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# The Relationship Between School Climate and Student Achievement at the Middle School Level in Georgia

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Climate and Student Achievement at the
Middle School Level in Georgia

by Curtis Brett Wallace

This dissertation has been read and approved as fulfilling the partial requirement for the
Degree of Doctor of Education in Curriculum and Leadership.

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THE RELATIONSHIP BETWEEN SCHOOL CLIMATE AND

STUDENT ACHIEVEMENT AT THE MIDDLE SCHOOL

LEVEL IN GEORGIA

By
Curtis Brett Wallace

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# DEDICATION

It is with much love and gratitude that I dedicate this dissertation to my wonderful family, Tonya Wallace, my wife, and our four children, Maggie, Daniel, Reed and Shelby. I love each of you more than you will ever know.

# ACKNOWLEDGEMENTS

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ABSTRACT

School leaders from all over our nation are under scrutiny and pressure to raise their students' academic achievement. Good standards-based classroom teaching, supportive teachers, administrators, and parents, and a motivated student all make for a high achieving student. But what is the relationship of the school's climate to the achievement level? Does the student's socioeconomic status affect academic achievement? This study collected data from 431 traditional public middle schools in the state of Georgia serving students in Grade 6 through Grade 8 exclusively during the 2017-18 school year. A stepwise multiple regression was used to examine the relationships in both research questions. The stepwise process allowed for the researcher to increase accuracy of results by prioritizing predicting variables of Free/Reduced rate, Climate score, and Administrator Attendance entered by correlation rate with the outcome variables of Mathematics Mean Scale Score and English/Language Arts Mean Scale Score. The purpose of this study is to examine the relationship of school climate and student achievement at the middle school level in Georgia. A quantitative predictive research design was used to measure the relationship between the variables. A multiple regression analysis in this study will provide information for school principals as to the significance of the relationship and of the climate of the school on student achievement. The results of the study will be a valuable resource for Georgia school leaders who must respond to the demands for increased student achievement while attracting and retaining teachers. If school climate has a significant impact on student achievement, then Georgia school leaders may develop plans to improve school climate (Fuller, Young, & Baker, 2010) and simultaneously create and sustain high-quality teams in response to increasing

teacher vacancies and decreasing teacher applicants as reported by the Georgia

Department of Education (Owens, 2015).

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CHAPTER I

INTRODUCTION

Academic achievement has become the central concern of public schools in response to external pressures to increase student outcomes. The 1983 publication of A Nation at Risk (U.S. Department of Education, National Commission on Excellence in Education, 1983) sparked an educational reform movement igniting the concerns of multiple external contexts, such as federal, state, and local policy makers, corporations and professional organizations, local school boards and district leadership, school councils and parent associations (National Research Council, 2002). This increased attention to American education led to significant reforms in education. Signed into law by President George W. Bush in 2002, No Child Left Behind (NCLB) (No Child Left Behind [NCLB], 2002), enacted a universal performance accountability system which evaluates school performance primarily through student test scores (Dee & Jacob, 2011). In 2015, President Barack Obama reauthorized the 1965 Elementary and Secondary Education Act by signing the Every Student Succeeds Act (ESSA) which gave states more authority to expand their systems of accountability with the provision that states use multiple student and school performance measures. ESSA gave states more flexibility in selecting indicators beyond federal requirements such as additional student outcome measures (Darling-Hammond et al., 2016).

In 2012, the state of Georgia applied for a waiver of some NCLB accountability requirements replacing the Adequate Yearly Progress (AYP) measure with the College and Career Ready Performance Index (CCRPI). In March 2012, the U.S. Department of Education approved the waiver and since then CCRPI has been the state's accountability

measure (Governor's Office of Student Achievement, 2018). According to the Georgia Department of Education, President Obama's ESSA accountability requirements more closely aligned with Georgia's CCRPI (Georgia Department of Education, 2018). Since Georgia implemented the CCRPI scoring system, officials have revised several of the components, including the weights and performance target calculations as well as the state-mandated academic assessment. The Georgia Department of Education published webinars and documents communicating the key changes of CCRPI and labeling the most recent change the Redesigned College and Career Performance Index, which is part of the state's current ESSA plan. The U.S. Department of Education approved Georgia's ESSA state plan in January 2018 touting the use of the Closing Gaps indicator for recognizing schools progressively improving traditionally underserved students and the CCRPI for focusing on the whole child (U.S. Department of Education, Office of the Press Secretary, 2018).

The changing federal, state, and local educational policies substantially impact the landscapes of Georgia school systems, fueling organizational complexity. During this complex accountability era, school administrators rely upon current research to inform their decisions and develop school improvement plans that ensure increased student outcomes (Ravitch, 2010). To add to this complexity, Georgia's public education student population is growing with over 1.6 million students (Georgia Department of Education, External Affairs, 2018b) while the teacher population is shrinking (Owens, 2015). Georgia's increasing teacher vacancies, in an accountability era, heighten the school administrator's sense of urgency to get results while retaining teachers and attracting

teacher applicants. Although school climate is highly complex, it has been shown to significantly influence school effectiveness and student achievement (McGuffey, 2016).

As school leaders develop plans to better and more efficiently educate students, the need for evidence of factors contributing to students' learning and achievement are valuable and critical for success. School leaders have a plethora of research to turn to for their development of school improvement plans. Bertolini, Stremmel, and Thorngren (2012) listed current educational research within the frame of Bronfenbrenner's bio-ecological model. The meso-system factors including school climate, professional development for teachers, building leadership capacity, teacher evaluation, and peer culture are most relevant to school leaders as these fall within the school administrators' sphere of influence. The transformational leader recognizes school climate as the primary factor within their purview (Allen, Grigsby, & Peters 2015).

Schools are social constructs wherein positive interpersonal relationships influence student learning. School climate presents a measure of positive social relations described as the "assessment of the social dynamics in a school" by Uline and Tschannen-Moran (2008, p. 59). Teachers in healthy school settings tend to develop higher levels of student achievement when the classroom climate is also positive (Dutta & Sahney, 2016). A well-established, research-based linkage exists between student achievement and school climate (Hoy & Feldman, 1987; MacNeil, Prater, & Busch, 2009; Shouse, 1996).

During the last three decades, this research base continued to grow and has provided empirical evidence that a positive and sustained school climate is associated with healthy relationships, school connectedness and dropout prevention of youth (Thapa,

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Cohen, Guffey, & Higgins-D'Alessandro, 2013). School climate was shown to particularly impact middle school students' physical and mental health, abate self-criticism, and curb a variety of emotional and mental health problems. Eccles (2008) and Balfanz (2009) identified the transitional years between elementary and high school as a critical period during which declining academics and reduced student engagement accelerate significantly. Their research indicated that the extent of declines during middle school years is a significant predictor of school drop-out as achievement gaps may become too large to overcome and move forward through high school.

In this era of school accountability pressures and heightened school improvement needs, a study of the relationship of school climate on student achievement may prove to be a valuable resource to school leaders while designing strategic plans for improvement. Middle school leaders have the additional challenge inherent to this adolescent age group of student disengagement.

## Statement of the Problem

As school systems in Georgia face moving performance targets of increased accountability and anticipated teacher shortages, the learning environment for public schools becomes a significant educational issue. School climate, a measure of the learning environment, has become a viable factor to study in the search for school effectiveness components (Hoy, Tarter, & Bliss, 1990; Pepper, 2010), which fall within school leaderships' sphere of influence. Owens (1998) asserts that the climate of a school affects the rate of student achievement wherein the school principal is ultimately responsible for both climate and student achievement. In developing improvement plans that address teacher attrition and student achievement, public school administrators are

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increasingly recognizing school climate as a fundamental school improvement topic

(Reynolds, Lee, Turner, Bromhead, & Subasic, 2017).

Student achievement is a critical component by which schools and educators are

tasked to improve (Smith, 2015). Increasing societal demands for school improvement in

the development of students' civic, emotional, and cognitive abilities reflect the need for

students to survive and thrive in a rapidly changing environment. Educators and

researchers consistently agree that school culture and climate influence all school

members (i.e., students, teachers and staff), which, in turn, affects student achievement,

either positively or negatively (Dieringer, 2011). School leaders should understand the

extent to which school climate relates to student achievement to accurately develop a

customized plan for educational success of students and retain quality teachers.

Substantial research has indicated that there is a link between school climate and student

achievement (Back, Polk, Keys, & McMahon 2016; Smith, 2015; Taylor, 2008; Thapa et

al., 2013; Uline & Tschannen-Moran, 2008). However, no study has identified the

relationship between student achievement and school climate utilizing a climate measure

of middle schools in Georgia.

<div align="center">Purpose of the Study</div>

The purpose of this study is to examine the relationship of school climate and

student achievement at the middle school level in Georgia. A quantitative predictive

research design will be used to measure the relationship between the variables. A

multiple regression analysis in this study will provide information for school principals as

to the significance of the relationship, if any, the climate of the school has on student

achievement. The results of the study will be a valuable resource for Georgia school

<div align="center">5</div>

leaders who must respond to the demands for increased student achievement while

attracting and retaining teachers. If school climate has a significant impact on student

achievement, then Georgia school leaders may develop plans to improve school climate

(Fuller, Young, & Baker, 2010) and simultaneously create and sustain high-quality teams

in response to increasing teacher vacancies and decreasing teacher applicants as reported

by the Georgia Department of Education (Owens, 2015).

<div align="center">Conceptual Framework</div>

A conceptual framework is a visual representation that graphically displays the

main concepts to be studied.  The conceptual framework of this study is based on the goal

of gaining an understanding of the interrelatedness of school climate and student

achievement, as well as describe the role of leadership. Figure 1 illustrates the

connections between student achievement, school climate, and leadership.
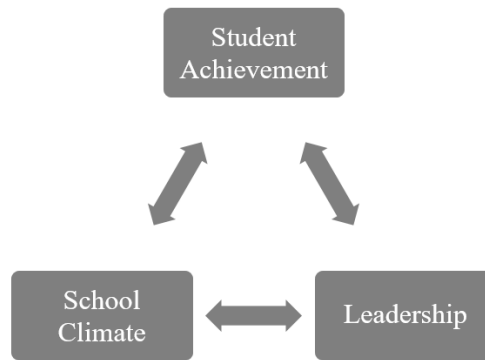


*Figure 1.* Conceptual framework of the study of school climate, student achievement, and
leadership.

Researchers have focused on gathering evidence of school climate with various

demographics of students, based mostly on race and socioeconomic status, to explain

gaps in achievement among students (McDill, Meyers, & Rigsby, 1967). The social

identity perspective (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherall,

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1987) is used as a framework to study school identification and school climate as two separate, but closely related, concepts involved in the success and level of achievement of students at the middle school level.

## Significance of the Study

Researchers have shown that positive school climate furthers academic achievement, school improvement, and teacher retention (Cohen, McCabe, Michelli, & Pickeral, 2009; Thapa, Cohen, Higgins-D'Alessandro, & Guffey, 2012). If a relationship exists between school climate and students' achievement, then school leaders in Georgia may be further inspired to intentionally include school climate dimensions in their school improvement plans. Additionally, the worrying statistic that 44% of Georgia's public-school teachers left the profession within the first five years of employment heightens a sense of urgency regarding school climate for Georgia principals (Owens, 2015). An equally alarming statistic reported that from 2010 to 2014 there was a 16% drop in the number of candidates entering Georgia's teacher preparation programs (Owens, 2015). A growing research base of teacher retention indicates that school climate significantly contributes to teacher retention (Hoy & Woolfolk, 1993). If this study shows a strong correlation between school climate and student achievement, this data would support the research base and further accentuate the need to plan for improved school climate. Further, researchers contended that, with so many teachers leaving a career after just five years in the profession for which they spent at least four years of college preparing, an investigation was warranted. In an overlapping manner, positive school climate and student achievement correlation may contribute to increased student achievement and teacher retention in Georgia. The significance of the study is to explore and examine the

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relationship between school climate and student achievement and provide school leaders

a tool in managing school improvement.

## Methodology

A quantitative research design will be utilized with this study relating school

climate and student achievement data from each middle school in the state of Georgia.

The data will be analyzed using a multiple regression approach determining the strength

of the relationship between the school's climate and student achievement in each of the

core content areas of English/language arts and math.

## Research Questions

With the purpose of this study being to examine the relationship of school climate

and student achievement at the middle school level, the research questions are:

RQ1: What is the relationship between the Georgia Department of Education's

School Climate Star Rating (SCSR) and English/language arts achievement on the

Georgia Milestones Assessment System (GMAS) at the middle school level in

Georgia?

$H1_0$: There is no significant relationship between the Georgia Department

of Education's SCSR and English/language arts achievement on the

GMAS at the middle school level in Georgia. ($H_0$: $B_1$=0).

$H1_A$: There is a significant relationship between the Georgia Department

of Education's SCSR and English/language arts achievement on the

GMAS at the middle school level in Georgia. ($H_a$: $B_1 \neq 0$).

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RQ2: What is the significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia?

H2$_0$: There is no significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia. (H$_0$: B$_1$=0).

H2$_A$: There is a significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia. (H$_a$: B$_1 \neq 0$).

## Limitations

The SCSR is determined, in part, by surveys completed by teachers, parents, and students. Therefore, an accurate climate rating is dependent on honest and truthful responses to the survey questions. The GMAS is a battery of exams given to each student to measure achievement and academic growth. Therefore, an accurate measure of achievement and growth is dependent on optimal testing environment at home and at school. Also, each student must give their best effort on each section of the week-long battery of exams.

## Delimitations

All of Georgia's 431 public middle schools, serving Grade 6 through Grade 8 exclusively, were selected for the study and none were excluded. All schools' data gathered and analyzed for this study has been publicly published by the Georgia Department of Education on their public domain website and is not dependent on different schools and school systems reporting individual school results.

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Definition of Terms

*Georgia Milestones Assessment System* (GMAS), the Georgia Department of Education's comprehensive summative assessment program that measures how well students have developed the knowledge and skills outlined in the state-adopted content standards in the core subject areas of English/language arts, mathematics, reading, science, and social studies (Georgia Department of Education, 2018).

*Georgia Student Health Survey 2.0,* a survey instrument used by the Georgia Department of Education that identifies safety and health issues that have a negative impact on student achievement and school climate (Georgia Department of Education, 2018c).

*School Climate,* the quality and character of school life that is based on the patterns of students', parents', and school personnel's experiences of school life also reflecting norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures (National School Climate Center, 2014).

*School Climate Star Rating,* a diagnostic tool used by the Georgia Department of Education to determine if a school is on the right path to school improvement and calculated using data from the Georgia Student Health Survey 2.0, Georgia School Personnel Survey, Georgia Parent Survey, student discipline data, and attendance records for students, teachers, staff and administrators (Georgia Department of Education, 2018b).

*Student Achievement,* how well students have developed the knowledge and skills outlined in the state-adopted content standards in the core subject areas of

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English/language arts, mathematics, reading, science, and social studies (Georgia Department of Education, 2018).

Summary

Today's educational climate is increasingly emphasizing the demand for positive outcomes for student learning (Black et al., 2016). Providing the overall achievement and success of students is the primary mission for every school. Understanding the extent to which the climate of the school impacts the achievement of the school's students will better equip school leaders in the design and implementation of a strategic school improvement plan. By applying a framework designed from research on school climate and student achievement to schools, it could be possible to better understand and ultimately improve the educational context on many levels including teacher retention and student achievement.

CHAPTER II

REVIEW OF LITERATURE

The focus of this review of literature was determined by this study's research questions and serves to provide background information related to the study of school climate and its possible relationship to school achievement. This review of literature was divided into five sections: (a) School Climate, (b) Student Achievement, (c) Leadership, (d) Organizational Change, and (e) Findings of Previous Studies.

School Climate

In 2015, the Georgia Department of Education reported an alarming statistic as released by the Professional Standards Commission: 44% of Georgia's public-school teachers left their position within the first five years of employment (Owens, 2015). An equally disturbing statistic was that from 2010 to 2014 the number of candidates entering Georgia's teacher preparation programs dropped by 16% (Owens, 2015). The Georgia Department of Education responded by surveying over 53,000 teachers to discover possible reasons for this rate of attrition. Owens contended that, because many teachers left a career after the first five years in the profession for which they spent at least four years of college preparing, an investigation was warranted. Also, Owens (2015) suggested schools and school systems needed to research school climate as it related to student achievement and work on a plan to ensure that faculty and staff created an optimal climate for achievement.

Owens (2015) accentuated the relevance of school climate research due to rapidly declining teacher candidate quantities, but optimization of school climate for student achievement is a notion that continues to be examined and redefined (Marshall, 2004).

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Researchers first endeavored to link school climate to student outcomes in the late 1970s associating the term *school climate* to the environment of a school (Hoy, Tarter, & Kottkamp, 1991). School climate and school culture were terms often used interchangeably (Hoy, 2012). Early definitions indicated that *school climate* was the atmosphere of the school as experienced by teachers and administrators reflected through their "perception of routine behavior that affected the attitudes and behavior in the school" (Hoy & Miskel, 2001, p. 159). However, Hoy indicated that climate is a product of culture and, although related, the two involve different areas of the school. School culture appeared to influence school climate though norms, rules, and values dictating the day to day behaviors and interactions of students and teachers, which produced the school's climate (Hoy, 2012). School climate, although a complex concept, had been shown to greatly influence school effectiveness and student achievement (McGuffey, 2016). Black (2010) stated that school climate was the sum of the values and norms internalized by most of the people associated with the school. The essential components of a healthy school climate were said to be positive relationships, dynamic principalship, and shared leadership (Black, 2010).

Tagiuri (1968) defined climate as the combined set of four qualities distinct to the representation of an organization: Ecology, which is the physical and material aspects of the organization; Milieu, which is the social dimension pertaining to the characteristics of individuals and groups of people of the organization; Social System, which is the social dimension pertaining to the relationships of individuals and groups of people of the organization; and Culture, which is the social dimension pertaining to the values, cognitive structures, beliefs systems, and meaning of the organization. Through

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relationship building, a school administrator is best prepared to implement real and lasting change in a school. Hall and Hord (2007) presented 12 principles of change in their Concerns Based Theory of Change. The authors suggested that an organization did not change until the individuals in it change.

According to Freiberg and Stein (1999), school climate is the heart and soul of the school. Complex influencing factors such as race, gender, ability, ethnicity, social class, and sexual orientation shape the school climate and therefore influence the level of student achievement. Attendance, teaching, formative and summative evaluations, and assessments were very important factors in students' overall academic performance. All of these factors were controlled by the way the students felt in their school environment. School climate and culture that is hostile, unsafe, and not hospitable to learning was said to be detrimental to student achievement (Watson, 2001). School climate is the essence of the school that motivates stakeholders to become a part of the school.

Wang, Haertel, and Walberg (1997) performed a meta-analysis study which found that the culture and climate of schools had the greatest impact on student achievement. The study also found that student demographics, policies, and school organization impacted student learning the least. Kytle and Bogotch (2000) suggested a model of school reform where schools are re-cultured rather than re-structured. Changing the culture of the school provides sustained change. Changing school operations did not impact sustainable school change.

Schools that do not have effective leaders tend to have unhappy teachers and are considered unhealthy schools. Unhealthy schools allow public and parental demands to derail efforts to stay focused on the schools' mission and goals. Healthy schools have

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effective leadership, motivated teachers and students, and promote high academic standards. The healthy climate is conducive to learning and promotes student achievement (Hoy & Tarter, 1997). School climate studies often focus on teachers and leader interactions and job satisfaction. Two decades ago, Miller (1993) suggested that there were limited studies focused upon the impact of school climate on student achievement. According to Sergiovanni (2001), climate is associated more with student learning than management. Reform efforts to increase student achievement have not been successful due to the lack of emphasis placed on the importance of school culture and climate (DuFour & Eaker, 1998). Creating a school culture that focuses on student learning must be a priority for school leaders (Barth, 2001). Failing to address the cultural and organizational health of schools while working towards school improvement will hinder progress (Sarason, 1996). School culture and climate impact student achievement (Hoy et al., 1990; Masloski, 2001). Principals directly influence the culture and climate of a school (Hallinger & Heck, 1998; Leithwood, Louis, Anderson, & Wahlstrom, 2004). It is important to understand which school climate characteristics impact student achievement the most.

Halpin and Croft (1963), some of the earliest school climate researchers, studied how leaders' actions impacted school climates. In their study, they concluded that each elementary school was unique, with distinct personalities (Halpin & Croft, 1963). In their study of 71 elementary schools, Halpin and Croft (1963) identified six climate models based upon communications between teachers and administrators. Halpin and Croft utilized the profiles to develop the Organizational Climate Description Questionnaire (OCDQ), a tool to measure elementary school climate (Hoy & Tarter, 1997). Halpin and

Croft (1963) utilized the climate models to define eight school climate dimensions. These eight dimensions were categorized as either group characteristics or leadership characteristics. The group characteristics included four of the eight dimensions: (a) disengagement, where teachers are not dedicated to job; (b) hindrance, where teachers feel overloaded with needless tasks; (c) esprit, the morale of the group grows through a feeling of accomplishment; and (d) intimacy, where teachers feel close in their work relationships. Leadership characteristics account for the remaining four dimensions: (e) aloofness, where the principal remains distant from the faculty; (f) production emphasis, where the principal is a hands-on micromanager; (g) thrust, where a principal is an enthusiastic change agent; and (h) consideration, where the principal is supportive and friendly (Hoy et al., 1991). Halpin and Croft's (1963) seminal work in the development of the OCDQ formalized the process for studying school climate for more than 25 years (Hoy et al., 1991). The OCDQ tool was designed for elementary schools but was not well suited to secondary schools (Rafferty & Griffin, 2001). Therefore, the OCDQ was used as a model in the creation of a tool to use in high schools called the Organizational Climate Description Questionnaire for Secondary Schools (OCDQ-RS; Hoy et al., 1991). Shortly thereafter, the Organizational Health Inventory (OHI) was developed with the goal of determining the health of interpersonal relationships in schools (Hoy & Tarter, 1997).

The OHI school climate survey was developed by Ohio State University's School of Educational Policy and Leadership. They applied Parsons' organizational social systems theory (1951) which posited that organizations, such as schools, thrived if they responded appropriately to four imperatives: (a) allocative decisions−acquiring sufficient resources and working cooperatively within the external environment, (b) policy

decisions−setting and implementing goals, (c) coordinative decisions−maintaining a sense of cohesive unity, and (d) supporting values−creating and maintaining a distinctive value system. Parsons identifies three major levels of organizational structure: (a) technical, (b) managerial, and (c) institutional. In alignment with Parson's study, the OCDQ-RS instrument in Hoy and Tarter's study (1997) focused on the health of the organization whereby school health included three conceptual levels: (a) institutional, (b) administrative, and (c) teacher. The three levels representing fundamental school needs were (a) helping others adapt to the environmental demands, (b) achieving goals and satisfying the needs of all parties, and (c) creating cohesiveness in the community. According to Hoy and Tarter (1997), a healthy school was free from external parent and community pressures. The local board of education protected schools from distinctive forces (high institutional integrity). The healthy school's principal was a dynamic leader blending various styles of leadership focusing on both tasks and relationships (high consideration and initiating structure). The healthy school's principal influenced leadership within the district to provide resources needed to operate effectively (high influence). Teachers of healthy schools were committed to students and the learning process (Hoy & Tarter, 1997). These teachers maintained high expectations for student achievement and were encouraged and supported by a serious, structured, and organized environment (high academic emphasis). The principal supplied teachers with the classroom resources and instructional materials needed for classes (high resource support). Finally, a healthy school nurtured a faculty who worked well together and trusted one another. They were enthusiastic in their duties and teaching responsibilities and excited about the success of their school's high morale (Hoy & Tarter, 1997). In a

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healthy school environment, administrators, teachers, and students had positive interpersonal relationships (Hoy, Smith, & Sweetland, 2002). The perception of a school leader in healthy schools was positive. The teachers pushed students to academic excellence due to their strong commitment to educational achievement (Hoy et al., 2002). Extensive research has identified components of school climate (Halpin, 1966; Hoy & Miskel, 2001; Hoy et al., 1991; Hoy & Tarter, 1997) and school administrators are identified as the most critical component of an effective learning environment (Duke, 2002). Efficacious practices of school principals are critical to school climate of the school, because their choices influence student achievement (Uline & Tschannen-Moran, 2008).

### Student Achievement

Academic achievement was often considered the ultimate goal over the course of a student's educational journey because it was so closely related to future educational opportunities, future employment and careers, and the overall quality of life for the student. Teacher accountability required each student's academic achievement data be disaggregated to determine how much of an impact the individual teacher had on the student's educational journey (Back et al., 2016). A well-established link was identified between student achievement and school climate in that school climate was the assessment of the social dynamics in the school (Uline & Tschannen-Moran, 2008). Teachers achieved higher levels of excellence with their students when a healthy interaction between a positive school climate and a positive classroom climate existed (Dutta & Sahney, 2016). School climate influenced academic success independent of a student's home environment or intelligence (Back et al., 2016).

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School climate affected all students in their quests for academic achievement. Smith and Kearney (2013) contended that the key to the academic success of students was the nurturing of healthy and purposefully directed school environments, where teachers were directly responsible for teaching and learning in the classroom and administrators were charged with the development of organizations that facilitate teaching and learning. Smith and Kearney (2013) also found that achievement press was a critical factor contributing to school success and for a true achievement press to be successful, all school stakeholders acknowledged the press for higher academic achievement. Smith and Kearney (2013) suggested that, although peer pressure was most often viewed as a negative, when students pressure each other to achieve higher academically, the collective acts helped create a school climate whereby high achievement was expected. Hoy (2012) contended that academic emphasis was the degree to which a school was driven for academic excellence: high, but achievable, goals were stressed; the learning environment was serious; teachers believed in the ability of all students to succeed; and both teachers and students, respected high academic achievers. Taylor (2008) contended that students experienced academic success despite coming from a low socioeconomic background because the school climate and level of expectation at the school made the difference. A supportive climate within the school compensated for the lower expectations from community and parents in those areas where socioeconomic status was low (Taylor, 2008). A school climate emphasizing high expectations, providing many opportunities for success both in and outside the classroom, and establishing a safe and secure learning environment positively influenced growth in academic achievement (Back et al., 2016).

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School Leadership

A learning organization may be defined as a strategic commitment to capture and

share learning in the organization for the benefit of individuals, teams, and the

organization (Lunenburg & Ornstein, 2008). Hallinger and Heck (1998) stated that

educational theorists believe that learning is impacted by the climate and culture of a

school. A positive school culture can increase student achievement, while a negative

school culture can cause student achievement to decline (Watson, 2001). According to

organizational theorists, focusing on culture is one of the most critical actions a principal

can perform. Ultimately, school principals have the greatest influence on establishing a

culture of teaching and learning in their schools (Fink & Resnick, 2001). The actions of

school leaders impact school capacity and either enhance or diminish student

achievement (Robinson, 2008). The climate of a school affects the rate of student

achievement, while the school principal is primarily responsible for climate and

achievement (Owens, 1998).

It is important for a new principal to take the time to learn the school's culture

before determining what changes are needed (Leithwood et al., 2004). According to

Bulach (2001), a leader should not attempt to change a school's existing culture before

understanding the existing culture. Teacher values must be compatible with the school

culture in order to see a positive impact on student achievement (Leonard, 1999).

Principals need to understand the complex interactions between learning and culture.

Together, they have the greatest impact on student achievement (Mortimore, 2001).

Lakomski (2001) found there to be a causal relationship between organizational change

and the principal. Organizational change occurs when the school's culture changes and

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principals can impact student learning by focusing on long-term cultural goals (Taylor & Williams, 2001). Principals must serve as change agents in order to transform the teaching and learning culture of their school (Fullan, 2001).

Before the passage of the Elementary and Secondary Education Act, the federal government was only limitedly involved in each state's role as the primary authority of education (Standerfer, 2006). According to Standerfer (2006), increased federal funding led to increasing federal authority and subsequently, the demand of accountability was born. Once the manager of teachers and school disciplinarian, the role of the school principal changed greatly over the years (Black, 2010). According to Sybouts and Wendel (1994), derived from the word prince, the term principal meant first in degree, rank, authority, and importance. Anderson and Van Dyke (1972) contended that the principal originally served as a liaison between the members of the board of education and the teachers of the school. Jones, Salisbury, and Spencer (1969) reported that these liaisons between the teachers and boards of education were replaced by superintendents of schools. Following the establishment of a superintendent of schools, the role of the school principal shifted and no longer reported to the board of education but served as a liaison between the superintendent and the teachers (Jacobson, Reavis & Logsdon, 1950). The school principal's focus shifted from management to leadership. Acknowledged as the climate leader, the principal was considered the predominant figure in climate improvement, as perceived by the parents, staff, and students (Harris, 2012).

School leaders faced many challenges, such as diverse populations and accountability measures, as they strived to provide all students with a quality education (McLean, 2013). Serving as a role model for their teachers, school leaders tended to

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empower and challenge teachers as means to increase their dedication and commitment (Nir & Hameiri, 2014). Dartey-Baah (2015) suggested that principal leadership involved providing direction and resources, and adjusting behaviors and energies, toward the achievement of school goals. The leadership style of the principal has an operational effect on the school vision (Bucic, Robinson, & Ramburuth, 2010). The most important factor in school improvement and effectiveness is the principal (Hoy & Smith, 2007). Principal leadership was said to have made or broken the school's performance and student achievement (Hauserman & Stick, 2013).

Schools struggle in an environment of increasing performance pressure, declining student motivation, and reduced student engagement. Efficacious practices and methodologies have not kept pace with the demand. A growing body of research, however, has shown that improved academic achievement can be attained when school leaders address the needs of their school (Marzano, Waters, & McNulty, 2005). Successful 21st century leaders share characteristics or traits such as visionary, creative, inspiring, knowledgeable, and principled, which are instrumental in building and fostering a positive school environment (Simonson, 2005). Conviction to the ideals of servant leadership as a pragmatic operational approach for school communities has trended positively among scholars and practitioners in the past two decades (Sendjaya & Sarros, 2002). In 1970, Greenleaf shared The Servant Leadership philosophy which emphasized the importance of a leader's motivation to serve or to lead as an identified servant leader wherein the needs of others are placed before the needs of self. Servant leaders prioritize the needs and interests of others with the goals of the organization in

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mind. They assume a non-focal position within teams, providing resources and support without an expectation of acknowledgment.

Given the trend of measuring success through high stakes testing, principals were held accountable for the performance of their students, and teachers alike, on statewide assessments (MacNeil, Prater & Busch, 2009). Kotter (2002) suggested that it was imperative for principals to determine and implement leadership practices that enhanced learning opportunities and ensured continuous academic growth for their students. Ladyshewsky (2007) suggested that the line that separated leadership and management was thin in educational administration. Also, leaders and managers embodied different beliefs and values, established different types of relationships and interactions with teammates or subordinates, and were guided by different goals and objectives (Ladyshewsky, 2007).

Eyal and Roth (2011) found that principals' leadership styles played a significant role in teacher well-being and motivation. Teachers desired to work, and were happiest, at a school where the administration supported them with quality professional learning, high expectations, the freedom to teach and explore new ideas and approaches, and praise and feedback to help them flourish in raising student achievement (Fauske & Raybould, 2005). It was incumbent upon the principal to alter norms of behavior and relationships within the school to increase production (Houchens & Keedy, 2009). Senge (2006) suggested the learning organization was an organization where people continually expanded their capacity to create the results they truly desire, where new and expansive patterns of thinking were nurtured, where collective aspiration was set free, and where people are continually learning how to learn together. Lunenburg and Ornstein (2008)

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contended that if the administrator concentrated solely on one need at a time, there was not enough time to complete the task.

Effective principals understand what is required to assist the school in obtaining the desired results of improving student achievement (Hall & Hord, 2007). Mulford (2006) suggested that an effective school principal established a trusting and collaborative climate among the teachers and created a shared and monitored mission. Black (2010) suggested a positive association between servant leadership characteristics and positive school climate. The principal's influence on school culture has an indirect effect on organizational and cultural factors of a school (Hetland, Sandal, & Johnsen, 2008). Creswell (2005) found that high quality instruction increased as a result of good leadership. When principals raised teacher morale, teacher effectiveness increased and significant relationship between teacher morale and student success existed (Mitchell, Bradshaw, & Leaf, 2010). A positive school climate is more complex than merely an atmosphere where everyone is happy (Ladyshewsky, 2007). Much research in leadership and motivation was focused on measuring the satisfaction of the employees (Kotter, 2002). Leadership in education is a process in which an individual influences a group of people to achieve a common goal, which is student achievement (Lunenburg & Ornstein, 2008). Kurland, Peretz, and Hertz-Lazarowitz (2010) contended that the success of schools depended on its leaders and that school leaders were accountable for how well teachers teach and how much students learned. Relationships between teachers, between teachers and administrators, and between students and the adults that served them are important components to student success (Nir & Hameiri, 2014). Yang (2014) suggested that the mark of an effective leader is how the leader treats people. Principals must create

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conditions to stimulate and improve the morale of the staff members (Yang, 2014).

Robinson (2008) suggested that successful leaders display clarity of vision, purpose, and

principles in the pursuit of excellence. The most effective leaders incorporate both

transactional and transformational practices at appropriate times and in appropriate ways

with followers (Robinson, 2008). In recent years, the complex, interactive relationship

among principal leadership behaviors, organizational health or school climate, and

student achievement has developed as a significant area of needed research (Harris,

2012). Black (2010) suggested that visionary, creative, knowledgeable, and inspiring

educational leaders were vital to building and fostering a positive school environment to

help meet public education goals in the 21st century.

     Harris (2012) found that a principal just randomly distributing leadership was not

nearly enough, but that it was how leaders were distributed that matters and determines

success or failure. Distributed leadership, alone, was not necessarily a good or bad thing;

its outcome depended upon the purpose of the distribution and most importantly, the role

the principal played in the distribution (Harris, 2012). McLean (2013) found that

distributive leadership thrived in a school culture that enabled teachers throughout the

school to find and achieve their own optimal amount of participation. Schools led with

distributive leadership had a positive impact on staff and student well-being, which most

effectively raised student achievement (McLean, 2013). Robinson (2008) suggested that

the distributed leadership model increased and supported the sustainability of efforts from

teacher leaders to improve teaching and learning for the students. Also, schools with a

stronger distributed leadership model were more likely to have an increased percentage of

faculty and staff who were very knowledgeable about improvement of educational

outcomes for their students and take that responsibility very willingly (Robinson, 2008).

School leaders provided a supportive and shared leadership structure for teachers that ensured a positive school climate (Carpenter, 2015). Davis and Leon (2014) contended that with resources low and expectations high, principals relied on the power of persuasion to promote and achieve school improvement. Leithwood (2005) presented that successful school leadership develops a purpose within the faculty and staff by leading them into developing a shared mission and vision. Successful leaders also create short-term goals for success and have a high expectation for their faculty and staff's work (Leithwood, 2005). Bass (1985) suggested that elements of both transactional and transformational leadership qualities are evident in effective school leaders. The transactional leaders lead within the defined rules and maintain control throughout (Bass, 1985). These transformational leaders seek new and better ways of accomplishing tasks, while expecting all followers to possess a positive attitude (Bass, 1985). Hauserman and Stick (2013) suggested high-leveled transformational principals are seen as an inspiration by their teachers. These principals are good role models and ae focused on doing the right things (Hauserman & Stick, 2013). Taylor (2008) found that principals who demonstrated support and cared for their teachers and students, were viewed as the instructional leader of the school, and welcomed frequent interaction with parents and community members, were likely to be leaders of effective schools.

The evidence conveying the importance of leadership in fostering good schools is substantive (Freiberg & Stein, 1999, Sergiovanni 2001). Researchers (Boyer, 1983) found that the principal is a critical factor in schools with high student achievement and clear sense of community. Hallinger and Heck (1998) claimed that the principal has an

influential role and non-direct role in affecting student achievement by creating a school climate conducive to student achievement. Research supporting the indirect effects of principal leadership upon school performance occurs in more recent and complex studies. The trend in relevant leadership research indicates that school leadership is no longer viewed as having a direct impact on learning outcomes, but rather an indirect influence through leaderships' role in school organization and school culture (Witziers, Bosker, & Kruger, 2003).

In addition to the trending role of school leadership's indirect impact on learning, current research suggests that the principal's influence is conveyed through their interactions with others, situational events, and the organizational and cultural factors of the school (Hallinger & Heck 1998, Hoy et al., 2006, Leithwood et al., 2004). Leithwood (2005) espoused that principals transform the school culture by creating conditions conducive to positive changes. Maslowki (2001) conveyed an association of leadership values and behaviors to school culture proposing that different school cultures can lead to different student outcome results. Research studies investigating the indirect effect of principal leadership on student outcomes suggest connections from educational leadership to school culture to student achievement (Witziers et al., 2003).

Extending the implications of leadership's indirect influence on student outcomes through school climate, Fairman and McLean (2003) chose to diagnose school climate for the purpose of leveraging principal strengths towards improved climate. They believed that the healthier an organization, the higher the achievement (Alqarni, 2016). The ability to interpret and shape school culture was defined as symbolic leadership by Deal and Peterson (1999). Shaping school culture that encourages learning is an essential

role of the school principal attempting to improve student achievement (Freiberg & Stein, 1999; Sergiovanni, 2001). School culture is a highly complex construct, however, and successful leaders have learned to view their school environments holistically. A multi-dimensional view of school culture provides principals with a broad framework for understanding complex school relationships and problems (Kutsyuruba, Klinger, & Hussain, 2018). Determining the climate of a school is an important part of the principal's role in school management (Allen, Grigsby, & Peters 2015) and expanding their knowledge of how to shape school culture better prepares school leaders to promote a learning environment for positive student performance (Bossert, Dwyer, Rowan, & Lee, 1982). Research studies (Freiberg & Stein, 1999; Hallinger & Heck, 1998; Leithwood, 2005; Leithwood & Jantzi, 1990; Leithwood et al., 2004; Sergiovanni, 2001) support the link between effective school cultures and school leadership.

School effectiveness employs several dimensions, and concerned principals analyze how specific structures of school climate affecting the culture contribute to student achievement (MacNeil, Prater, & Busch, 2009). Healthy schools exhibit the following organizational health dimensions: goal focus, communication, optimal power equalization, resource utilization, cohesiveness, morale, innovativeness, autonomy, adaptation, and problem-solving adequacy (Fairman & Clark, 1982). Furthermore, there are aspects of school climate that impact student achievement (Bossert et al., 1982; Busch, 2003; McLean, Fairman, & Moore, 2006). School climate and student achievement comparisons may help school leadership direct their energies, tasks and objectives to improve student outcomes (MacNeil et al., 2009).

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In the principal's transformational direction of school improvement, attention to amenable culture is important. Schlechty (1997) advised that structural change should be supported by cultural change. Organizational school culture was identified as vital to successful reform of teaching and learning structures (Fullan, 2001). According to Deal and Peterson (1999), multiple studies assert that the school culture and climate must support change or improvement will not occur. MacNeil et al., (2009) predicted that student achievement improvements will occur in schools with positive, professional cultures and school climate.

In school environments with healthy school cultures, teachers are more motivated, resulting in more successful student performance and student outcomes (MacNeil et al., 2009). Principals endeavoring to improve student outcomes should focus upon developing school culture by nurturing relationships between themselves, their teachers, students, and parents toward creating a sense of belonging (Habegger, 2008). Measuring school climate and using the data to align the school's plan to teaching and learning is important for the process of improving academic performance (MacNeil et al., 2009).

## Organizational Change

The organizational structures for schools in the United States have been configured for various purposes which may be categorized as student-oriented or resource-oriented. Student-oriented configurations were developed for social purposes such as academic achievement, social adjustment, high school preparation, increased parental involvement, and beneficial effect on the community. Resource-oriented configurations serve financial purposes of cost effectiveness, transportation efficiency, building usage, and personnel deployment (Seller, 2004). In Seller's 2004 literature

review of grade configurations, the researcher concluded that (a) no singular grade span serves all purposes, (b) no consistently agreed upon "best model" exists, and (c) current structures fluctuate with over 30 configurations in use. Since the early 20th century, the basic system was comprised of elementary schools, Grades Kindergarten through 8 and secondary schools Grades 9 through 12. The earliest schools in U. S. history served the needs of the community with all grades in one building, typically Grades 1 to 8. In 1915, Professor Edward Cubberley of Teachers College recommended the familiar elementary (K – 8) and secondary (9 – 12) configurations in response to employment needs of the community (Seller, 2004). This structure was facilitated by improved transportation and centralized school districts.

In the 1940s, education reformers began calling for the creation of junior high schools. They argued that specialized schools for students in Grades 7 through 9 would better prepare youth for high school by exposing them to a high school like environment, oriented towards a discipline-based curriculum, without the trauma of placing them in the same facility as older teenagers. By the late 1960s, the purpose changed from academic learning to meeting the needs of young learners as middle school supporters realized a less subject-oriented and more child-centered environment was needed (Pardini, 2002). Middle school supporters believed that young adolescents' social, psychological, and academic needs were distinct from both younger children and older youth (National Middle School Association, 1995) and claimed that placing young adolescents with high school students hinders social development while placing them with elementary school students slows academic progress. This claim was justified by predicting that middle school systems would have lower dropout rates relative to junior

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high school systems (Clark & Clark, 1993). The middle school concept was created as a bridge for students, focusing on the specific needs and developmental stages of children between the ages of 11 and 13 (Cushman & Rogers, 2008).

In 1994, about 15% of the 80,740 public schools in the United States were middle schools, increasing from 9,086 to 11,712 between 1988 and 1994. However, the number of elementary and secondary schools during this period remained about the same. Most of the growth in school quantities occurred in middle schools, Grades 6–8. Middle school enrollments in 1994 were about 6.8 million of an approximate 41.6 million students in public schools (NCES, 2011). This data underlines the substantive change in education of middle school-aged students over the past 20 years. Sixth-grade populations have steadily increased within the middle school setting. The theoretical basis for this change was to better prepare students for high school by providing young adolescents with more specialized courses and a high school like environment without physically placing pre-teens in high schools (Bedard & Do, 2005). Although the middle school concept has been adopted throughout the United States, several researchers have expressed concerns about the lack of personalized attention and monitoring in middle schools. However, no empirical evidence has validated or nullified these concerns, although some researchers suggest that the decline in sixth grade math and science scores provides support that the middle schools configuration is not appropriate (Bedard & Do, 2005).

These middle school/early adolescent years are characterized by important developmental changes in the child's psychology impacting school motivation, academic achievement and engagement. An alarming 25% of students during the middle school years in the United States experience academic, emotional, and behavioral difficulties

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that can impair their long-term educational achievement, emotional state and occupational success and result in poor academic motivation, low student engagement, school failure, depression, and absences (Roeser, Eccles, & Sameroff, 1998). Researchers have documented that certain forms of middle school stress, such as depression and anger, as well as behavior problems such as truancy and misconduct, increase during middle school years (Achenbach, Howell, Quay, & Conners, 1991). Plans to address such difficulties may be implemented through school climate and student engagement strategies as part of the school improvement plan.

## Findings of Previous Studies

Uline and Tschannen-Moran (2008) surveyed the teachers from 80 middle schools on school climate and gathered student socioeconomic status (SES) and achievement data for the students of each of the schools. A bivariate correlational analysis was used to examine and explore the relationships between school climate, student SES, student achievement, resource support, and the quality of the facility. The study found that the principal's leadership was significantly related to school climate. Also, the findings indicated that school climate significantly related to student achievement, and that student SES strongly related to student achievement.

Back et al., (2016) examined the relationships between classroom management, staff relations, school climate, and academic achievement. The researchers surveyed all teachers from 38 high schools and gathered student achievement data from all students from each school. A bivariate correlational analysis was used to examine the relationships between classroom management, staff relations, school climate, and

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academic achievement. The study found that school climate is a predictor of student achievement.

Smith (2015) examined the relationship between school climate and student achievement. The researcher gathered the SCSR score from each of 43 elementary and middle schools, as well as the student achievement data from each student at the schools. A factorial multivariate analysis of variance was used to determine the relationship between school climate and student achievement. The study found that student achievement is significantly related to school climate.

Taylor (2008) examined the influence of school climate on student achievement in elementary schools. The researcher gathered student school climate survey data, SES data, and student achievement data for all of the students in 127 elementary schools. A factorial multivariate analysis of variance was used to determine the relationship between school climate, SES, and student achievement. The study found that student achievement is significantly related to school climate. Also, student achievement is significantly related to SES. Table 1 shows specific data regarding significant studies on school climate and student achievement.

Table 1

*Significant studies on school climate and student achievement*

| Study | Purpose | Participants | Design/analysis | Outcomes |
|-------|---------|-------------|-----------------|----------|
| Uline, C. & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational* | Examine and explore the relationships between school climate, student SES, student achievement, resource support, and the quality of the facility. | All teachers and students from 80 middle schools. | Bivariate correlational analysis. Multiple regression. | Principal's leadership significantly related to school climate. School climate significantly related to student achievement. Student SES |

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| | | | | |
|---|---|---|---|---|
| *Administration*, 46(1), 55-73. | | | | strongly related to student achievement. |
| Back, L., Polk, E., Keys, C. & McMahon, S. (2016). Classroom management, school staff relations, school climate, and academic achievement: Testing a model with urban high schools. Learning Environments Research, 19(3), 397-410. | Examine the relationships between classroom management, staff relations, school climate and academic achievement. | All teachers and students from 38 high schools. | Bivariate correlational analysis. Multiple regression. | School climate is a predictor of student achievement. |
| Smith, T. (2015). *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.* Retrieved from ProQuest Dissertations & Theses Global. | Examine the relationship between school climate and student achievement. | All students from 43 elementary and middle schools. | Factorial multivariate analysis of variance. | Student achievement is significantly related to school climate. |
| Taylor, D. (2008). *The influence of climate on student achievement in elementary schools.* Retrieved from ProQuest Dissertations & Theses Global. (304656119). | Examine the relationship between school climate and student achievement. | All students from 127 elementary schools. | Factorial multivariate analysis of variance. | Student achievement is significantly related to school climate. |

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Summary

While effective principals understand what is required to assist the school in obtaining the desired results of improving student achievement (Hall & Hord, 2007), these effective principals know that many factors, including the climate of the school, greatly affect the level of student achievement. School climate is very complex, and school climate has been shown to greatly influence school effectiveness and student achievement (McGuffey, 2016).

CHAPTER III

METHODOLOGY

This chapter introduces the research methodology that was used in this study. The chapter begins by restating the problem, the purpose statement, and research questions. This chapter describes the planned quantitative approach to this study, including research design, participants, data collection, and research analysis.

Accountability measures in Georgia schools since NCLB have evolved from standardized testing as a measure of school quality to Adequate Yearly Progress to College and Career Readiness Performance Index (Bae, 2018). The progression of school quality measures developed from a narrow focus to a more holistic view of school performance whereby multiple measures are used as school quality indicators (Bae, 2018). The standards movement, which emphasized high-stakes testing for rewards and sanctions, was replaced by a broader set of indicators of school quality including school climate, which was directly linked to student achievement in middle school (Kutsyuruba et al., 2018). Additionally, research has shown a correlation between student achievement and school climate (Cohen et al., 2009; Guo & Higgins-D'Alessandro, 2011). Currently, however, there is limited research regarding the relationship of student achievement and school climate in Georgia's public middle schools.

School climate is highly complex and has been shown to significantly influence school effectiveness and student achievement (McGuffey, 2016). Owens (1998) asserts the climate of a school affects the rate of student achievement wherein the school principal is ultimately responsible for both climate and student achievement. In this era of heightened school improvement needs, a study of the relationship of school climate on

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student achievement may prove to be a valuable resource to school leaders while designing strategic plans for improvement. Therefore, this study examined the correlation of school climate and student achievement in Georgia middle schools.

<center>Purpose Statement and Research Questions</center>

The purpose of this study is to examine the relationship between school climate to determine if there is a correlation between school climate score as defined by the Georgia SCSR and the student achievement data of a school, as defined by the GMAS in the content areas of English/language arts and mathematics in Grade 8. The data studied was the results of the 2017-2018 SCSR and GMAS as compiled by the Georgia Department of Education and released to the public via their website on October 29, 2018. The overarching research question guiding the study is as follows: What is the relationship between school climate as measured by SCSR and student achievement results reported from the GMAS in Grade 8?

To fully respond to this question, two sub-questions were presented:

RQ1: Is there a significant relationship between the Georgia Department of Education's SCSR and English/Language arts achievement on the GMAS at the middle school level in Georgia?

RQ2: Is there a significant relationship between the Georgia Department of Education's SCSR and Math achievement on the GMAS at the middle school level in Georgia?

<center>Research Design</center>

The research design was a quantitative study using correlational analysis. The variables were interval variables which may be measured so that statistical procedures

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apply to numbered data, quantitatively (Creswell, 2013). Correlation was appropriate for the variables because the study was not experimental in that neither variable was influenced (StatSoft, 2013). Instead, the variables were measured to identify non-directional relations between variables. A correlational model was chosen because a cause to effect direction may not be established with certainty. Experimental manipulated data can be used to conclusively confirm causation between variables (StatSoft, 2013) and are beneficial for generating hypotheses for future research and making predictions (Myers & Hansen, 2002). The study variables, however, were not suited to experimental manipulation. In this study, the independent variable was the GMAS content area student achievement data. The dependent variable was the SCSR school climate data.

Descriptive statistics were used to analyze the quantitative data to determine the significance between the variables and test the null hypothesis. The data was further analyzed using the parametric Pearson Product-Moment correlation and multiple regression analyses on the various factors to determine the correlation between the variables. These analyses were used to determine what, if any, relationship exists between school climate and student achievement.

SRCR, GMAS English/language arts, mathematics, science, and social studies results are publicly available online and were downloaded from the Georgia Department of Education website. The following null hypotheses will be tested in this study:

$H1_0$: There is no significant relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia? ($H_0$: $B_1=0$).

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H2$_0$: There is no significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia? (H$_0$: B$_1$=0).

## Population

This study will examine a total of 431 schools. All schools were public middle schools in the state of Georgia serving students in Grades 6 through 8 exclusively. Schools serving any other grade levels in addition to Grades 6 through 8 were excluded from the study. During the 2017-2018 school year, each of the 431 schools received a SCSR score from the Georgia Department of Education. Also, during the 2017-2018 school year, all students in Grades 6 through 8 were administered the GMAS in the areas of English/language arts and mathematics. In addition, students in Grade 8 were administered the GMAS in the areas of science and social studies. The total number of students in Grades 6 through 8 who were administered the GMAS exams in the spring of 2018 was 400,469. This total of students is made up of 135,282 students in Grade 6, 132,961 students in Grade 7, and 132,226 students in Grade 8.

## Participants

The participating schools in this study were public middle schools in the state of Georgia serving only students in Grades 6 through 8 during the 2017-18 school year. Schools serving any other grade level, as well as Grades 6 through 8 was excluded from the study. While these schools had corresponding student achievement data, the SCSR would be partially made up from students, parents, and teachers from grades other than

Grades 6 through 8. Tables 2 and 3 represent demographic data for the middle schools included in the study.

Table 2

*Demographic Information for Georgia Middle Schools in 2017-18*

| # of Middle Schools | White | Non-White | Black | Hispan. | Multirac. | Asian | Native Am. | Male | Female |
|---|---|---|---|---|---|---|---|---|---|
| 431 | 39.9% | 60.1% | 39.3% | 13.8% | 3.4% | 3.3% | 0.1% | 51.6% | 48.4% |

Table 3

*Program Information for Georgia Middle Schools in 2017-18*

| # of Middle Schools | ED | Rem. | Gifted | SWD | LEP | ELL | Alt. | Migrant |
|---|---|---|---|---|---|---|---|---|
| 431 | 64.7% | 17.3% | 14.1% | 13.7% | 7.7% | 2.5% | 0.9% | 0.2% |

## Instrumentation

Instrumentation in this study involved two data measures compiled and reported by the Georgia Department of Education: school climate, as measured by the SCSR, and student achievement, as measured through state-mandated testing assessments, GMAS. Data was uploaded into the Statistical Package for the Social Sciences (SPSS) Version 20. SPSS is a statistical analysis software program capable of handling large amounts of data, and commonly used in social science research and business (Field, 2009).

### School Climate Star Rating

**General description.** The SCSR, calculated by using data from multiple sources, is a diagnostic tool used by the Georgia Department of Education to determine if a school is on the right path to school improvement. The SCSR, also referred to as Star Rating, is a value calculated using data from the Georgia Student Health Survey 2.0, Georgia School

Personnel Survey, Georgia Parent Survey, student discipline data, and attendance records for students, teachers, staff and administrators (Georgia Department of Education, 2018b).

**Specific description**. In 2011, Georgia led the nation by being the first state to include school climate as an early indicator within the academic accountability system. The Georgia Department of Education used the free and voluntarily administered Georgia Student Health Survey 2.0 to develop a school climate rating, the SCSR, which was originally used as a diagnostic tool for the CCRPI. Released in 2015, the SCSR was developed as a 5-star rating matrix using data from the Georgia Student Health Survey 2.0, Georgia Parent Survey, student discipline data, and attendance records of students, teachers, staff and administrators (Georgia Department of Education, 2018b). The SCSR involves four equally weighted data components: a) student, teacher, and parent perceptional survey data, b) student discipline data utilizing a weighted suspension rate, c) safe and substance-free learning environment including school discipline counts including the prevalence of violence, bullying and unsafe incidents, and d) student survey data regarding the use of illegal substances. Table 4 provides a list of star interpretations.

Table 4

*School Climate Star Score Interpretation*

| School Climate Index | Star Rank Meaning |
| --- | --- |
| 5 Star | Excellent school |
| 4 Star | Above average school |
| 3 Star | Average school |
| 2 Star | Below satisfactory school |
| 1 Star | Unsatisfactory |

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**Validity and Reliability.** The surveys used in computation of the SCSR were created by experts in the field establishing content validity and reliability (Hand, 2019). Additionally, previous studies (LaSalle & Freeman, 2014; McGiboney, 2016) have determined validity and reliability of the school climate survey instruments. These surveys were intentionally designed to query 13 scholarly established dimensions that support perceptions of climate (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013) establishing construct validity. The 13 school climate dimensions include the following: 1) Rules and Norms, 2) Physical Security, 3) Social-Emotional Security, 4) Support for Learning, 5) Social and Civic Learning, 6) Respect for Diversity, 7) Social Support (adult), 8) Social Support (students), 9) School Connectedness-Engagement, 10) Physical Surroundings, 11) Social Media, 12) Leadership, and 13) Professional Relationships ("Our Approach - National School Climate Center," 2018).

<div align="center">Georgia Milestones Assessment System</div>

**General Description.** The GMAS is the Georgia Department of Education's comprehensive summative assessment program that measures how well students have learned the knowledge and skills outlined in the state-adopted content standards in the core subject areas of English/language arts, mathematics, science, and social studies (Georgia Department of Education, 2018). Students in Grades 6 and 7 are administered just the English/language arts and mathematics assessments, while students in Grade 8 are administered the assessment in all four content areas of English/language arts, mathematics, science, and social studies.

**Specific description.** The GMAS provides student-level information regarding mastery of the state-adopted content standards in core content areas of English/language

arts, math, science and social studies. This data is reported collectively as well so that parents, educators, and the general public may gauge academic performance. The GMAS is a critical component of Georgia's accountability system. Relevant GMAS features are the following:

- norm-referenced items across all content areas and courses, complementing the criterion-referenced information and providing a national comparison;

- open-ended (written-response) items in English/language arts and mathematics across all grades.

- a writing prompt of student read narratives across all grade levels and course within the English/language arts assessment;

- technology-enhanced items including multiple solution options, graphing, magnification, drag and drop; and

- online testing facilitation as the primary method for testing administration allowing paper-pencil as back-up for those students with disabilities identified through the IEP or IAP process that do not allow them to access a computer or device (Georgia Department of Education, 2018).

**Validity and Reliability.** Georgia State University (2016) developed an "Accountability Measures Scorecard" (Georgia State University, 2016, p. 2). For this study, the GMAS measure variables are limited to the End of Grade Milestones. Georgia State University determined that the GMAS were valid indicators of student mastery of Georgia's Standards of Excellence. Georgia State University (2016) also concluded that further research is needed confirm reliability.

Data Collection

The data that was used for this study was not tied to individual students, just their school. GMAS English/language arts and mathematics school results and SCSR school results are publicly available on the Georgia Department of Education's website and were downloaded in to a spreadsheet for analysis. All schools in the study were public middle schools in the state of Georgia serving students in Grades 6 through 8 exclusively. Schools serving any other grade levels in addition to Grades 6 through 8 were excluded from the study. All of Georgia's public middle schools administer the Georgia Department of Education's GMAS during a three-week window in April each school year. Results of the GMAS are released to the public in October. All of Georgia's public middle schools receive a school climate score from the Georgia Department of Education's SCSR. School level data including results from the student health survey, school personnel survey, parent survey, FTE student count, employee count, student discipline, student attendance, teacher attendance, staff attendance, and administrator attendance are gathered in June of each school year. Results of the SCSR are released to the public in October. All data gathered and used for this study were stored on a password protected computer and will be deleted six months after the final approval and publication of the study.

Data Analysis

The results and findings of this quantitative study are provided in Chapter IV. Descriptive statistics were used to analyze the quantitative data to determine the significance between the variables and test the null hypothesis. The data was further analyzed using the parametric Pearson Product-Moment correlation and linear regression

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analyses on the various factors to determine the correlation between the variables. These analyses were used to determine what, if any, relationship exists between the school climate and student achievement.

With the purpose of this study being to examine the relationship of school climate and student achievement at the middle school level, the guiding research questions were the following:

RQ1: What is the relationship between the Georgia Department of Education's SCSR, IV, and English/language arts achievement on the GMAS, DV, at the middle school level in Georgia?

RQ2: What is the significant relationship between the Georgia Department of Education's SCSR, IV, and mathematics achievement on the GMAS, DV, at the middle school level in Georgia?

The regression equation used to determine the regression line or line of best fit is $Y = a + bx + c,$ where $Y$ is the dependent variable, student achievement GMAS scores, and the equation tries to predict $X$, the independent variable, SCSR, that is being used to predict $Y$, and $a$ is the *Y-intercept* of the line and $c$ represents the regression residual. The values of $a$ and $b$ are used so that the square of the regression residuals is minimal.

## Summary

In this study, the researcher determined whether there is a statistically significant relationship between school climate and student achievement at the middle school level in the public schools in state of Georgia. This study identified the relationship between the climate of a school, as defined by the SCSR, and the GMAS student achievement data of a school in the content areas of English/language arts and mathematics in Grade 8.

CHAPTER IV

RESULTS

Introduction

Because so many teachers leave a career after the first five years in the profession for which they spent at least four years of college preparing, Owens (2015) suggested an investigation was warranted. Also, Owens (2015) contended that schools and school systems needed to research school climate as it related to student achievement and work on a plan to ensure that faculty and staff created an optimal climate for achievement. Owens (2015) accentuated the relevance of school climate research due to rapidly declining teacher candidate quantities, but optimization of school climate for student achievement is a notion that continues to be examined and redefined (Marshall, 2004).

The changing federal, state, and local educational policies substantially impact the landscapes of Georgia school systems, fueling organizational complexity. During this complex accountability era, school administrators rely upon current research to inform their decisions and develop school improvement plans that ensure increased student outcomes (Ravitch, 2010). To add to this complexity, Georgia's public education student population is growing with over 1.6 million students (Georgia Department of Education, 2018b) while the teacher population is shrinking (Owens, 2015). Georgia's increasing teacher vacancies, in an accountability era, heightens the school administrator's sense of urgency to get results while retaining teachers and attracting teacher applicants. Although school climate is highly complex, it has been shown to significantly influence school effectiveness and student achievement (McGuffey, 2016).

As school leaders develop plans to better and more efficiently educate students, the need for evidence of factors contributing to students' learning and achievement is valuable and critical for success. School leaders have a plethora of research to turn to for their development of school improvement plans. Bertolini et al. (2012) listed current educational research within the frame of Bronfenbrenner's bio-ecological model. The meso-system factors, including school climate, professional development for teachers, building leadership capacity, teacher evaluation, and peer culture are most relevant to school leaders as these fall within the school administrators' sphere of influence. The transformational leader recognizes school climate as the primary factor within their purview (Allen, Grigsby, & Peters 2015).

<div align="center">Research Questions and Hypothesis</div>

RQ1: What is the relationship between the Georgia Department of Education's SCSR, IV, and English/language arts achievement on the GMAS, DV, at the middle school level in Georgia?

> $H1_0$: There is no significant relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia. ($H_0$: $B_1=0$).
>
> $H1_A$: There is a significant relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia. ($H_a$: $B_1 \neq 0$).

RQ2: What is the significant relationship between the Georgia Department of Education's SCSR, IV, and mathematics achievement on the GMAS, DV, at the middle school level in Georgia?

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H2$_0$: There is no significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia. (H$_0$: B$_1$=0).

H2$_A$: There is a significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia. (H$_a$: B$_1 \neq$0).

## Participants

The 431 schools included in this study were all traditional public middle schools in the state of Georgia serving students in Grades 6 through 8 exclusively during the 2017-18 school year. Schools serving any other grade level as well as Grades 6 through 8 were excluded from the study. While these schools had corresponding student achievement data, the SCSR would partially consist of data of students, parents, and teachers from grades other than Grades 6 through 8.

The collected demographic data for the 431 schools included in the study are as follows: the average Free/Reduced rate was 33.4%; 70.8% of the schools were Title I status schools; the average Climate score was 86.4; the average English/Language Arts Mean Scale Score in Grade 8 was 510.7; the Mathematics Average Mean Scale Score in Grade 8 was 506.6; the average CCRPI score was 72.2; the average Content Mastery score was 61.4; the average Progress score was 81.2; the average Closing Gaps score was 61.2; the average Readiness score was 80.9; the average Student Attendance rate was 88.7%; the average Teacher Attendance rate was 95.7%; and the average Administrator Attendance rate was 97.5%.

Findings

This quantitative predictive research study examined the relationship between school climate to determine if there is a correlation between school climate score as defined by the Georgia SCSR and the student achievement data of a school, as defined by the GMAS in the content areas of English/language arts and mathematics in Grade 8. A quantitative regression research design was used to examine the relationship between predicting and outcome variables. A stepwise multiple regression was performed using IBM SPSS Statistics Version 24 program.

Table 5 shows descriptive statistics for the predictor and criterion variables for the entire sample ($n = 431$) in English/language arts. The Free/Reduced score, Climate score, and Administrator Attendance score (predictor variables) had a possible range of 0 to 100. The English/Language Arts (ELA) Mean Scale Score (criterion variable) had a possible range of 225 to 730. There were no missing scores. Considering the descriptive statistics, the average of all the school were as follows: ELA Mean Scale Score = 510.75 ($SD = 20.80$); Free/Reduced status = 33.44 ($SD = 18.46$); Climate score = 86.43 ($SD = 5.82$); and Administrator Attendance = 97.47 ($SD = 1.92$).

Table 5

*Descriptive Statistics for Subscales for ELA*

| Scale | M | SD | N |
|---|---|---|---|
| ELA Mean Scale Score | 510.75 | 20.80 | 431 |
| Free/Reduced Status | 33.44 | 18.46 | 431 |
| Climate Score | 86.43 | 5.82 | 431 |
| Administrator Attendance | 97.47 | 1.92 | 431 |

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Table 6 shows descriptive statistics for the predictor and criterion variables for the entire sample ($n = 431$) in mathematics. The Free/Reduced score, Climate score, and Administrator Attendance score (predictor variables) had a possible range of 0 to 100. The Mathematics (MA) Mean Scale Score (criterion variable) had a possible range of 225 to 730. There were no missing scores. Considering the descriptive statistics, the average of all the school were as follows: MA Mean Scale Score = 506.65 ($SD = 23.06$); Free/Reduced status = 33.44 ($SD = 18.46$); Climate score = 86.43 ($SD = 5.82$); and Administrator Attendance = 97.47 ($SD = 1.92$).

Table 6

*Descriptive Statistics for Subscales for MA*

| Scale | *M* | *SD* | *N* |
|---|---|---|---|
| MA Mean Scale Score | 506.65 | 23.06 | 431 |
| Free/Reduced Status | 33.44 | 18.46 | 431 |
| Climate Score | 86.43 | 5.82 | 431 |
| Administrator Attendance | 97.47 | 1.92 | 431 |

The correlation of ELA Mean Scale Score and Free/Reduced Status produced a very strong negative correlation of -.815 and a significance level of .000, which is less than the alpha of .01. Strong evidence was found to suggest that there is a statistically significant negative correlation between ELA Mean Scale Score and Free/Reduced Status. The correlation of ELA Mean Scale Score and Climate Score produced a moderately strong positive correlation of .643 and a significance level of .000, which is less than the alpha of .01. Strong evidence was found to suggest that there is a statistically significant positive correlation between ELA Mean Scale Score and Climate Score. The

correlation of ELA Mean Scale Score and Administrator Attendance produced a very

weak positive correlation of .075 and a significance level of .060, which is slightly higher

than the alpha of .05. Moderately strong evidence was found to suggest that there is a

statistically significant positive correlation between MA Mean Scale Score and

Administrator Attendance.

Table 7 shows a correlational matrix for the discriminant validity analysis of ELA

Mean Scale Score, Free/Reduced status, Climate score, and Administrator attendance.

Table 7

*Correlational Matrix for Discriminant Validity for ELA*

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1.  ELA Mean Scale Score | -- | -.815** | .643** | .075 |
| 2.  Free/Reduced Status | -.815** | -- | -.684** | -.049 |
| 3.  Climate Score | .643** | -.684** | -- | .049 |
| 4.  Administrator Attendance | .075 | -.049 | .049 | -- |

*Note. * p < .05; ** p < .01.*

The correlation of MA Mean Scale Score and Free/Reduced Status produced a

moderately strong negative correlation of -.687 and a significance level of .000, which is

less than the alpha of .05. Strong evidence was found to suggest that there is a statistically

significant negative correlation between MA Mean Scale Score and Free/Reduced Status.

The correlation of MA Mean Scale Score and Climate Score produced a moderately

strong positive correlation of .592 and a significance level of .000, which is less than the

alpha of .05. Strong evidence was found to suggest that there is a statistically significant

positive correlation between MA Mean Scale Score and Climate Score. The correlation

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of MA Mean Scale Score and Administrator Attendance produced a very weak positive correlation of .081 and a significance level of .046, which is less than the alpha of .05. Moderately strong evidence was found to suggest that there is a statistically significant positive correlation between MA Mean Scale Score and Administrator Attendance.

A correlational matrix for the discriminant validity analysis of Mathematics Mean Scale Score, Free/Reduced status, Climate score, and Administrator Attendance is represented in Table 8.

Table 8

*Correlational Matrix for Discriminant Validity for MA*

| Variable | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. MA Mean Scale Score | -- | -.687** | .592** | .081* |
| 2. Free/Reduced Status | -.687** | -- | -.684** | -.049 |
| 3. Climate Score | .592** | -.684** | -- | .049 |
| 4. Administrator Attendance | .081* | -.049 | .049 | -- |

*Note. * p < .05; ** p < .01.*

Assumptions

Prior to conducting the English/language arts analysis, the assumptions for multiple linear regression were tested. To produce valid and reliable results, there are four assumptions that must be satisfied for a multiple linear regression, which are normality, linearity, heteroscedasticity, and multicollinearity.

The first assumption is that the regression standardized residuals are roughly normally distributed. A visual inspection of the data on the histogram of the standardized residuals shows that the distribution of the data was roughly normally distributed. Figure

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2 shows that the standardized residuals had a roughly normal distribution, indicating the first assumption was satisfied.



**Dependent Variable: 8 ELA Mean Scale Score**
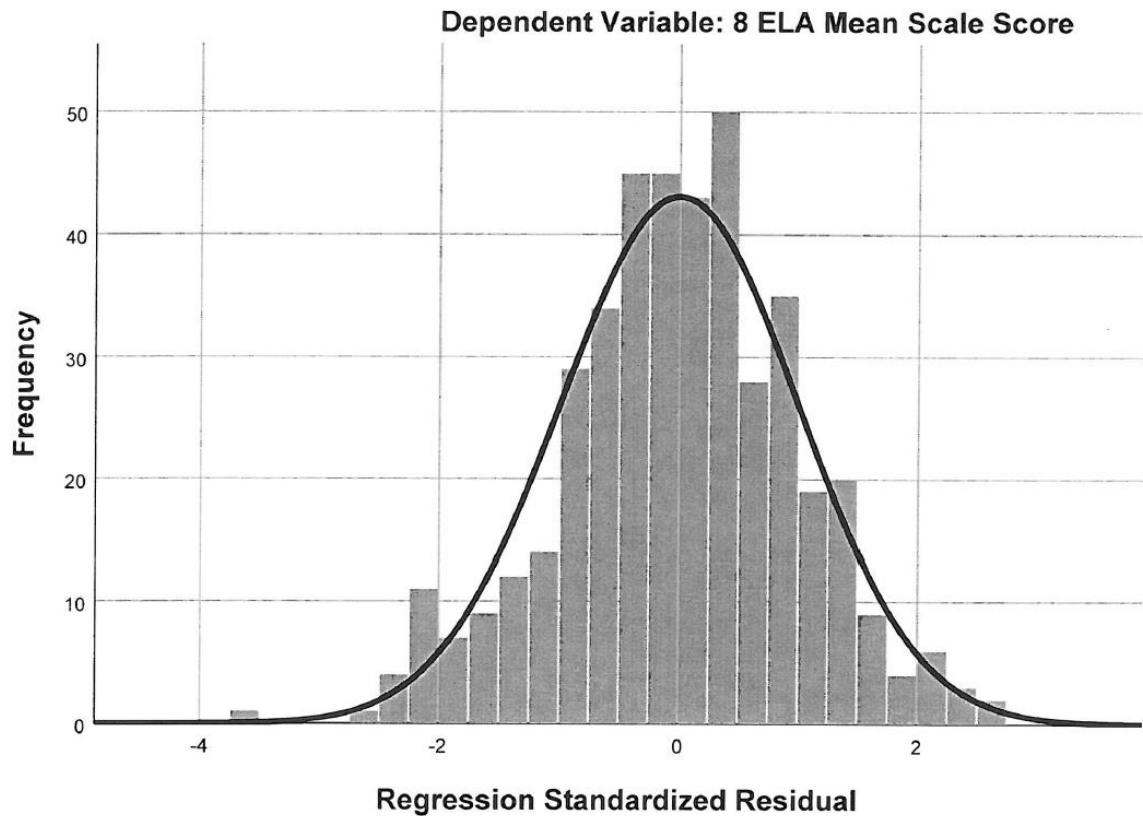
*Figure 2.* Histogram of the standardized residuals to evaluate the normality assumption for RQ1.

The second assumption is that there is a linear relationship between the predictor and outcome variables. A visual inspection of the data on the P-P plot of the standardized residuals shows that the distribution of the data was normally distributed in a linear fashion. Figure 3 shows that the standardized residuals had a normal distribution, indicating the second assumption was satisfied.

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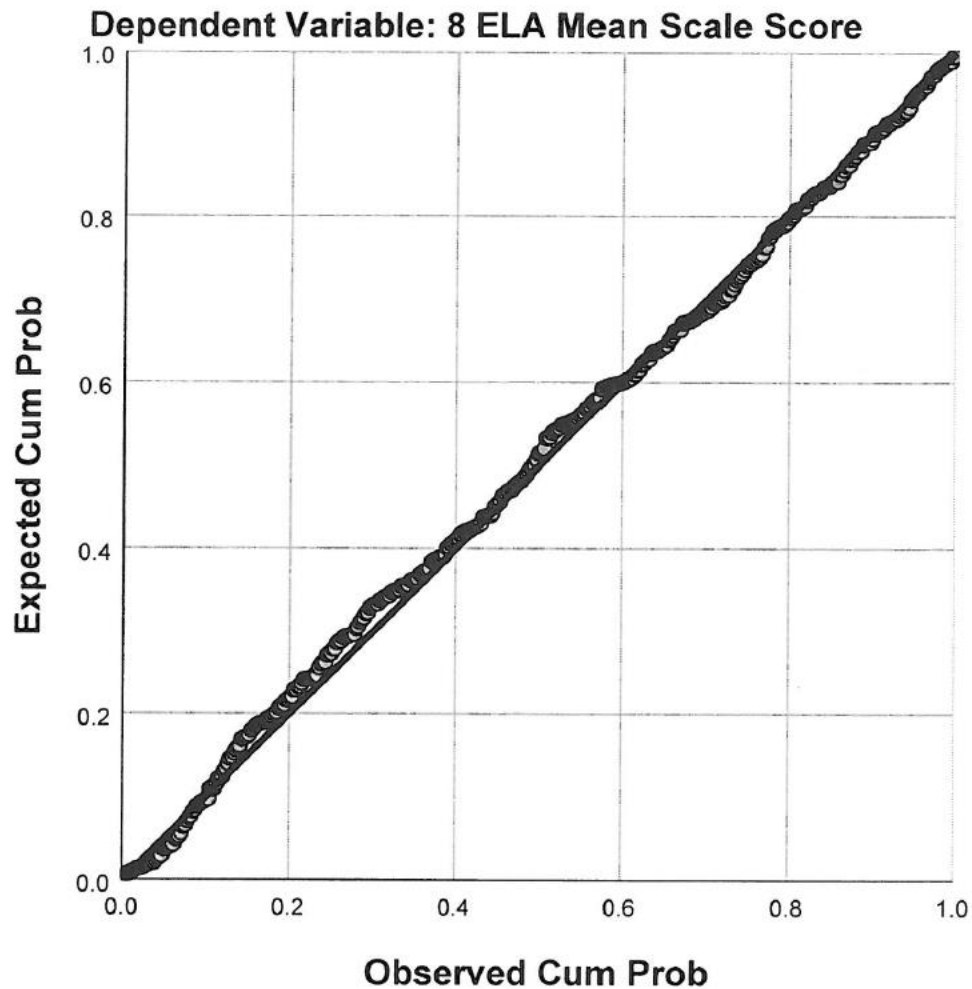
*Figure 3.* P-P plot of the standardized residuals to evaluate the linear assumption for RQ1.

The third assumption is the data should be free from heteroscedasticity. A visual inspection of the data on the scatterplot of the standardized residuals shows a slightly downward running bottom line indicating that the projected values may be less reliable on the higher end of the model (Figure 4). Since the standardized residuals produced a not good distribution, the third assumption was considered not satisfied. Because the heteroscedasticity assumption was not satisfied, the researcher conducted a weighted least squares regression to investigate the heteroscedasticity further. The results using the

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weighted least squares produced very little difference in $R^2$ and $F$ values indicating that the third assumption was satisfied.
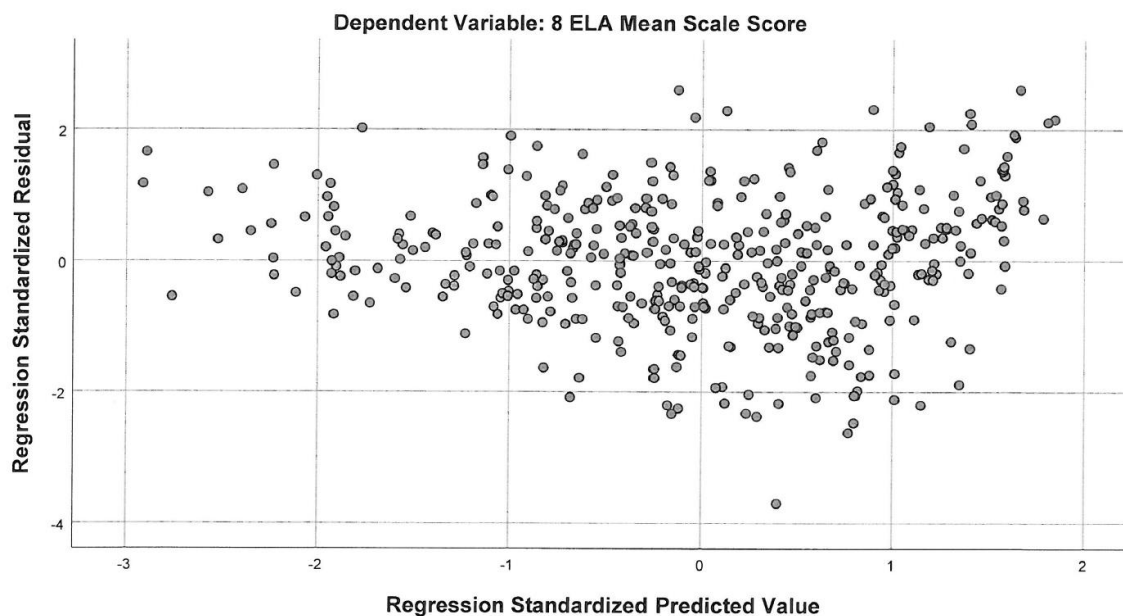


*Figure 4.* Scatterplot of the standardized residuals to evaluate the heteroscedasticity assumption for RQ1

The fourth assumption is that there should be no multicollinearity, meaning that none of the predictor variables in the model should be strongly correlated with each other. Table 9 shows that none of the predictor variables had a correlation greater than 0.70 and that multicollinearity is not likely to cause inaccurate results.

Table 9

*Pearson's Correlation Statistics to Evaluate the Multicollinearity Assumption for RQ1*

| Predictor Variables | 1 | 2 | 3 |
|---|---|---|---|
| 1. Free/Reduced Status | 1.000 | -.684 | -.049 |
| 2. Climate Score | -.684 | 1.000 | .049 |
| 3. Administrator Attendance | -.049 | .049 | 1.000 |

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Additional analysis of multicollinearity was conducted by inspection of the Variance Inflation Factors (VIF) of the predictor variables. No predictor variable had a VIF value greater than 10. Table 10 shows all predictor variables had values less than 2, indicating that multicollinearity is not a problem and the fourth assumption was satisfied.

Table 10

*Variance Inflation Factors (VIF) to Evaluate the Multicollinearity Assumption* for RQ1

| Predictor Variables | VIF |
| --- | --- |
| 1. Free/Reduced Status | 1.000 |
| 2. Climate Score | 1.879 |
| 3. Administrator Attendance | 1.003 |

A stepwise multiple regression was performed using IBM SPSS Statistics Version 24 program. The stepwise process allowed for the researcher to increase accuracy of results by entering multiple predicting variables with varying correlation rates with the outcome variable ELA Mean Scale Score. The researcher entered Free/Reduced into the model because this predictive variable had a strong relationship of -.815 with the outcome variable. The next predictive variable entered into the stepwise multiple regression was Climate score because this predictive variable had a strong relationship of .643 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was Administrator Attendance because this predictive variable had a weak relationship of .075 with the outcome variable. $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). Model 2 was chosen as the best model because of a higher

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$R^2$ of .824, which was higher than Model 1 at .815. Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis for Research Question 1. Table 11 shows a summary of the English/language arts stepwise multiple regression analysis.

Table 11

*Summary of Stepwise Regression Analysis for ELA*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| Constant | 541.464 | 1.203 | | 487.940 | 12.630 | |
| Free/Reduced | -.919 | .031 | -.815 | -.795 | .042 | -.706 |
| Climate Score | | | | .572 | .134 | .160 |
| $R^2$ | | .815** | | | .824** | |
| *F* for change in $R^2$ | | 850.585** | | | 18.119** | |

*Note. * p < .05; ** p < .01.*

Prior to conducting the mathematics analysis, the assumptions for multiple linear regression were tested. To produce valid and reliable results, four assumptions that must be satisfied for a multiple linear regression, which are normality, linearity, heteroscedasticity, and multicollinearity.

The first assumption is that the regression standardized residuals are roughly normally distributed. A visual inspection of the data on the histogram of the standardized residuals shows that the distribution of the data was roughly normally distributed. Figure 5 shows the standardized residuals had a roughly normal distribution, indicating the first assumption was satisfied.

Dependent Variable: 8 MATH Mean Scale Score
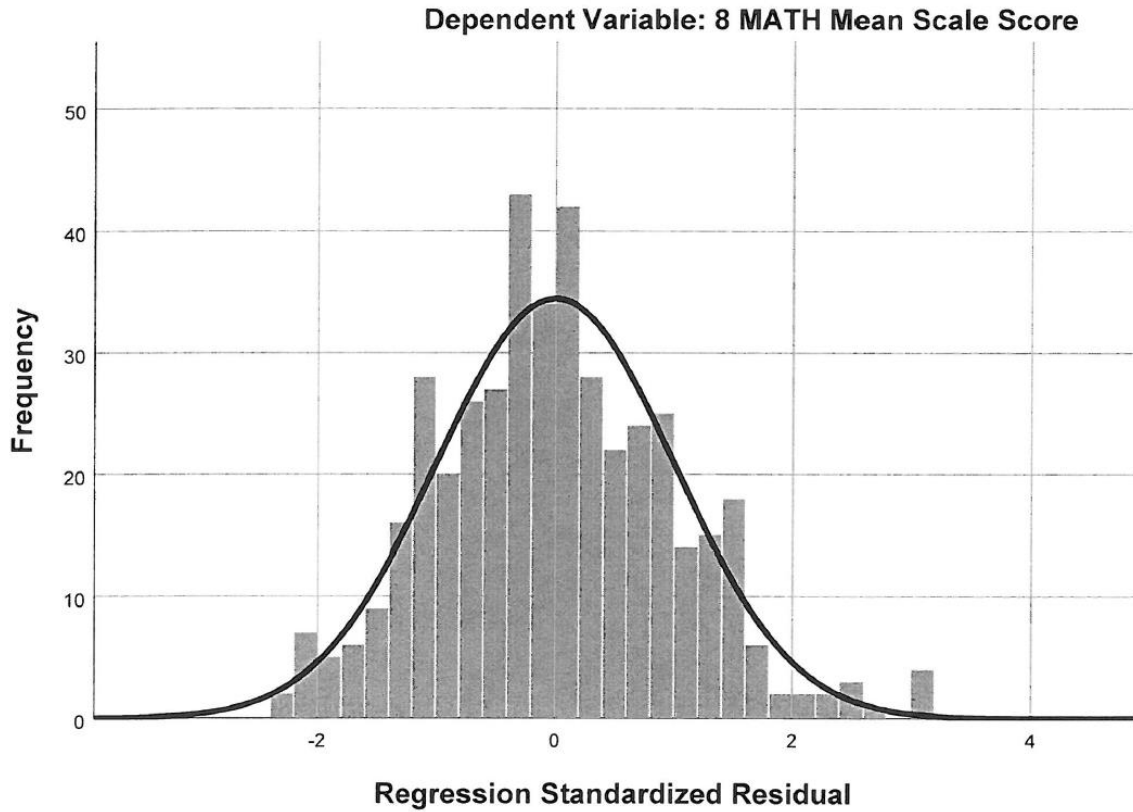
*Figure 5.* Histogram of the standardized residuals to evaluate the normality assumption for RQ2.

The second assumption is that there is a linear relationship between the predictor and outcome variables. A visual inspection of the data on the P-P plot of the standardized residuals shows that the distribution of the data was normally distributed in a linear fashion. Figure 6 shows the standardized residuals had a normal linear distribution, indicating the second assumption was satisfied.

**Dependent Variable: 8 MATH Mean Scale Score**
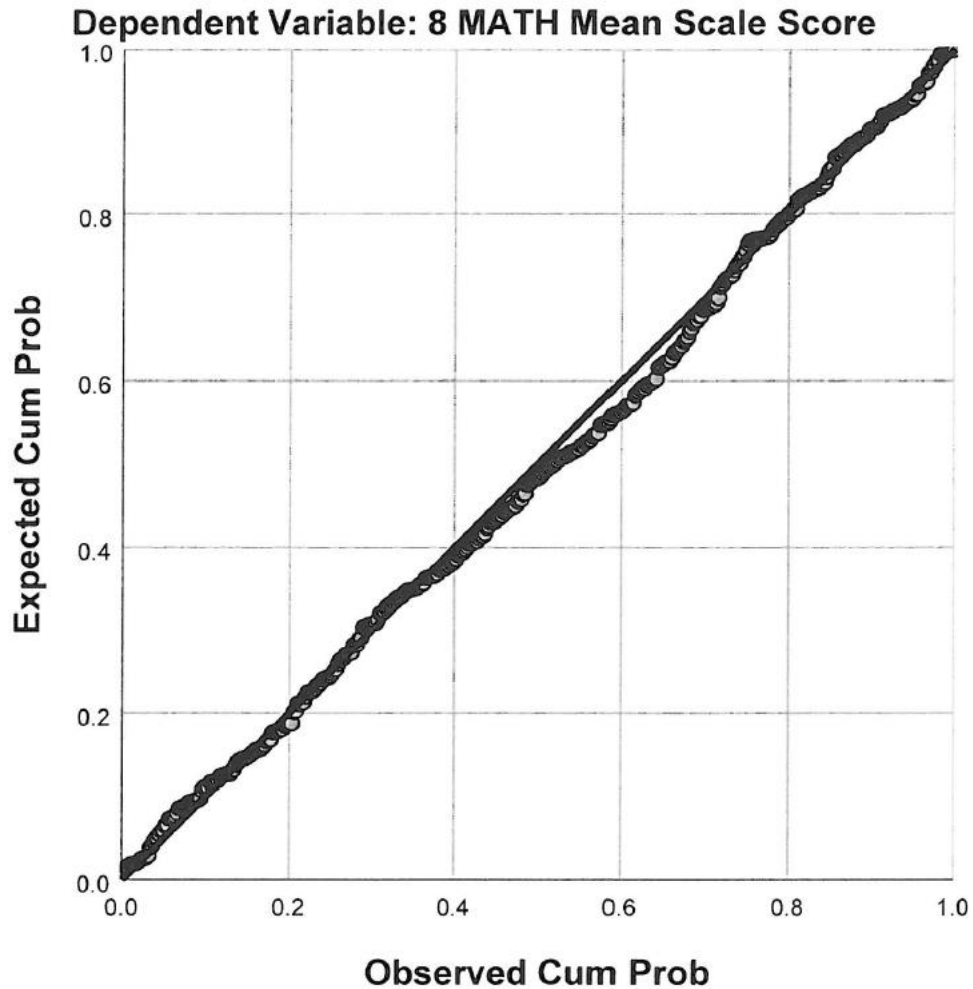
*Figure 6.* P-P plot of the standardized residuals to evaluate the linear assumption for RQ2.

The third assumption is the data should be free from heteroscedasticity. A visual inspection of the data on the scatterplot of the standardized residuals shows a slightly downward running bottom line indicating that the projected values may be less reliable on the higher end of the model. Figure 7 shows that the standardized residuals had a not good distribution, indicating that the third assumption was considered not satisfied. Because the heteroscedasticity assumption was not satisfied, the researcher conducted a weighted least squares regression to investigate the heteroscedasticity further. The results

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using the weighted least squares produced very little difference in $R^2$ and $F$ values
indicating that the third assumption was satisfied.
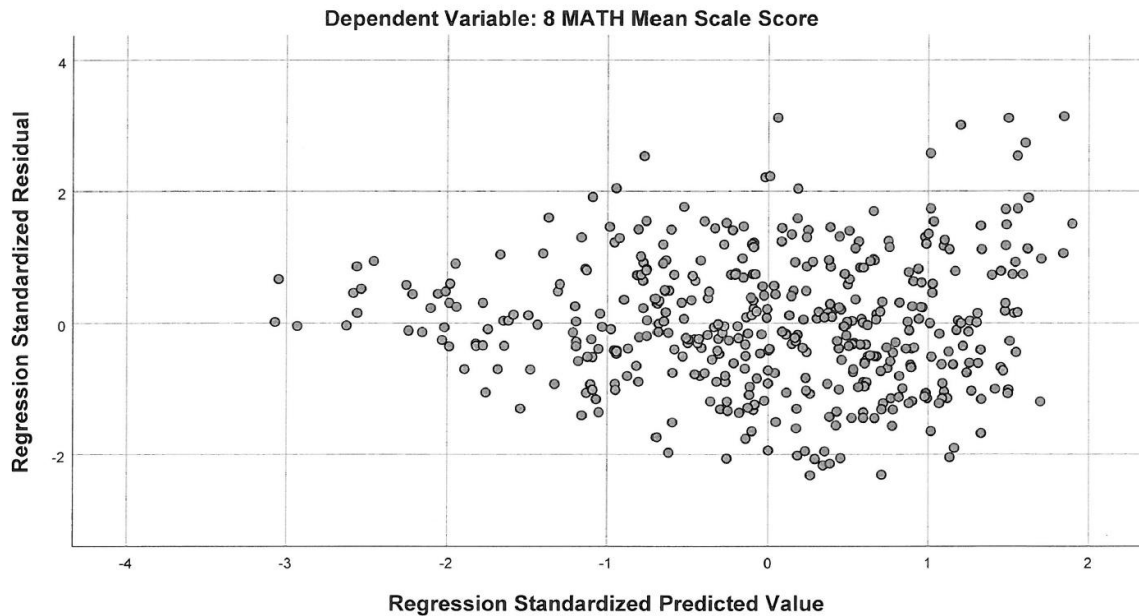


*Figure 7.* Scatterplot of the standardized residuals to evaluate the heteroscedasticity
assumption for RQ2.

The fourth assumption is that there should be no multicollinearity, meaning that
none of the predictor variables in the model should be strongly correlated with each
other. Table 12 shows that none of the predictor variables had a correlation greater than
0.70 and that multicollinearity is not likely to cause inaccurate results.

Table 12

*Pearson's Correlation Statistics to Evaluate the Multicollinearity Assumption for RQ2*

| Predictor Variables | 1 | 2 | 3 |
|---|---|---|---|
| 1. Free/Reduced Status | 1.000 | -.684 | -.049 |
| 2. Climate Score | -.684 | 1.000 | .049 |
| 3. Administrator Attendance | -.049 | .049 | 1.000 |

Additional analysis of multicollinearity was conducted by inspection of the Variance Inflation Factors (VIF) of the predictor variables. No predictor variable had a VIF value greater than 10. Table 13 shows all predictor variables had values less than 2, indicating that multicollinearity is not a problem and the fourth assumption was satisfied.

Table 13

*Variance Inflation Factors (VIF) to Evaluate the Multicollinearity Assumption for RQ2*

| Predictor Variables | VIF |
| --- | --- |
| 1.  Free/Reduced Status | 1.000 |
| 2.  Climate Score | 1.879 |
| 3.  Administrator Attendance | 1.003 |

A stepwise multiple regression was performed using IBM SPSS Statistics Version 24 program. The stepwise process allowed for the researcher to increase accuracy of results by entering multiple predicting variables with varying correlation rates with the outcome variable Mathematics Mean Scale Score. The researcher entered Free/Reduced into the model because this predictive variable had a strong relationship of -.687 with the outcome variable. The next predictive variable entered into the stepwise multiple regression was Climate score because this predictive variable had a moderate relationship of .592 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was Administrator Attendance because this predictive variable had a weak relationship of .081 with the outcome variable. $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). Model 2 was chosen as the best model because of a higher $R^2$ of .499, which was higher than Model 1 at .472. Based on the data analysis, the researcher rejected the null

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hypothesis and accepted the alternate hypothesis for Research Question 2. A summary of

the mathematics stepwise multiple regression analysis is displayed in Table 14.

Table 14

*Summary of Stepwise Regression Analysis for MA*

| Variable | Model 1 | | | Model 2 | | |
|---|---|---|---|---|---|---|
| | *B* | *SE B* | *β* | *B* | *SE B* | *β* |
| Constant | 535.336 | 1.674 | | 450.315 | 17.469 | |
| Free/Reduced | -.858 | .044 | -.687 | -.662 | .059 | -.530 |
| Climate Score | | | | .908 | .186 | .229 |
| $R^2$ | | .472** | | | .499** | |
| *F* for change in $R^2$ | | 382.812** | | | 23.895** | |

*Note. \* p < .05; \*\* p < .01.*

## Summary

The purpose of this study was to examine the relationship between school climate

and student achievement to determine if there is a correlation between school climate

score as defined by the Georgia SCSR and the student achievement data of a school, as

defined by the GMAS in the content areas of English/language arts and mathematics in

Grade 8.

This research study was guided by two research questions:

RQ1: What is the relationship between the Georgia Department of Education's SCSR and

English/language arts achievement on the GMAS at the middle school level in Georgia?

A stepwise multiple regression was used to examine the relationships. The

researcher first entered Free/Reduced into the model because this predictive variable had

a strong relationship of -.815 with the outcome variable. The next predictive variable

entered into the stepwise multiple regression was Climate score because this predictive variable had a strong relationship of .643 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was Administrator Attendance because this predictive variable had a weak relationship of .075 with the outcome variable. $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). Model 2 was chosen as the best model because of a higher $R^2$ of .824, which was higher than Model 1 at .815. Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis stating there is a significant relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia.

RQ2: What is the significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia?

A stepwise multiple regression was used to examine the relationships. The stepwise process allowed for the researcher to increase accuracy of results by prioritizing predicting variables entered by correlation rate with the outcome variable Mathematics Mean Scale Score. The researcher first entered Free/Reduced into the model because this predictive variable had a strong relationship of -.687 with the outcome variable. The next predictive variable entered into the stepwise multiple regression was Climate score because this predictive variable had a moderate relationship of .592 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was

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Administrator Attendance because this predictive variable had a weak relationship of .081 with the outcome variable. $R^2$ indicates proportion of variance by the outcome variable accounted for by the predicting variables (Pedhauzur, 1982). Model 2 was chosen as the best model because of a higher $R^2$ of .499, which was higher than Model 1 at .472. Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis stating there is a significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia.

CHAPTER V

DISCUSSION

Chapter V provides a summary of the relationship between school climate and student achievement at the middle school level in Georgia. Findings from the current research study were analyzed with previous studies. Summaries and comparisons were used to determine recommendations and implications.

## Summary of the Study

The purpose of this study was to examine the relationship between school climate and student achievement to determine if there is a correlation between school climate and the student achievement in the middle school level. The overall results of this study supported prior research surrounding school climate and student achievement as I found a significant relationship.

This study collected data from 431 traditional public middle schools in the state of Georgia serving students in Grade 6 through Grade 8 exclusively during the 2017-18 school year. A stepwise multiple regression was used to examine the relationships in both research questions. The stepwise process allowed for the researcher to increase accuracy of results by prioritizing predicting variables of Free/Reduced rate, Climate score, and Administrator Attendance entered by correlation rate with the outcome variables of MA Mean Scale Score and ELA Mean Scale Score.

Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis for both research questions stating there is a significant relationship between the Georgia Department of Education's SCSR and English/language

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arts achievement for RQ1, $R^2$ = .824, $p < .01$, and mathematics achievement for RQ2, $R^2$ = .499, $p < .01$, on the GMAS at the middle school level in Georgia.

## Analysis of the Research Findings

The purpose of this study was to examine the relationship between school climate and student achievement to determine if there is a correlation between school climate score and the Georgia Milestones student achievement data. I utilized public archived data to access the relationship between school climate, student achievement, and school leadership.

RQ1: What is the relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia?

The researcher first entered Free/Reduced into the stepwise multiple regression model because this predictive variable had a strong relationship of -.815 with the outcome variable. The next predictive variable entered into the stepwise multiple regression was Climate score because this predictive variable had a strong relationship of .643 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was Administrator Attendance because this predictive variable had a weak relationship of .075 with the outcome variable. Because of the weak relationship, Administrator Attendance was removed from both models. Model 1 contained only the predictor variable of Free/Reduced. Model 2 contained predictor variables of Free/Reduced and Climate Score. Model 2 was chosen as the best model because of a higher $R^2$ of .824, which was higher than Model 1 at .815. Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis: There is a

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significant relationship between the Georgia Department of Education's SCSR and English/language arts achievement on the GMAS at the middle school level in Georgia.

RQ2: What is the relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia?

The researcher first entered Free/Reduced into the stepwise multiple regression model because this predictive variable had a strong relationship of -.687 with the outcome variable. The next predictive variable entered into the stepwise multiple regression was Climate score because this predictive variable had a strong relationship of .592 with the outcome variable. The final predictive variable entered into the stepwise multiple regression was Administrator Attendance because this predictive variable had a weak relationship of .081 with the outcome variable. Because of the weak relationship, Administrator Attendance was removed from both models. Model 1 contained only the predictor variable of Free/Reduced. Model 2 contained predictor variables of Free/Reduced and Climate Score. Model 2 was chosen as the best model because of a higher $R^2$ of .499, which was higher than Model 1 at .472. Based on the data analysis, the researcher rejected the null hypothesis and accepted the alternate hypothesis: There is a significant relationship between the Georgia Department of Education's SCSR and mathematics achievement on the GMAS at the middle school level in Georgia.

The overall results of this research study supported findings by other researchers. Further research on these relationships would certainly benefit school leaders and the field of education. Uline and Tschannen-Moran (2008) surveyed the teachers from 80 middle schools on school climate and gathered student SES data and achievement data

for the students of each of the schools. A bivariate correlational analysis was used to examine and explore the relationships between school climate, student SES, student achievement, resource support, and the quality of the facility. The study found that the principal's leadership was significantly related to school climate. Also, the findings indicated that school climate significantly related to student achievement, and that student SES strongly related to student achievement.

Back et al., (2016) examined the relationships between classroom management, staff relations, school climate, and academic achievement. The researchers surveyed all teachers from 38 high schools and gathered student achievement data from all students from each school. A bivariate correlational analysis was used to examine the relationships between classroom management, staff relations, school climate and academic achievement. The study found that school climate is a predictor of student achievement.

Smith (2015) examined the relationship between school climate and student achievement. The researcher gathered the SCSR score from each of 43 elementary and middle schools, as well as the student achievement data from each student at the schools. A factorial multivariate analysis of variance was used to determine the relationship between school climate and student achievement. The study found that student achievement is significantly related to school climate.

Taylor (2008) examined the influence of school climate on student achievement in elementary schools. The researcher gathered student school climate survey data, SES data, and student achievement data for all of the students in 127 elementary schools. A factorial multivariate analysis of variance was used to determine the relationship between

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school climate, SES, and student achievement. The study found that student achievement is significantly related to school climate. Also, student achievement is significantly related to SES.

## Limitations of the Study

All research studies face limitations or potential problems. However, these limitations provide many recommendations for future studies (Creswell, 2013). A single quantitative research study, by itself, does not account for and measure all factors that influence school climate and student achievement.

This study relied on the archived public data collected by the Georgia Department of Education. The SCSR used by the state of Georgia is determined, in part, by surveys completed by teachers, parents, and students. The accuracy of the survey data is beyond my control as I was not a part of the survey implementation or collection process. Therefore, an accurate climate rating is dependent on honest and truthful responses to the survey questions.

The GMAS is a battery of exams given to each student in the state of Georgia to measure achievement and academic growth. Therefore, an accurate measure of achievement and growth is dependent on optimal testing environment at home and at school. Also, each student must give their best effort on each section of the week-long battery of exams.

The results of this study produce some generalizability and transferability issues but would be considered both generalizable and transferable. This study was limited to the 431 middle schools level serving Grades 6 through 8. Student achievement and school climate are measured at the elementary and high school levels as well. Although this

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study included every public traditional middle school in the state of Georgia, a larger sample size may have altered the results of the study. In Georgia, the middle school level is the only level that measures student achievement of each student. All students in Grades 6 through 8 take the GMAS each spring. At the elementary and high school levels, students in certain grades or courses are given summative assessments to measure achievement. Also, middle school leaders in other states would be advised to check the similarities of demographic data to determine if this study's results would be transferable to their own state. All states have their own way of measuring climate and achievement. There is no universal measure for either. Therefore, results of this study can only generalize to other middle schools.

Any middle school level leader searching for ways to improve student achievement could take from this study the understanding to investigate the climate of the school. The results of this study suggest that school climate and student achievement at the middle school level are related. Any formations of plans and procedures to improve the academic achievement of the students of the school should include a review of the school's climate and demographics.

This correlational research study is non-experimental because it focuses on the statistical relationship between variables but does not include the manipulation of an independent variable. The study merely measured the relationships between school climate, student achievement, free/reduced status, and administrator attendance with no treatment or attempt to control any variable. Because the study is non-experimental, no causal effects can be determined. This study does not prove that higher climate leads to high achievement or that higher achievement leads to high climate; this study's results

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merely suggests that climate and achievement are significantly related. An experimental research study would be needed to demonstrate that higher climate leads to higher achievement. The results of this study suggest that there is strong evidence that there is a statistically significant positive correlation between student achievement and school climate. This is an important finding in that middle school leaders can use the results in the development of school improvement actions for their own middle school. This study's results also suggest that there is strong evidence that there is a statistically significant negative correlation between student achievement and free/reduced status and between school climate and free/reduced status. Middle school leaders are well aware that nothing can be done by the school to improve the free/reduced status of their students, but by being aware of the very strong negative relationship free/reduced status has with both achievement and climate, the same middle school leaders can design school improvement programs while taking their student population's free/reduced status in to strong consideration.

Recommendations for Future Research

Based on the findings from this study, the researcher suggests the following recommendations for future research:

1. Replicate the study using the same predictor and outcome variable data in a different state. School climate and student achievement are measured by each state. A quantitative research study using the same data in a different state than this study may allow for a better understanding of trends in school climate, student achievement, and leadership effectiveness.

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2. Replicate the study using the same predictor and outcome variable data in a different school year. School climate and student achievement are measured each school year. A quantitative research study using the same data in a different school year than this study may allow for a better understanding of trends in school climate, student achievement, and leadership effectiveness.

3. Replicate the study using the same predictor and outcome variable data in a different grade level. School climate and student achievement are measured at the elementary and high school levels. A quantitative research study using data at a different level than this study may allow for a better understanding of school climate, student achievement, and leadership effectiveness for the entire student population.

4. Conduct a study using climate data, student achievement data, and leadership data to determine the significance of the relationships. Each state has varying ways of measuring school climate, student achievement, and leadership effectiveness. A quantitative research study using different data than this study may allow for different results.

5. Conduct a study using teacher and administrator perceptions about climate data, student achievement data, and leadership data relationships. To possibly increase effectiveness in the research study, using a qualitative research design may allow for a greater understanding of perceptions through human interviews and researcher observations.

<center>Implications of the Study</center>

The purpose of this study was to examine the relationship between school climate and student achievement to determine if there is a correlation between school climate

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score and the GMAS student achievement data. The findings of this study will aid school leaders in the development of programs to increase the level of climate in schools as a way to increase student achievement. The results of this study suggest that there is strong evidence that a statistically significant positive correlation exists between student achievement and school climate. This is an important finding in that middle school leaders can use the results in the development of school improvement actions for their own middle school. It also suggests that there is strong evidence that there is a statistically significant negative correlation between student achievement and free/reduced status and between school climate and free/reduced status. The need for this type of research was evident as the researcher searched for ways to improve student achievement in his middle school. Middle school leaders are well aware that nothing can be done by the school to improve the free/reduced status of their students, but by being aware of the very strong negative relationship free/reduced status has with both achievement and climate, the same middle school leaders can design school improvement programs while taking their student population's free/reduced status in to strong consideration.

According to the review of literature, schools that do not have effective leaders tend to have unhappy teachers and are considered unhealthy schools. Unhealthy schools allow public and parental demands to derail efforts to stay focused on the schools' mission and goals. Healthy schools have effective leadership, motivated teachers and students, and promote high academic standards. The healthy climate is conducive to learning and promotes student achievement (Hoy & Tarter, 1997). Additionally, school climate emphasizing high expectations, providing many opportunities for success both in

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and outside the classroom, and establishing a safe and secure learning environment positively influences growth in academic achievement (Back et al., 2016). The significant findings of this study add the importance of school climate and student achievement to the school leaders' toolbox of ways to improve their school.

The significant findings in this study can be useful for other school leaders interested in school improvement.

## Dissemination of the Findings

The researcher intends to submit the study for publication of academic works by the direction of the EdD Dissertation Committee Chair, Dr. Gary Shouppe. Upon publication, the study will add to current research studies in the areas of school climate, student achievement, and school leadership.

## Conclusion

While effective principals understand what is required to assist the school in obtaining the desired results of improving student achievement (Hall & Hord, 2007), these effective principals know that many factors, including the climate of the school, greatly affect the level of student achievement. School climate is very complex, and school climate had been shown to greatly influence school effectiveness and student achievement (McGuffey, 2016).

Today's educational climate is increasingly emphasizing the demand for positive outcomes for student learning (Black et al., 2016). Providing the overall achievement and success of students is the primary mission for every school. Understanding the extent to which the climate of the school impacts the achievement of the school's students will better equip school leaders in the design and implementation of a strategic school

improvement plan. By applying a framework designed from research on school climate and student achievement to schools, it could be possible to better understand and ultimately improve the educational context on many levels including teacher retention and student achievement.

Based on the findings of this study, providing school leaders with practices to better support their students from disadvantaged backgrounds will result in better academic achievement. The findings also support the finding that academic achievement will increase as school leaders take steps to improve their school's climate. The findings of the study support the idea that positive support of low socioeconomic students coupled with the cultivation of a positive and healthy school climate will assist in increasing student academic achievement.

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