school culture; they work interactively but are not synonymous (Saufler, 2006; Gruenert, 2008).

Strong school climates experience an increased level of quality in value, growth, innovation, collaboration, partnerships, execution, and stakeholder loyalty. In contrast, poor school climates can experience redundant efforts, bureaucracy, disruptive politics, stakeholder disengagement, increased turnover in employees and other valuable stakeholders, and fraud or other ethical issues (Covey & Merrill, 2006).

The body of research is mounting which signifies that positive school climate not only directly impacts student achievement; it also increases the percentage of students who receive a high school diploma. Negative school climate will have the opposite effect (Georgia Department of Education, or GADOE, 2014c). Due to the level of the importance of school climate, officials of the Georgia Department of Education (GADOE) developed a focus on the climate of public schools across the state and have built the opinions, through surveys, of stakeholders into their assessments of the progress schools are or are not making. Georgia was the first state, in 2011, to incorporate school climate into school accountability and is considered a national leader in this area for the work they have done (GADOE, 2014c).

Overview of the Study

The purpose of this study was to determine whether Georgia's School Climate Star Rating, or SCSR, had an effect on Criterion-Referenced Competency Test, or CRCT, Reading and Math achievement. Additionally, the researcher examined the differential

relationships based on the Title I/non-Title I status of schools. Finally, the researcher determined the effect of Title I/non-Title I status, SCSRs, and the interaction between the two on CRCT Reading and Math achievement.

The researcher produced the following research questions for consideration:

1. What effect does Georgia's SCSR have on students' Reading and Math achievement on the CRCT?
2. What effect does Title I or non-Title I status, the SCSR, and the difference between the two have on Reading and Math CRCT achievement?

Reading and Math were selected because these are the two subject areas that have traditionally received the most attention with respect to measuring student achievement (Georgia Department of Education, 2011). The researcher utilized the Path Analysis Model (PAM) for the first research question. For the second research question, the Factorial Multivariate Analysis of Variance, or MANOVA, was used.

Discussion

Univariate and Multivariate Assumptions. Univariate outliers were considered; however, z-scores fell between -3.29 and 3.29, indicating there were no univariate outliers. Skewness values were examined. Some values were a little high and some were within the desired range of -1 and 1. Kurtosis values were also investigated. Some values were a little high, while some were peaked.

Mahalanobis distance was used to check for multivariate outliers. Chi-square values > 13.816 ($\chi^2_2 = 13.816$, $p < .001$) would have been considered outliers; however, all values fell below the designated level, leaving no outliers. Box's M test was utilized to test for homogeneity of variance (HOV), and in all identified cases, HOV was

established. Specific values can be found in chapter four of this study. The possibility of multicollinearity was also investigated. The Variation Inflation Factor (VIF) was < 10 , indicating the research items were not too highly correlated. Additionally, histograms were examined, which produced normal distributions.

Once all the assumptions had been run in SPSS 17.0, research data was left unaltered. This was a direct result of having no univariate or multivariate outliers. Skewness levels which did not cause concern factored into this decision as well. Despite having some kurtosis levels which fell outside of the range -1 to 1 , the outlier and skewness data were sufficient in making this decision.

Descriptive Statistics. The elementary schools were comprised of 71 percent Title I and 29 percent non-Title I. No non-Title I schools had an SCSR less than 4, resulting in all of the non-Title I schools being placed in SCSR group 1. Conversely, 77 percent of the Title I schools fell below an SCSR of 4, resulting in this group of schools being placed in SCSR groups 2 or 3, depending on their individual SCSR.

The middle schools were comprised of 58 percent Title I and 42 percent non-Title I. None of the non-Title I schools had an SCSR less than 3 resulting in all of the non-Title I schools being placed in SCSR groups 1 or 2, depending on their individual SCSR. Contrariwise, 33 percent of the Title I schools fell below an SCSR of 3, resulting in this group of schools being placed in SCSR group 3. Table 5.1 provides this information in greater detail.

Table 5.1

Elementary and Middle School Information

Variable	Elementary	Middle
# of Schools	31	12
Schools	72.1%	27.9%
Title I	71%	58.3%
Non-Title I	29%	41.7%
SCSR Group 1	45.2%	33.3%
SCSR Group 2	38.7%	33.3%
SCSR Group 3	16.1%	33.3%

It is evident that each middle school is drawing students from multiple elementary schools, with almost three times as many elementary schools as middle schools in the selected school district. This may explain the lower levels of separation in regards to the SCSR when comparing the two different grade composite groups' (3rd through 5th grade and 6th through 8th grade) SCSR results.

Research question one. The first research question—“What effect does Georgia’s SCSR have on students’ Reading and Math achievement on the CRCT?”—was analyzed using the PAM. The results indicated 82% ($R^2 = .819$) of the variance in Reading is attributed to the SCSR which was statistically significant, univariate $F_{1,41} = 185.551, p < .001$. In addition, the results indicated 26% ($R^2 = .259$) of the variance in Math is attributed to the SCSR which was also statistically significant, univariate $F_{1,41} =$

14.337, $p < .001$. Both subject areas were significantly impacted by the SCSR; however, the impact on Reading was the most substantial.

Research question two. The second question—“What effect does Title I or non-Title I status, the SCSR, and the difference between the two have on Reading and Math achievement?”—was analyzed using the Factorial MANOVA. Initially, the difference in the SCSR groups across combined Reading and Math variables was analyzed. Next, the difference in the Title I/non-Title I groups across combined Reading and Math variables was investigated. Finally, the interaction between the SCSR groups and the Title I/non-Title I groups was examined.

Some variance was shown by the results. First, the difference in the SCSR groups across combined Reading and Math variables was not significant, $\lambda = .805$, multivariate $F_{4,74} = 2.125$, $p = .086$. Next, the difference in the Title I/non-Title I groups across combined Reading and Math variables was significant, $\lambda = .683$, multivariate $F_{2,37} = 8.593$, $p = .001$. Finally, the interaction between the SCSR groups and the Title I/non-Title I groups was not significant, $\lambda = .883$, multivariate $F_{2,37} = 2.448$, $p = .1$.

Since the difference in the Title I/non-Title I groups across combined Reading and Math variables was significant, further examination took place. Tests between the subjects were performed. These tests indicated The interaction between Title I/non-Title I and Reading and Title I/non-Title I and Math were both statistically significant, according to the tests. Again, as with the results from the first research question, Title I/non-Title I's relationship with Reading held the most significance.

Relationship between the findings and other research. In 2007, officials of the National School Climate Center (NSCC), the Center for Social and Emotional

Education (CSEE), and the Education Commission of the States (ECS) claimed achievement in students, is either stimulated or hindered by school climate. School culture, and its resulting climate, is so important that school improvement is directly impacted by it. The reason for this is the impact of culture and climate on a school's student achievement (MacNeil, Prather, & Busch, 2009). There is also a direct correlation between principal leadership and a school's culture and climate. So, indirectly, principal leadership impacts student achievement which impacts school improvement (MacNeil et al., 2009). Leaders of the Wallace Foundation (2013) asserts that schools with strong instructional climate ratings have principals who outperform other principals from other schools with weaker instructional climate ratings. These assertions closely align with the statistically significant finding of the impact of the SCSR on Reading and Math achievement.

Additionally, authorities of the Center for Policy Analysis (2003) identified the change in the type of student schools now are expected to educate. Students arrive with varying learning capacities, mental and physical disabilities, disproportionate family incomes, different cultural backgrounds, citizenship issues, or a combination of one or more of these challenges. This is a potential explanation to the statistically significant finding of the effect Title I/non-Title I status has on student achievement.

Implications

Shannon-Missal and Gosney (2014) presented some startling implications about American perception of respect for teachers. Currently, merely 49 percent of Americans surveyed think parents respect teachers. Just 31 percent think teachers are respected by students. Only 64 percent think parents are respected by teachers, and 61 percent think

teachers respect students. If these figures are accurate, schools face an uphill battle towards success for their students, a battle where the front lines are rooted in the school culture and climate.

Directors of Harris Interactive (2013) conducted a survey for MetLife addressing the current challenges facing school leadership. A remarkable deterioration over the last five years in teacher satisfaction is illustrated by the results. In some areas, levels are at the lowest they have been in the last 25 years. Never has a strong school climate been more crucial for the future success of schools and the students attending them.

The data analysis for the first research question indicated that school climate significantly impacts both Reading and Math achievement. However, the impact on Reading achievement was the most significant, and this was underscored by the statistical results from the second research question. The implication is that students growing up in homes with higher levels of poverty will have less access to a print- rich environment, one which will provide a foundation of literacy prior to them attending their first day of school.

In this study, the larger percentage of Title I schools, as seen in Table 5.1, falling in group 2, and especially group 3, indicates a need for an increased focus on improving school climate in schools with higher levels of poverty. With the statistical significance that was found in this study, it is evident improving school climate must become a focus of states, districts, schools, and communities. The differences in the Reading and Math achievement of Title I and non-Title I schools clearly indicates that there is a different set of student needs which should be examined through the lens of school climate.

Since the effect of school climate on student achievement has been found to be statistically significant, there are four areas on which principals can focus their attention in improving the climate of their schools: the external setting, relationships, safety, and teaching and learning (National School Climate Center, or NSCC, 2014). The development of a climate conducive to student learning is crucial. This requires placing learning at the center of everything done in a school (The Wallace Foundation, 2013).

Mendler (2012) identified six practices which can help improve the climate of a school. First, genuine relationships must be established. Second, the connection of learning to real-life situations is critical. Third, the development of responsibility is a key factor in student, and school, success. Fourth, it is important to identify and celebrate success. Fifth, a safe environment for academic and social interactions must be provided. Finally, an enjoyable atmosphere in which students can connect in a tangible manner is a necessity (Mendler, 2012).

The principalship is a crucial role in every school; this position must be filled by a person who causes transformation in the depths of teaching and learning in every classroom. Additionally, this person must also positively impact quality of life for all students (Stronge et al., 2008). These accomplishments are met by developing and maintaining a school vision, distributing leadership to teacher leaders, being the lead learner within a learning community, implementing data- driven decision making, and supervising classroom learning – specifically the curriculum and instruction (Stronge et al., 2008).

A school lacking a positive school climate will have students who feel unsafe while at school; they will feel unwelcome in their classrooms; disrespect will be rampant.

Learning opportunities will not be noticed, let alone actualized. Student maturation and growth will be restricted, and potential for academic and social gains will be nonexistent. Additional problems involve a negative trend in teacher retention, deficits in student performance and school safety as well as poor student attendance and discipline (Watson & Hodges, 2014).

Recommendations for Further Research

Officials of the GADOE is in the process of establishing reliability for the SCSR, and they are expecting to finish this task by the beginning of May 2015 (M. Watson, personal communication, April 22, 2015). Once reliability is established, there will be a more concrete foundation upon which to build future research studies. Because of the recent mandated changes in public education, specifically the utilization of student achievement to guide teaching and learning (Duncan, 2009a), this focus on school climate is crucial to the success of schools.

The researcher only looked at 3rd through 8th grade SCSR and Reading and Math achievement as well as the impact of Title I/non-Title I status. To further the relevance of the findings within this study, it would be beneficial to expand the study to include other grade levels (i.e. 9th through 12th grade) as well as other subject areas (i.e. Science and Social Studies). A number of other factors could be examined: teacher retention, student mobility rate, community surveys, and stakeholder interviews. If those studies produced similar findings, the concept of focusing on school climate as a major driver of school improvement would become even more relevant.

Conclusion

Since the body of research on school climate is currently growing, this is a timely research study. The results of this study are one more piece to add to an important educational and organizational topic. The statistically significant findings of this study indicate a need for educators to keep school climate at the forefront of their daily work if they are to achieve the academic and emotional growth they desire to see in each of their students.

The field of education is a difficult one, one which requires a huge commitment from those who enter it. The task is daunting, and it will not diminish. If anything, the challenges educators, students, and parents face are only going to continue to grow. It is not enough to focus on the academic side of things; although this is an important aspect of school climate, there must be a focus on the emotional climate of a school.

Administrators of schools need to implement school-wide activities which will enhance and not detract from its climate. Appointed and conscious effort will be required from all stakeholders; however, it is an effort worth making.

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Appendix A

This survey was accessed at [https://www.gadoe.org/Curriculum-Instruction-and-Assessment/ Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx](https://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx) on April 11, 2015.

Georgia Elementary School Climate Survey

Gender:	Female	Male	
Ethnicity	Hispanic or Latino	Not Hispanic or Latino	
Race	White	Black or African American	
	Asian	American Indian or Alaskan Native	
	Native Hawaiian or Other Pacific Islander		
Grade:	3	4	5

Appendix A (continued)

Answer Options: Always Often Sometimes Never

Questions:

1. I like school.
 2. I feel like I do well in school.
 3. My school wants me to do well.
 4. My school has clear rules for behavior.
 5. I feel safe at school.
 6. Teachers treat me with respect.
 7. Good behavior is noticed at my school.
 8. Students in my class behave so that teachers can teach.
 9. I get along with other students.
 10. Students treat each other well.
 11. There is an adult at my school who will help me if I need it.
-

Appendix B

This survey was accessed at [https://www.gadoe.org/Curriculum-Instruction-and-Assessment/ Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx](https://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx) on April 11, 2015.

Georgia Student Health Survey 2.0

Grade:	6 th	7 th	8 th	9 th	10 th	11 th	12 th
--------	-----------------	-----------------	-----------------	-----------------	------------------	------------------	------------------

Gender	Female	Male
--------	--------	------

Ethnicity	Hispanic or Latino	Not Hispanic or Latino
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Race	White	Black or African American	Asian	American Indian or Alaskan Native	Native Hawaiian or Other Pacific Islander
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Appendix B (*continued*)

Section A: School Climate

School Connectedness

Answer Options:

Strongly Agree

Somewhat Agree

Strongly Disagree

Somewhat Disagree

Questions:

1. I like school.
 2. Most days I look forward to going to school.
 3. I feel like I fit in at my school.
 4. I feel successful at school.
 5. I feel connected to others at school.
-

Peer Social Support

6. I get along with other students at school.
 7. I know a student at my school that I can talk to if I need help (e.g. homework, class assignments, projects).
 8. I know a student at my school that I can talk to if I am feeling sad or down.
 9. I have a group of friends at school that I have fun with and are nice to me.
 10. Students in my school are welcoming to new students.
-

Adult Social Support

11. Teachers treat me with respect.

12. Adults in this school treat all students with respect.

13. All students are treated fairly by the adults in my school.

Appendix B (continued)

14. Teachers treat all students fairly.

Cultural Acceptance

15. Students at my school treat each other with respect.

16. Students treat one another fairly.

17. Students show respect to other students regardless of their academic ability.

18. Students at this school are treated fairly by other students regardless of race, ethnicity, or culture.

19. All students in my school are treated fairly regardless of their appearance.

Social/Civic Learning

20. I treat other students fairly.

21. Doing the right thing is important to me.

22. Patience is an important trait to me.

23. I am open towards different opinions and perspectives.

24. I believe in helping others.

25. Honesty is an important trait to me.

26. I show courtesy to other students.

27. I complete a task despite the challenges.

Physical Environment

28. My school building is well maintained.

29. My textbooks are up to date and in good condition.

30. Teachers in my school keep their classrooms clean and organized.

31. Students in my school take pride in keeping our school building (e.g. bathrooms, classrooms, lockers) in good condition.

Appendix B (continued)

School Safety

32. I have felt unsafe at school or on my way to or from school.
33. I have worried about other students hurting me.
34. I feel safe in my school.
35. I have been concerned about my physical safety at school.
36. Students at my school fight a lot.
37. I have been involved in a fight at school.
38. I have observed a fight at school.

Peer Victimization

39. I have been bullied or threatened by other students.
40. I have been picked on or teased at school.
41. I have received a threatening or harassing email from other students.
42. I have received threatening or harassing text messages from other students (SMS).
43. I have been mocked, tormented, or harassed on a social networking sit (e.g. Facebook, Twitter) by other students.
44. Someone has bullied or picked on me by pushing, hitting, or kicking me.
45. Someone has bullied me or picked on me by making fun of me, yelling at me, or saying something mean to me.

Section B: Parent Involvement

Parent Involvement

46. My parents, or other adults at my home, think that education is important.

47. My parents, or other adults at my home, are able to help me with my homework when I ask them.

Appendix B (*continued*)

-
48. My parents, or other adults at my home, ask me about my grade on a regular basis.
49. My parents, or other adults at my home, think that it is important for me to graduate from high school.
-

Section C: Drug and Alcohol Use

Answer Options: Students are able to select any number of days from 1 to 30

Questions:

50. During the past 30 days, on how many days did you have at least one drink of alcohol?
51. During the past 30 days, on how many days did you smoke cigarettes?
52. During the past 30 days, on how many days did you use any other tobacco products?
53. During the past 30 days, on how many days did you smoke an electronic vapor product (such as e-cigars, e-pipes, vape pipes, vaping pens, e-hookahs, or hookah pens)?
54. During the past 30 days, on how many days did you use marijuana (also called grass, pot, or hashish)?
55. During the past 30 days, on how many days did you drink 5 or more drinks of alcohol in a row, that is, within a couple of hours?
56. During the past 30 days, on how many days did you use methamphetamine (also called speed, crystal, crank, or ice)?

57. During the past 30 days, on how many days did you use zenabrilatol (street name ZB)?
58. During the past 30 days, on how many days did you use a prescription drug painkiller (such as Oxycontin or Vicodin) without a doctor's prescription?

Appendix B (*continued*)

59. During the past 30 days, on how many days did you use a prescription drug tranquilizer or sedative (such as Xanax or Ativan) without a doctor's prescription?
60. During the past 30 days, on how many days did you use a prescription drug stimulant (such as Ritalin or Adderall) without a doctor's prescription?
61. During the past 30 days, on how many days did you use any other type of prescription drug without a doctor's permission?
62. If you used a prescription drug without a doctor's prescription, please indicate why:
- | | | |
|-----------------|--------------------|-----------------------------|
| Medical reasons | To feel more alert | To relax or quiet my nerves |
| To enjoy myself | To get high | Does not apply |
-

Section D: Student Information

63. In the past 7 days, how many days did you eat school lunch?
- | | |
|-------------------|-------------------|
| Not at all | 1 day per week |
| 2-3 days per week | 4-5 days per week |
64. In the past 7 days, how many days were you physically active for at least 60 minutes at school or home?
- | | |
|-------------------|-------------------|
| Not at all | 1 day per week |
| 2-3 days per week | 4-5 days per week |
65. On the average school day, how many hours do you play video or computer games, use a computer for something other than schoolwork, or watch television?
- | | | |
|-------------------|-------------------------|-------------------|
| Not at all | 1 hour per day | 2-3 hours per day |
| 3-5 hours per day | 5 or more hours per day | |

66. I have been taught about alcohol, tobacco, and other drugs within the last year at school.

Yes No

67. I have been taught about AIDS or HIV infection within the last year at school.

Yes No

Appendix B (*continued*)

68. I have been taught about character education within the last year at school.

Yes No

69. During the past 12 months, on how many occasions have you thought about dropping out of school?

Not at all On 1-2 occasions
On 3-5 occasions On more than 5 occasions

70. If you were going to drop out of school, what would most likely be the reason?

I have not thought about dropping out of school
School work Family reasons
Being bullied Other

71. In the past 30 days, I have driven a car or other vehicle while I was drinking alcohol:

Not at all On 1-2 occasions
On 3-5 occasions On more than 5 occasions

72. In the past 30 days, I have ridden in a car or other vehicle with someone that was drinking alcohol.

Not at all On 1-2 occasions
On 3-5 occasions On more than 5 occasions

73. Where do your friends usually use alcohol or tobacco?

Do not use At home At school
In a car Friend's house

74. During the past 12 months, on how many occasions have you brought a weapon to school?

Not at all	On 1-2 occasions
On 3-5 occasions	On more than 5 occasions

75. During the past 12 months, on how many occasions have you participated in illegal gang activities?

Not at all	On 1-2 occasions
On 3-5 occasions	On more than 5 occasions

Appendix B (*continued*)

76. During the past 12 months, on how many occasions have you had friends that participated in illegal gang activities?

Not at all	On 1-2 occasions
On 3-5 occasions	On more than 5 occasions

77. During the past 12 months, on how many occasions have you been offered, sold, or given illegal drugs on school property?

Not at all	On 1-2 occasions
On 3-5 occasions	On more than 5 occasions

78. During the past 12 months, on how many occasions have you been in a physical fight on school property?

Not at all	On 1-2 occasions
On 3-5 occasions	On more than 5 occasions

79. During the past 12 months, on how many occasions have you seriously considered harming yourself on purpose?

I have not seriously considered harming myself on purpose	
On 1-2 occasions	On 3-5 occasions
On more than 5 occasions	

80. During the past 12 months, if you have seriously considered harming yourself on purpose, what was the most likely reason?

I have not seriously considered harming myself on purpose	
Because of the demands of school work	
Problems with peers or friends	

I do not feel safe at school
 Family reasons
 Being bullied
 Other

Appendix B (*continued*)

81. During the past 12 months, on how many occasions have you harmed yourself on purpose?

I have not harmed myself on purpose

On 1-2 occasions

On 3-5 occasions

On more than 5 occasions

82. During the past 12 months, if you have harmed yourself on purpose, what was the most likely reason?

I have not seriously considered harming myself on purpose

Because of the demands of school work

Problems with peers or friends

I do not feel safe at school

Family reasons

Being bullied

Other

83. During the past 12 months, on how many occasions have you seriously considered attempting suicide?

I have not seriously considered attempting suicide

On 1-2 occasions

On 3-5 occasions

On more than 5 occasions

84. During the past 12 months, if you have seriously considered attempting suicide, what was the most likely reason?

I have not seriously considered attempting suicide
 Because of the demands of school work
 Problems with peers or friends
 I do not feel safe at school
 Family reasons
 Being bullied
 Other

Appendix B (*continued*)

85. During the past 12 months, on how many occasions have you attempted suicide?

I have not attempted suicide
 On 1-2 occasions On 3-5 occasions
 On more than 5 occasions

86. During the past 12 months, if you have attempted suicide, what was the most likely reason?

I have not attempted suicide
 Because of the demands of school work
 Problems with peers or friends
 I do not feel safe at school
 Family reasons
 Being bullied
 Other

Section A: School Climate

Answer Options:

Strongly Agree

Somewhat Agree

Strongly Disagree

Somewhat Disagree

Questions:

-
87. I feel my school has high standards for achievement.
88. My school sets clear rules for behavior.
89. The behaviors in my classroom allow the teacher to teach so I can learn.
90. Students are frequently recognized for good behavior.
91. I know an adult at school that I can talk with if I need help.
92. I know what to do if there is an emergency at my school.
93. I would help someone who was being bullied.

Appendix B (*continued*)

Section B: Age of Onset

<i>Answer Options:</i>	Never used	11 years old	15 years old
	8 years or younger	12 years old	16 years old
	9 years old	13 years old	17 years old
	10 years old	14 years old	18 years or older

Questions:

94. How old were you when you had your first drink of alcohol other than a few sips?
95. How old were you the first time you smoked part, or all, of a cigarette?
96. How old were you the first time you used any other tobacco products?
97. How old were you the first time you used marijuana or hashish?
98. How old were you the first time you used methamphetamines (e.g. speed, crystal, crank, or ice)?
99. How old were you the first time you used other illegal drugs?
100. How old were you the first time you used prescription drugs without a doctor's prescription?
-

Section C: Perceptions of Risk/Harm

Answer Options:

	No risk	Slight risk
	Moderate risk	Great risk

Questions:

101. How much do you think people risk harming themselves, physically and in other ways, if they have five or more drinks of an alcoholic beverage once or twice a week?

Appendix B (*continued*)

102. How much do you think people risk harming themselves, physically and in other ways, if they take one or two drinks of an alcoholic beverage (beer, wine, liquor) nearly every day?
103. How much do you think people risk harming themselves, physically and in other ways, if they use one or more packs of cigarettes a day?
104. How much do you think people risk harming themselves, physically and in other ways, if they smoke marijuana once or twice a week?
105. How much do you think people risk harming themselves, physically and in other ways, when they use prescription drugs without a doctor's prescription?
-

Section D: Peer/Adult Disapproval

Answer Options:

	Not at all wrong	A little bit wrong
	Wrong	Very Wrong

Questions:

106. How wrong do your parents feel it would be for you to have one or two drinks of alcohol nearly every day?
107. How wrong do your parents feel it would be for you to smoke tobacco?
108. How wrong do your parents feel it would be for you to smoke marijuana?
109. How wrong do your parents feel it would be for you to use prescription drugs not prescribed to you?
110. How wrong do your friends feel it would be for you to have one or two drinks of alcohol nearly every day?
111. How wrong do your friends feel it would be for you to smoke tobacco?
112. How wrong do your friends feel it would be for you to smoke marijuana?

Appendix B (continued)

-
113. How wrong do your friends feel it would be for you to use prescription drugs not prescribed to you?
-

Section E: Mental Health

<i>Answer Options:</i>	None	1 or 2 days	3-5 days
	6-9 days	10-19 days	20-29 days
	All 30 days		

Questions:

-
114. In the past 30 days, how many days have you felt sad or withdrawn?
115. In the past 30 days, how many days have you felt suddenly overwhelmed with fear for no reason, sometimes including a racing heart or fast breathing?
116. In the past 30 days, how many days have you experienced severely out-of-control behavior that could hurt yourself or others?
117. In the past 30 days, how many days have you avoided food, thrown up, or used laxatives to make yourself lose weight?

118. In the past 30 days, how many days have you experienced intense worries or fears that get in the way of your daily activities?
119. In the past 30 days, how many days have you experienced extreme difficulty concentrating or staying still, which has put you in physical danger and/or caused school failure?
120. In the past 30 days, how many days have you experienced severe mood swings that have caused problems in relationships?
121. In the past 30 days, how many days have you experienced drastic changes in your behavior and/or personality?
-

Appendix C

This survey was accessed at [https://www.gadoe.org/Curriculum-Instruction-and-Assessment/ Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx](https://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx) on April 11, 2015.

Georgia Parent School Climate Survey

Grade of your student/students:	K	1 st	2 nd	3 rd	4 th	5 th			
		6 th	7 th	8 th	9 th	10 th	11 th	12 th	

Is your student enrolled in any of these programs (mark all that apply)?

Special education program or has an individualized education plan (IEP)

Gifted program or honors/advanced placement courses

Not applicable, not sure, or decline to answer

Gender	Female	Male
--------	--------	------

Ethnicity	Hispanic or Latino
	Not Hispanic or Latino

Race/Ethnicity	White
	Black or African American
	Asian
	American Indian or Alaskan Native
	Native Hawaiian or Other Pacific Islander

Appendix C (*continued*)

Teaching and Learning

Answer Options:

Strongly agree

Somewhat agree

Strongly disagree

Somewhat disagree

Questions:

1. Teachers at my student's school have high standards for achievement.
 2. Teachers at my student's school frequently recognize students for good behavior.
 3. Teachers at my student's school work hard to make sure that students do well.
 4. Teachers at my student's school promote academic success for all students.
-

School Safety

5. My student's school sets clear rules for behavior.
 6. My student feels safe at school.
 7. My student feels safe going to and from school.
 8. School rules are consistently enforced at my student's school.
 9. School rules and procedures at my student's school are fair.
-

Interpersonal Relationships

10. My student likes school.
11. My student feels successful at school.
12. My student is frequently recognized for good behavior.
13. I feel comfortable talking to teachers at my student's school.
14. Staff at my student's school communicates well with parents.
15. I feel welcome at my student's school.
16. All students are treated fairly at my student's school.

Appendix C (*continued*)

17. Teachers at my student's school treat all students with respect.

Institutional Environment

18. My student's school building is well maintained.

19. My student's textbooks are up to date and in good condition.

20. Teachers at my student's school keep their classrooms clean and organized.

Parent Involvement

21. I am involved in the decision making process at my student's school.

22. I am actively involved in activities at my student's school.

23. I attend parent/teacher conferences at my student's school.

24. I frequently volunteer to help on special projects at my student's school.

Appendix D

This survey was accessed at [https://www.gadoe.org/Curriculum-Instruction-and-Assessment/ Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx](https://www.gadoe.org/Curriculum-Instruction-and-Assessment/Curriculum-and-Instruction/GSHS-II/Pages/Georgia-Student-Health-Survey-II.aspx) on April 11, 2015.

Georgia School Personnel Survey

Primary Job Classification:

Teacher	Administrator
Certified Staff Member	Classified/Other Staff Member

Primary Grade Taught: _____

Area(s) Taught:	Science	ELA
	Social Studies	Connections (e.g. Art, Band, PE, Music)
	Math	Special Education
	Other, please specify: _____	

School Work Experience:

0-5 years	6-10 years
11-15 years	More than 15 years

Appendix D (*continued*)

Highest Degree: Bachelor's Degree Master's Degree
 Educational Specialist Degree
 Doctoral Degree
 Other, please specify: _____

Gender Female Male

Ethnicity Hispanic or Latino
 Not Hispanic or Latino

Race/Ethnicity White
 Black or African American
 Asian
 American Indian or Alaskan Native
 Native Hawaiian or Other Pacific Islander

Staff Connectedness

Answer Options: Strongly agree Somewhat agree
 Strongly disagree Somewhat disagree

Questions:

-
1. I feel supported by other teachers at my school.
 2. I get along well with other staff members at my school.
 3. I feel like I am an important part of my school.

Appendix D (*continued*)

4. I enjoy working in teams (e.g. grade level, content) at my school.
 5. I feel like I fit in among other staff members at my school.
 6. I feel connected to the teachers at my school.
-

Structure for Learning

7. Teachers at my school frequently recognize students for good behavior.
 8. Teachers at my school have high standards for achievement.
 9. My school promotes academic success for all students.
 10. All students are treated fairly by the adults at my school.
 11. Teachers at my school treat students fairly regardless of race, ethnicity, or culture.
 12. Teachers at my school work hard to make sure that students do well.
-

School Safety

13. I feel safe at my school.
 14. I have been concerned about my physical safety at school.
 15. If I report unsafe or dangerous behaviors, I can be sure the problem will be taken care of.
 16. I feel safe when entering and leaving my school building.
 17. Some students carry weapons (e.g. guns or knives) at my school.
-

Physical Environment

18. My school building is well maintained.
19. Instructional materials are up to date and in good condition.
20. Teachers at my school keep their classrooms clean and organized.
21. Teachers make an effort to keep the school building and facilities clean.

Appendix D (continued)

Peer and Adult Relations

- 22. Students at my school would help another student who was being bullied.
 - 23. Students at my school get along well with one another.
 - 24. Students at my school get along well with the teachers and other adults.
 - 25. Students at my school treat each other with respect.
 - 26. Students at my school treat other students fairly regardless of race, ethnicity, or culture.
 - 27. Students at my school show respect to other students regardless of their academic ability.
 - 28. Students at my school demonstrate behaviors that allow teachers to teach, and students to learn.
-

Parent Involvement

- 29. Parents at my school attend PTA meetings or parent/teacher conferences.
 - 30. At this school, parents frequently volunteer to help on special projects.
 - 31. Parents at this school frequently attend school activities.
-

Appendix E

3rd Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	45	835.24	93.3
E2	87	846.39	93.1
E3	84	848.99	96.4
E4	95	871.86	100.0
E5	76	861.74	100.0
E6	80	830.96	91.3
E7	64	853.78	98.4
E8	115	852.72	99.1
E9	72	842.18	88.9
E10	106	807.42	62.3
E11	84	861.49	100.0
E12	124	841.25	90.3
E13	72	838.15	95.8
E14	85	831.69	96.5
E15	58	843.71	94.8
E16	88	822.85	87.5
E17	59	813.81	62.7
E18	70	827.04	72.9
E19	54	812.91	68.5
E20	44	823.05	77.3
E21	54	846.07	96.3
E22	87	821.39	78.2
E23	36	838.86	94.4
E24	62	833.42	91.9

Appendix E (*continued*)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	51	809.31	60.8
E26	54	826.43	85.2
E27	47	826.47	83.0
E28	46	825.20	80.4
E29	75	821.73	81.3
E30	67	840.97	91.0
E31	70	827.89	84.3

Appendix F

3rd Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	45	845.00	84.4
E2	88	852.56	90.9
E3	85	838.09	83.5
E4	95	909.72	100.0
E5	76	871.47	98.7
E6	80	822.91	66.3
E7	64	848.42	93.8
E8	116	867.63	95.7
E9	72	833.69	66.7
E10	109	806.26	56.9
E11	85	864.42	96.5
E12	126	830.74	74.6
E13	72	846.04	87.5
E14	84	828.94	78.6
E15	60	848.25	80.0
E16	90	821.89	66.7
E17	59	802.97	52.5
E18	70	824.89	62.9
E19	54	805.09	42.6
E20	44	830.34	79.5
E21	55	847.38	81.8
E22	86	808.99	57.0
E23	36	844.06	83.3
E24	63	847.84	87.3

Appendix F (continued)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	51	810.12	58.8
E26	54	820.22	66.7
E27	48	816.04	64.6
E28	46	810.96	54.3
E29	75	803.92	56.0
E30	70	829.69	75.7
E31	70	818.71	65.7

Appendix G

4th Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	47	820.66	74.5
E2	88	835.64	83.0
E3	98	843.48	93.9
E4	108	874.38	100.0
E5	79	851.44	97.5
E6	75	834.24	86.7
E7	53	849.21	96.2
E8	116	852.83	98.3
E9	66	833.69	66.7
E10	87	814.41	65.5
E11	68	852.60	97.1
E12	116	839.95	88.8
E13	78	836.14	89.7
E14	66	829.68	89.4
E15	56	838.88	87.5
E16	70	832.30	98.6
E17	50	822.50	88.0
E18	61	839.61	93.4
E19	36	821.67	86.1
E20	26	814.85	80.8
E21	67	829.36	86.6
E22	71	821.97	74.6
E23	48	837.29	87.5
E24	47	832.55	95.7

Appendix G (*continued*)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	49	816.16	77.6
E26	65	824.51	84.6
E27	47	826.74	89.4
E28	66	822.14	78.8
E29	71	827.07	87.3
E30	66	840.82	93.9
E31	73	825.68	80.8

Appendix H

4th Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	47	810.34	59.6
E2	87	823.01	71.3
E3	92	825.50	77.2
E4	108	890.04	99.1
E5	79	842.47	87.3
E6	74	826.96	83.8
E7	52	833.42	86.5
E8	117	839.95	82.9
E9	65	836.11	75.4
E10	88	795.40	46.6
E11	66	856.79	93.9
E12	116	827.99	75.9
E13	75	840.20	88.0
E14	66	814.09	74.2
E15	56	838.52	87.5
E16	72	805.10	62.5
E17	50	800.94	50.0
E18	61	818.72	72.1
E19	36	802.50	58.3
E20	25	809.04	68.0
E21	67	808.45	52.2
E22	69	802.36	50.7
E23	48	826.15	72.9
E24	50	821.88	74.0

Appendix H (*continued*)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	49	802.98	55.1
E26	65	805.00	52.3
E27	47	809.49	72.3
E28	66	799.58	45.5
E29	70	797.03	42.3
E30	67	831.48	76.1
E31	72	812.83	63.9

Appendix I

5th Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	44	826.91	97.7
E2	97	833.15	91.8
E3	74	847.88	98.6
E4	96	870.14	100.0
E5	81	856.59	98.8
E6	76	828.91	90.8
E7	59	844.56	98.3
E8	100	848.46	99.0
E9	48	849.50	97.9
E10	77	817.39	81.8
E11	84	846.83	100.0
E12	104	844.00	97.1
E13	68	842.38	98.5
E14	67	841.34	94.0
E15	63	830.32	95.2
E16	63	820.54	88.9
E17	50	818.20	84.0
E18	72	829.44	91.7
E19	50	823.16	88.0
E20	32	818.06	84.4
E21	60	832.35	96.7
E22	66	819.42	81.8
E23	49	834.86	98.0
E24	68	834.16	92.6

Appendix I (*continued*)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	51	820.37	74.5
E26	71	824.39	91.5
E27	43	827.14	88.4
E28	66	813.92	75.8
E29	64	822.55	89.1
E30	56	833.43	94.6
E31	72	824.57	94.4

Appendix J

5th Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
E1	44	824.14	84.1
E2	96	838.25	86.5
E3	71	842.01	95.8
E4	96	889.59	100.0
E5	81	847.73	92.6
E6	76	828.12	84.2
E7	59	844.19	93.2
E8	96	857.32	99.0
E9	47	841.57	93.6
E10	80	824.35	76.3
E11	81	859.15	98.8
E12	106	860.20	92.5
E13	67	847.42	88.1
E14	67	848.70	89.6
E15	63	830.24	85.7
E16	61	819.97	73.8
E17	50	813.32	76.0
E18	72	826.97	80.6
E19	50	821.98	82.0
E20	31	838.16	87.1
E21	60	841.13	81.7
E22	66	826.74	81.8
E23	49	862.18	95.9
E24	68	825.16	83.8

Appendix J (*continued*)

School Code	n	M	Percentage Met/ Exceeded Standard
E25	51	807.31	58.8
E26	71	829.13	93.0
E27	42	813.31	76.2
E28	66	828.08	74.2
E29	62	818.87	71.0
E30	56	825.50	78.6
E31	73	827.64	75.3

Appendix K

6th Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	131	842.41	96.9
M2	140	853.26	99.3
M3	182	853.66	98.9
M4	199	852.21	98.5
M5	204	831.26	91.2
M6	170	836.44	96.5
M7	138	843.46	99.3
M8	236	839.11	93.6
M9	224	847.46	99.1
M10	136	826.45	91.2
M11	173	825.25	90.8
M12	213	822.29	86.9

Appendix L

6th Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	128	820.77	81.3
M2	141	849.81	97.2
M3	180	848.03	97.2
M4	196	834.65	88.3
M5	204	809.12	65.2
M6	165	814.84	77.6
M7	133	827.89	87.2
M8	235	817.88	68.5
M9	222	829.95	83.3
M10	134	809.16	64.9
M11	170	803.57	51.2
M12	208	800.21	40.9

Appendix M

7th Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	159	833.13	96.2
M2	168	839.67	96.4
M3	214	850.20	96.7
M4	193	840.97	96.4
M5	217	827.19	90.3
M6	186	832.19	94.1
M7	110	838.26	97.3
M8	265	834.66	92.1
M9	246	845.45	95.1
M10	138	822.75	86.2
M11	210	820.03	86.2
M12	198	814.23	71.7

Appendix N

7th Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	152	824.24	86.2
M2	165	844.30	90.3
M3	210	861.56	98.1
M4	188	840.12	90.4
M5	217	814.28	70.5
M6	180	819.67	77.2
M7	108	831.45	83.3
M8	265	832.33	84.2
M9	246	846.70	89.4
M10	130	816.89	73.8
M11	204	809.90	65.7
M12	191	806.40	57.1

Appendix O

8th Grade Reading CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	144	839.61	97.2
M2	156	854.67	98.7
M3	203	857.81	100.0
M4	205	851.40	99.0
M5	204	835.98	92.2
M6	195	841.26	98.5
M7	121	848.69	100.0
M8	255	845.45	94.5
M9	210	852.97	98.1
M10	139	828.04	92.8
M11	203	829.00	89.7
M12	165	821.83	89.1

Appendix P

8th Grade Math CRCT Data

School Code	n	M	Percentage Met/ Exceeded Standard
M1	137	815.72	71.5
M2	156	846.41	90.3
M3	200	866.32	98.0
M4	201	845.07	87.1
M5	204	809.49	59.8
M6	191	812.55	63.9
M7	119	822.17	77.3
M8	256	829.74	79.3
M9	212	845.21	86.8
M10	137	812.09	67.2
M11	205	794.77	45.4
M12	165	793.41	37.0

VITA

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