

THE RELATIONSHIP BETWEEN SCHOOL CLIMATE AND ACADEMIC ACHIEVEMENT  
OF HIGH SCHOOLS IN THE COMMONWEALTH OF VIRGINIA

By

Thomas Mead Nichols

Dissertation submitted to the faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of  
Doctor of Education

In

Educational Leadership and Policy Studies

Walter D. Mallory, Committee Chairman

Carol S. Cash, Committee Member

William J. Glenn, Committee Member

Peter J. Vernimb, Committee Member

June 5, 2019

Falls Church, Virginia

Keywords: School Climate, Academic Achievement, High School

The Relationship Between School Climate and Academic Achievement of High Schools in the  
Commonwealth of Virginia

Thomas M. Nichols

ABSTRACT

Research suggested that academic achievement can be directly impacted by a positive school climate (Bulach Malone, & Castleman, 1995; Bulach, 1994; Freiberg, 1999; MacNeil, Prater, & Busch, 2009; Thapa, Cohen, Higgins-D'Alessandro, & Guffey, 2012; Zakrzewski, 2013; Kutsyuruba, Klinger, & Hussain, 2015). When schools focus on improving school climate, it is suggested that student academic achievement will increase (USDOE 2016). The purpose of this study is to identify the relationship between school climate and academic achievement at the high school level.

This quantitative study used multiple regression analysis to identify the relationship between school climate and academic achievement of Virginia high schools (N=314). The data for this study was extracted from the Virginia Department of Education (VDOE) School Quality Profiles (SQP) website on school attendance, school size, Free and Reduced Meal Eligibility (FRME), pupil/teacher ratios, provisionally licensed teachers and school discipline. Academic achievement measures were also taken from the Virginia Standards of Learning (SOL) results for English/reading and mathematics found on the VDOE SQP website for Virginia high schools.

The results of this study identified school size, percentage of low SES, attendance, discipline and provisionally licensed teachers as the significant factors having the biggest impact on learning. In an era of continued accountability, educational leaders will have a process to examine the effect of school climate factors on their students' academic performance at the high school level.

The Relationship Between School Climate and Academic Achievement of High Schools in the  
Commonwealth of Virginia

Thomas M. Nichols

GENERAL AUDIENCE ABSTRACT

Research suggested that academic achievement can be directly impacted by a positive school climate (Bulach Malone, & Castleman, 1995; Bulach, 1994; Freiberg, 1999; MacNeil, Prater, & Busch, 2009; Thapa, Cohen, Higgins-D'Alessandro, & Guffey, 2012; Zakrzewski, 2013; Kutsyuruba, Klinger, & Hussain, 2015). When schools focus on improving school climate, it is suggested that student academic achievement will improve (USDOE 2016). The purpose of this study was to determine what impact school climate indicators such as: attendance, school size, percentage of low social economic status, discipline, pupil/teacher ratio, and provisionally licensed teachers have on academic achievement of Virginia high schools.

This study looked at the best way to examine the relationship between school climate and academic achievement in Virginia high schools. The population was 314 high schools. The data for the school climate factors for this study was taken from the Virginia Department of Education (VDOE) School Quality Profiles (SQP) website. The Virginia Standards of Learning (SOL) results for English/reading and mathematics were used as the academic achievement measures. The SOL data for Virginia high schools was also taken from the VDOE SQP website.

The results of this study identified school size, percentage of low SES, attendance, discipline and provisionally licensed teachers as the significant climate factors having the biggest impact on student learning. In an era of continued accountability, this study provided educational leaders with a process to examine the impact of the school climate factors on their students' academic performance at the high school level.

### Dedication

I dedicate this dissertation in loving memory of my parents, David and Shirley Nichols who believed in me and were my advocates when I struggled in my early years of education. Without their love and support, I would not have succeeded. They taught me to work hard and never give up by instilling in me the dedication, discipline, desire, and determination to finish what I've started. Mom and Dad, I did it and finished the good work!

This dissertation is also dedicated to my children, Melissa Ann and Chad Thomas. This journey consumed our weekends and holidays over the past three years. Your sacrifice is greatly appreciated. In the end, I hope you will remember that you can accomplish your dreams through hard work and dedication. I am so grateful of your support and encouragement throughout this process. Your words of encouragement meant so much. Through this journey, I hope you've learned the value of lifelong learning and the power of education.

Finally, I dedicate this dissertation to my wife, Cynthia Ann, who gave me the strength, constant encouragement and the will to keep moving forward in my research. Your love and support are the reasons I was able to start and finish this journey. You pushed me when I was tired and wanted to stop. You constantly said "I know you can do it!" I look forward to our time together. You, Melissa and Chad are the true loves of my life.

## Acknowledgements

Completing my dissertation has been a personal and professional journey. There are many individuals who provided support, guidance and encouragement along the way to assist me in accomplishing this study. My deepest appreciation and gratitude are extended to the following:

I am especially grateful to my dissertation chair, Dr. Walt Mallory. His continued support, encouragement, invaluable assistance and feedback helped me grow personally and professionally through this process.

To my dissertation committee members, Dr. William Glenn, Dr. Carol Cash and Dr. Peter Vernimb, I truly appreciate your support, time and effort along this journey. Specifically, Dr. Glenn for your guidance and feedback in developing my methodology for this study. I thank Dr. Cash for encouraging me to get back into the program and finish my dissertation and for your feedback along the way. To Dr. Vernimb for your constant questioning, pushing and prodding to get me to expand my thoughts. Your long hours of editing are also appreciated. I am honored to have worked with such a knowledgeable committee of professionals who were instrumental in this process.

I would also like to thank my brothers Roger and Steven for their words of support from afar. My mother-in-law, Joan Hott, for her words of support and encouragement, I thank you. To Mr. Zinger for assisting me in setting up my database and saving me many countless hours of frustration. I also appreciate Dr. Towery for her time in being a sounding board for me to talk things over during this process. Many thanks to Mrs. DeCarli and Dr. Fellingner who graciously agreed to edit my work. I truly appreciate these individuals for their assistance.

To Ms. Pat Droles for her supporting and encouraging words to complete my Educational Doctoral Degree. You always quoted Henry Ford saying “[w]hether you think you can, or you think you can’t – you’re right.”

Finally, I give all the credit to the glory of God – “I can do all things through Christ who strengthens me.” (Philippians 4:13).

Table of Contents

Abstract Academic.....II

General Audience Abstract.....III

Dedication.....IV

Acknowledgements .....V

List of Figures.....XI

List of Tables.....XII

Chapter 1.....1

    Basis for Study.....3

    Purpose of Study.....4

    Significance of the Study.....5

    Proposed Methodology.....7

    Study Limitations and Delimitations.....7

        Limitations.....7

        Delimitations.....8

    Assumption.....8

    Definitions.....8

    Study Organization.....11

Chapter 2.....13

    Literature Review.....13

    Overview and Context.....13

    Educational Reform Movement.....16

    School Climate versus School Culture.....21

Organizational Climate Theory.....	24
School Climate Theory.....	26
Atmosphere.....	27
Physical and Social.....	27
School Life.....	27
Heart and Soul.....	28
Defining School Climate.....	28
Organizational Climate.....	29
School Climate.....	30
School Climate Studies.....	33
School Organizational Health.....	36
Organizational Health Index.....	36
Organizational Climate Index.....	39
School Climate Domains.....	40
Safety.....	41
Relationships.....	42
Teaching and Learning.....	43
Environment.....	43
School Climate Impact Factors.....	44
Student Discipline.....	44
Attendance.....	47
Socioeconomic Status.....	48
School Size.....	50



Pupil/Teacher Ratio.....	51
Provisionally Licensed Teachers.....	52
Summary.....	54
Chapter 3.....	56
Methodology.....	56
Research Methodology.....	58
Population.....	58
Data Collection.....	58
Research Design.....	60
Pre-Analysis Data Screening.....	63
Summary.....	64
Chapter 4.....	65
Presentation of Data.....	65
Presentation of Results.....	66
Presentation of Descriptive Statistics.....	66
Presentation of Data from Correlation Analysis.....	68
Results of Multiple Regression.....	70
Research Question 1.....	71
Research Question 2.....	73
Summary.....	75
Chapter 5.....	77
Discussion and Recommendations .....	77
Summary of Results.....	79

Research Question 1.....	79
Research Question 2.....	80
Interpretation of the Findings.....	81
Implications for Practice.....	84
Recommendations for Future Studies.....	87
Summary.....	88
Personal Reflections.....	89
References.....	91

List of Figures

Figure 1-1 Climate factors affecting academic achievement.....6

Figure 2-1. Defining Dimensions Between Culture and Climate.....23

Figure 2-3 Four Dimensions of School Climate.....41

## List of Tables

Table 2-1 Comparison of the Perspectives of Organizational Climate and Culture.....	23
Table 2-2 Organizational Climate Themes.....	30
Table 2-3 The Eight Dimensions of QCDQ.....	34
Table 2-4 The Five Climate Aspects of QCDQ-RS .....	35
Table 2-5 Miles' (1969) Ten Dimensions of School Healthiness.....	37
Table 2-6 Seven Dimensions and Organizational Levels.....	38
Table 3-1 Mathematical Equation for Multiple Regression.....	61
Table 4-1 Descriptive Statistics for Climate and Achievement Variables.....	67
Table 4-2 Pearson-Moment Correlation Coefficient (r), Means and Standard Deviations for Each Climate and Achievement Variables.....	69
Table 4-3 R Squared (Percentage of Variance) in English/Reading and Mathematics by Climate Variables.....	70
Table 4-4 Multiple Regression Coefficients, $\beta$ Weights and P-Values of Each Predictor Variable for English/Reading.....	72
Table 4-5 Multiple Regression Coefficients, $\beta$ Weights and P-Values of Each Predictor Variable for Mathematics.....	73
Table 4-6 Multiple Regression Coefficients, $\beta$ Weights and P-Values of All Discipline as a Predictor Variable for English/Reading .....	74
Table 4-7 Multiple Regression Coefficients, $\beta$ Weights and P-Values of All Discipline as a Predictor Variable for Mathematics.....	75

## Chapter 1

For over a half-century, school accountability measures have been a driving factor in educational reform (DuFour, 2015; Jankens, 2011). Schools across the United States continually search for the panacea to improve academic achievement and student performance. Focusing on developing a positive school climate is less likely to happen, in a time of high-stakes testing and accountability, when it is not a top priority for educators (Cohen, McCabe, Michelli, & Pickeral, 2009). According to research, student achievement and school climate are most often thought of as separate components when considering school improvement by school administrators (Shindler, Jones, Williams, Taylor, & Cadenas, 2009). However, school climate plays a vital role in the improvement of student academic achievement and requires immediate attention as reform mandates continue to grow (Bulach, 1994; Bulach, Malone, & Castleman, 1995; Freiberg, 1999; Kutsyuruba, Klinger, & Hussain, 2015; MacNeil, Prater, & Busch, 2009; Thapa, Cohen, Higgins-D'Alessandro, & Guffey, 2012).

On December 10, 2015, Congress reauthorized the 50-year old Elementary and Secondary Education Act by approving the K-12 Federal Education law, Every Student Succeeds Act (ESSA), replacing No Child Left Behind (NCLB) (DuFour, 2016; ; "Every student," 2017; Klein, 2016a; U.S. Department of Education, 2015). With ESSA, the federal government seeks to continue focus on accountability measures to improve the number of students going to college and/or entering the workforce. The Department of Education focused on increasing graduation rates and at the same time decreasing the number of dropouts ("Every student," 2017; U.S. Department of Education, 2015). ESSA gives authority to individual states to make educational accountability decisions concerning students while the federal government no longer controls student testing requirements, teacher certification expectations, or places sanctions on poor

performing schools. The states now have autonomy to determine what acceptable performance looks like under ESSA (Ferguson, 2016; Klein, 2016a). ESSA now allows for school divisions to use school climate measures as a non-academic indicator for school quality. This new approach could be the change education reform needs in preparing students for the 21st century (ASCD, 2016; Klein, 2016b; Wagner, 2008).

As school systems across the country continue to develop improvement strategies and search for best practices to meet increased accountability demands, the answer may be right in front of them. Freiberg (1998) suggest “School climate can play an important role in school reform and improvement efforts” (p. 1). Further more, Bradshaw, Waasdorp, Debnam, & Johnson (2014), also found positive school climate plays an important role in the academic and behavioral outcomes of students. Where as the Center on Education Policy (2012) observed a positive school climate has a strong relationship to student growth. Thapa and colleagues (2012) also confirms the body of research on school climate recognizes the importance of the effects of a strong school climate on education. The National School Climate Council (2007) reveals a “positive school climate is directly related to academic achievement” (p. 6). DeWitt & Slade (2014) found evidence suggesting the effects of a positive school climate could continue for years resulting in not only immediate but lasting impact on student achievement. Another group of researchers found a positive school environment could result in greater academic achievement and fewer dropouts when coupled with effective teaching (Bruggencate, Luyten, Scheerens, & Slegers, 2012). The U.S. Department of Education (2016), in its research “*Quick Guide on Making School Climate Improvements,*” states:

Students learn best when they are in environments, in which they feel safe, supported, challenged, and accepted. In addition, environments that have strong school climates

foster the social, emotional, and academic well-being of all students. Research shows that when schools and districts effectively focus on improving school climate, students are more likely to engage in the curriculum, achieve academically, and develop positive behaviors. (USDOE, 2016, p. 1).

### **Basis for Study**

The reform movements over the past several decades have placed inordinate stress upon educators and school systems to increase student achievement on high stakes testing in order to meet federal and state accountability demands. As schools search for strategies to improve student academic achievement, the NSCC (2007), points out “positive school climate is directly related to academic achievement” (p. 6). In an era of continued reform and accountability, research supports the continued study of school climate as a means to improve student growth (The Center on Education Policy, 2012). School climate plays a vital role in the improvement of student academic achievement and requires immediate attention (Bulach, 1994; Bulach et al., 1995; Cohen, McCabe, Michelli & Pickeral, 2009; Freiberg, 1999; Kutsyuruba et al., 2015; MacNeil et al., 2009; Thapa et al., 2012).

To further the research on school climate and academic achievement, this study will replicate a quantitative study by Smith (2005), who “examines the relationship between school division climate and student achievement of school divisions in the Commonwealth of Virginia” (p.12). The proposed quantitative study will examine the relationship between climate and student achievement at the high school level in Virginia. By utilizing the four dimensions of climate, as identified by Cohen et al., (2009), data on the factors of school climate will assess schools climate. Data on English/reading and mathematics as identified by the Virginia

Standards of Learning tests from the Virginia School Quality Profile reports will measure the academic performance of a school.

### **Purpose of Study**

The school reform movement, over the past several years, has placed a tremendous burden and stress upon educators to increase student academic achievement as a way to measure school performance. The enactment of NCLB included the presumption that high-stakes testing would increase student performance and motivate students to excel; however, this assumption may have been misleading (Amrein & Berliner, 2003). With the approval of ESSA (2017), Congress reduced federal oversight and provided states with the ability to use non-academic indicators along with academic accountability measures to determine school effectiveness. One such non-academic indicator is school climate.

According to Freiberg (1998), “school climate can be a positive influence on the health of the learning environment or a significant barrier to learning” suggesting the importance of further study (p. 22). Zakrzewski (2013) states a positive school environment brings excitement back into teaching and learning and has an impact on student performance. Cohen and colleagues (2009) identified “a growing body of empirical research indicates that a positive school climate is associated with and/or predictive of academic achievement, school success, effective violence prevention, students’ healthy development, and teacher retention” (p. 181). School climate’s direct impact on healthy learning environments requires further study as climate can be constantly shaped and changed (Freiberg, 1998). Every school has a climate which may be developed intentionally or left to develop accidentally (DeWitt & Slade, 2014). Cohen (2014) states, “there is a serious need for more detailed school climate improvement” (p. 4).



The purpose of this study is to examine the relationship between school climate and academic achievement in select high schools in the Commonwealth of Virginia. The study considers the following research questions:

RQ1: What is the relationship between school climate, in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?

RQ2: What is the relationship between school climate, in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on mathematics VA SOL assessments in those schools?

### **Significance of the Study**

Understanding the relationship between school climate and academic achievement is essential in an era of increased school accountability. Research to assess how school climate affects student performance using existing data are rare. Very few, if any, studies have looked specifically at the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia.

Continued school reform efforts and increased pressure and accountability upon educators to improve student academic performance suggest it is time to focus school improvement efforts on creating a positive school climate. Literature supports the importance of a positive school climate and its impact on improving academic achievement. However, there is limited research using pre-existing data to measure the effect of school climate on academic achievement at the high school level (Smith, 2005). Educational leaders will be able to evaluate

their schools' climate using existing data, the climate factors (attendance rate, school size, SES, pupil/teacher ratio, provisionally licensed teachers and discipline) and the Multiple Regression analysis method proposed in this study to make informed school improvement decisions to improve academic achievement in meeting new accountability measures.

Figure 1-1 shows the conceptual framework for this study and how the factors impacting climate may be analyzed.

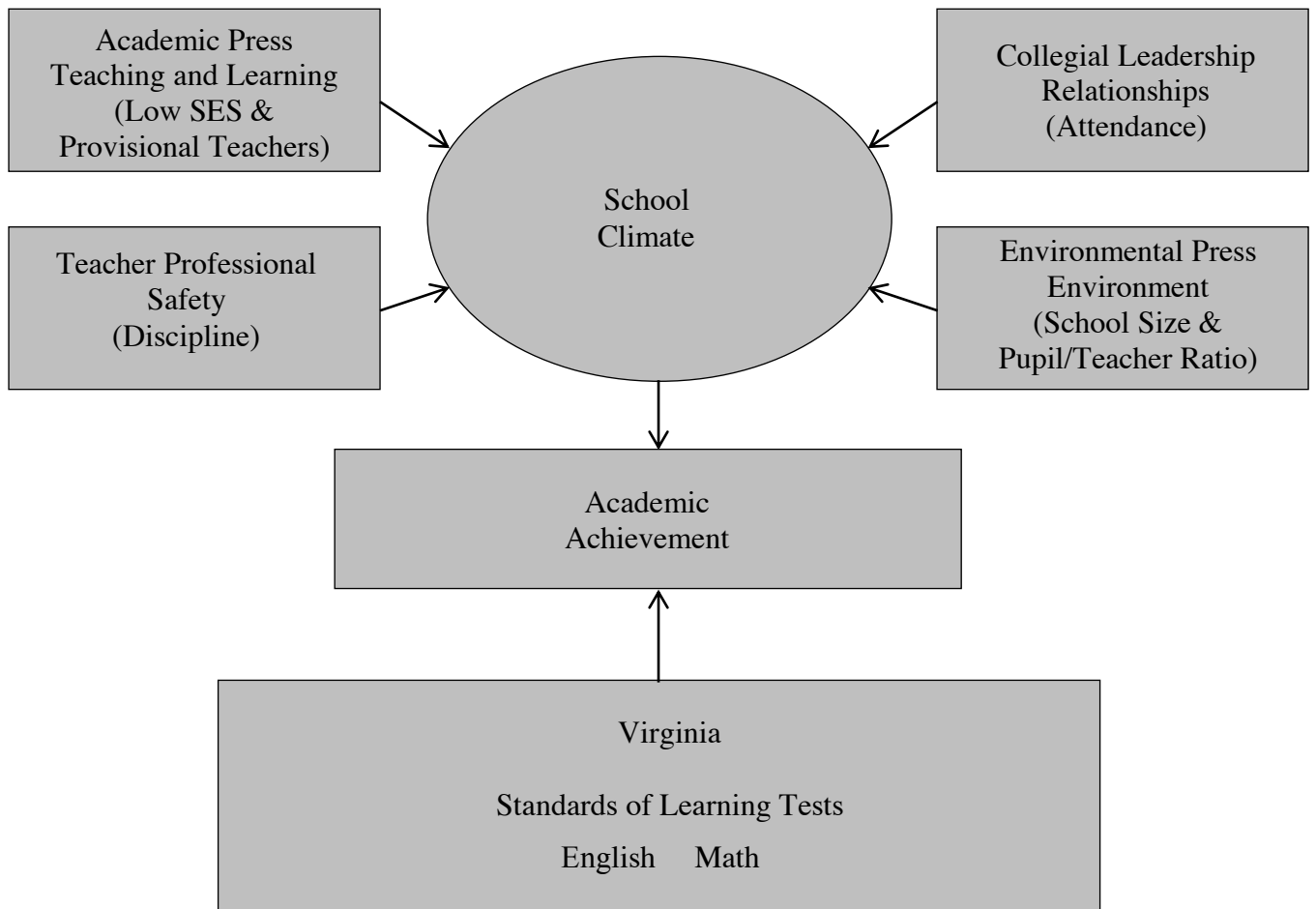


Figure 1-1. Climate factors affecting academic achievement.

### **Proposed Methodology**

A quantitative study will be used to consider the research questions. Typically, when collecting perception-based information to identify school climate, a questionnaire or survey tool is used to collect the data. However, in this study, pre-existing data will be considered examine the relationship between school climate and student performance in select Virginia high schools. The indirect measure of existing data sources will reduce and/or remove the degree of interaction necessary to develop answers to the research questions, or the need for the researcher to interact with school staff or students to collect data which could affect the response (Freiberg, 1999). The existing data will be collected through the Virginia Department of Education (VDOE) School Quality Profile (SQP) report website. Data on school size, attendance, discipline, provisionally licensed teachers, pupil/teacher ratio and, SES will be used as climate measures of Virginia high schools. The climate measures will be compared against each school's academic achievement data for English/reading and mathematics as identified by their Virginia Standards of Learning (SOL) test results to determine if there is a relationship between school climate and academic achievement.

### **Study Limitations and Delimitations**

All research studies have their own unique sets of limitations and delimitations. The following are the limitations and delimitations for this study:

#### **Limitations**

The data for this study will be collected through an indirect quantitative method using existing data reports available from the VDOE School Quality Profile websites. Each type of data collection can have its own strengths and weaknesses (Ary, Jacobs & Razavieh, 1996).

Indirect data sources such as school size, socioeconomic status (SES), attendance, discipline, provisionally licensed teachers, and pupil/teacher ratio records are public and readily available.

### **Delimitations**

Data were delimited to preexisting records published by the VDOE, the School Quality Profile report, and VA SOL results for the school years 2017-2018. This study is also delimited to public high schools in Virginia.

### **Assumption**

This study assumes all data collected from the Virginia Department of Education are accurate.

### **Definitions**

Academic Achievement – Ratings assigned by VDOE to individual high schools based on pass percentages on the VA SOL in English/reading and mathematics. Schools must meet the minimum benchmarks of 75 percent in English/reading and 70 percent in mathematics (Virginia Department of Education, 2018b, para. 1).

Academic Press – “The relationship between the school and students” (Hoy, Smith & Sweetland, 2002, p. 39).

Attendance Rate - For the purpose of this study, “attendance rate refers to the Average Daily Attendance (ADA) divided by the Average Daily Membership (ADM). ADA is the aggregate number of days of attendance of all students during a school year divided by the number of day’s school is in session during the year. ADM is the aggregate number of days of membership of all schools during a school year divided by the number of day’s school is in session during the year” (Virginia Department of Education, 2018d, para. 1).

Climate - Refers to the quality of school life experiences with caring adults who are committed to developing positive relationships while providing a safe learning environment for all to achieve.

Collegial Leadership – “The openness of the leader and the behavior of the principal” (Hoy et al., 2002, p. 39).

Culture - Norms, beliefs, values, traditions, rituals, and ceremonies that are shared by a group of people and is the personality of the school building (Geertz, 2000).

Environmental Press – “The relationship between the school and the community” (Hoy et al., 2002, p. 39).

Environmental – “A common belief that the school is clean, orderly, aesthetically appealing, and of an appropriate size to meet the needs of the community” (Cohn et al., 2009, p. 184).

Every Student Succeeds Act (ESSA) – Approved and signed into law by Congress on December 15, 2015 and governs United States K-12 Public Education Policy. This law reauthorizes the 50-year-old Elementary and Secondary Education Act (ESEA), the nation’s national education law and longstanding commitment to equal opportunity for all students” (U.S. Department of Education, 2015, para. 1).

Goals 2000 – Signed into law by Congress in 1994 establishing a framework for academic standards to measure student performance. The law also provided resources and support to help all students reach their full academic potential (DuFour, 2015).

National School Climate Council (NSCC) – A national organization designed to support school leaders to mobilize students, parents/guardians, school personnel, and community members to strategically address the tasks, as well as challenges, that shape an effective school

climate improvement process. NSCC is creating positive climates for learning that promote success in all schools (Nation School Climate Council, 2007).

No Child Left Behind (NCLB) – “Approved and signed into law in 2002 to govern Public Education Policy from 2002 to 2015. States were required to comply with federal accountability systems to ensure all students are achieving academic proficiency at incremental steps until 100% of all students are proficient in math and reading by the year 2014” (Fink, Cohen, Slade, 2017, p. 18).

On-Time Graduation Rate – “Aggregate percentage of students earning a diploma within four years of entering the ninth grade. Graduates are defined as students who earn an Advanced Studies Diploma, Standard Diploma, Modified Standard Diploma, or Applied Studies Diploma” (VDOE, 2018b, para. 1).

Organizational Climate Descriptive Questionnaire – A survey instrument designed to gather information and identify characteristics of school climate (Halpin & Croft, 1963).

Provisionally Licensed Teacher - Teachers at the school, division, and/or state level who are issued a nonrenewable teaching license and are not properly licensed or endorsed for the content they are teaching and need to take additional coursework or pass additional assessments to be fully licensed (VDOE, 2018a).

Pupil/Teacher Ratio – The average number of pupils (students) for each instructional personnel for an individual content area or at a specific school level. The Pupil/Teacher Ratio for VA is identified by elementary (K-6) and secondary (7-12) (VDOE, 2018a).

Relationships – “A mutual respect for everyone within the school where all staff and students are valued and encouraged to be productive members of the school community” (Cohn et al., 2009, p. 184).

Safety – “People within the school feel there are clear and consistent rules and expectations for proper decorum” (Cohn et al., 2009, p. 184).

State Educational Agency – A state government body that oversees the educational process through assistance, information, clarification, and resources to school divisions and the community concerning the education of students (VDOE, 2018b).

Socioeconomic status – The social standing of an individual or group based on a combination of “education, income, and occupation, which often presents a disadvantage in access to resources and opportunities” (White, 1982, p 461). The number of students who receive free and reduced meals (FRME) will be considered the measure of socioeconomic status (SES).

Teaching and Learning – “A common belief in high expectations for all learners to be successful academically” (Cohn et al., 2009, p. 184).

Teacher Professional – “The openness of the teacher-to-teacher interaction” (Hoy et al., 2002, p. 39).

### **Study Organization**

This study is proposed to be organized into five chapters. Chapter 1 introduces the research study and briefly discusses the relationship between school climate and student achievement. This chapter also addresses the purpose and research questions for the study along with the proposed methodology, study limitations and delimitations, assumption, definitions of terms, organization, and the study significance. A literature review is provided in Chapter 2. Topics discussed in this chapter include: education reform, school climate versus school culture, organizational climate theory, school climate theory, school climate defined, prior research, school climate domains, and impact factors. The study methodology is discussed in Chapter 3. A quantitative study design was followed using existing data to consider the research questions.

Based on the data collection results, Chapter 4 presents the findings of the study and answer the research questions. The findings of this study and recommend suggestions for future research is discussed in Chapter 5.



## **Chapter 2**

### **Literature Review**

The literature review examines the relationship(s) between school climate and academic achievement. Literature suggests a potential framework to consider school climate and its impact on student performance. Topics include an overview of the educational reform movement, school climate versus school culture, organizational climate theory, school climate theory, defining school climate, school climate studies, school organizational health, school climate domains and factors impacting school climate.

### **Overview and Context**

Educators and policymakers can impact and influence the academic performance of students by focusing on and developing a strong and positive school climate (Kutsyuruba, Klinger & Hussain, 2015; Lehr, 2004). According to Freiberg (1998) school climate can have a positive or a negative impact on the educational process. Freiberg (1999) writes, “School climate is much like the air we breathe - it tends to go unnoticed until something is seriously wrong” (p.1).

From the moment parents, students, teachers, or community members step foot into a school they begin to make assumptions about the school’s environment (Howard, E., Howell, B., & Brainard, E., 1987; NSCC, 2007). School climate should be a focal point of educational practitioners to improve teaching and learning. School climate also creates a healthy learning environment assisting each individual within the school to “feel personal worth, dignity and importance, while simultaneously helping create a sense of belonging to something beyond” themselves (Freiberg, 1999, p. 11). For this reason, schools must focus on fostering and developing school climate to improve educational experiences for all (NSCC, 2007).

The Every Student Succeeds Act (ESSA) of 2015 expands initiatives of the No Child Left Behind Act (NCLB) of 2002 by continuing to focus on preparing all students for college and career readiness. Under ESSA, states are required to use one additional indicator of school quality for student success alongside traditional academic data (U.S. Department of Education, 2017). With this requirement, a new focus on school climate emerged. Research shows there are a positive relationship between a school environment and increased student performance, higher graduation and attendance rates, improved student engagement, and a reduction in suspension rates (Cohen, 2014).

However, thirty states consider positive school climate as an important component of a healthy learning environment, but do not require schools to measure climate according to Cohen et al. (2009). Since NCLB did not require states to measure school climate, local, state and federal policy makers did not see value in measuring climate (Faster & Lopez, 2013). The National School Climate Council find state education agency (SEA) policies lack common definition, measurement, and/or assessment of school climate (Cohen, et al., 2009). The inclusion of school climate as a school quality indicator should be a top priority for educational leaders and local policymakers as it has impact on students' mental and physical health (Thapa, Cohen, Higgins-D'Alessandro & Guffey, 2012).

Cohen (2014) reports nine out of ten educational leaders demonstrate a strong desire to have specific and practical guidelines developed for improving school climate, as they did not know exactly what school climate reform should look like. In fact, the National School Climate Council (2009) provides research-based guidelines to assist schools in implementing school climate reform initiatives. School climate plays an important role in school reform and should be a priority of all educational leaders (Thapa, et al., 2012).

Kutsyuruba and colleagues (2015) state schools could reduce and prevent violence if they focus on developing, fostering, and promoting a desirable school climate. A positive school environment has been found to reduce student discipline and increase student academic success. School climate has also been associated and viewed through a school safety lens (Kutsyuruba, et al., 2015). Student social and emotional needs can also be addressed through a positive learning environment. In the future, educators may find difficulty maintaining academic success without focusing on positive school climate (Kutsyuruba, et al., 2015; Zullig, Huebner & Patton, 2011).

Perry (1908) recognizes the importance of school climate and its impact on student life and learning. Kelley, Thornton & Daugherty (2005) observe school climate has a substantial correlation between school reform and student achievement. A highly successful education program would not exist in a school that did not have a positive climate (Kelley, et al., 2005). Over the past five decades, researchers have identified school climate promotes academic achievement and is an important component of school improvement (Bradshaw, Waasdorp, Debnam & Johnson, 2014; Center on Educational Policy, 2012; Thapa, et al., 2012).

Regardless of the amount of time required to develop positive school climate, the benefits of and investment in building a positive environment are well worth the effort (Zakrzewski, 2013). Creating a positive school environment promotes student academic success, healthy learning environments, and positive school spirit as well as appropriate student behaviors (Cohen, et al., 2009). In another study Cohen and colleagues (2009) state, “what is clear is that school climate matters” (p.187).

### **Educational Reform Movement**

The 1958 National Defense Education Act (NDEA) was the first federal legislative mandate connecting education to the needs of our national defense (Gouwens, 2009). The NDEA put an emphasis on school outcomes requiring improvement in teaching and learning in mathematics, science, foreign languages and vocational training. This legislation was designed to enable the United States to be competitive internationally and in the space race. Federal government funding legislation gave power over educational reform efforts, which were previously left to the states (Gouwens, 2009; U.S. Department of Education, 2007).

The second major reform movement came in 1965 with the authorization of the Elementary and Secondary Education Act (ESEA). This law was the first federal legislation to provide Title I funding for K-12 education. ESEA was intended to assist all students in receiving a good education by providing schools serving students from low-income families with additional funding. The legislative body believes the additional funding would make up the disadvantages students experience due to their low SES backgrounds (Gouwens, 2009; Guilfoyle, 2006; Hampton, 2008).

According to Lezotte (2011), the quality of elementary and secondary education was called into question through the publication of the Coleman *Equality of Educational Opportunity Study* in 1966. The most controversial finding states, “When it comes to the education of minority and poor children in America, schools don’t make a difference” (Lezotte, 2011, p. 12). As a result, increased awareness and identification of achievement gaps led efforts to identify effective schools. The Effective Schools Movement (ESM), was derived from the *Equality of Educational Opportunity* research (Gouwens, 2009; Guilfoyle, 2006; Hampton, 2008; Lezotte, 2011).

DuFour (2015) states that the public could hear the words “America’s public schools are terrible! And they are getting worse!” (p. 5) when the National Commission on Excellence in Education released its report entitled *A Nation at Risk* (1983). The commission observes that our “educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation” (National Commission on Excellence in Education, 1983, p. 5). The American education system was not meeting the needs of our society in preparing young people “to compete in the global marketplace” or for the challenges of the future (Senge, Cambron-McCabe, Lucas, Smith, Dutton & Kleiner, 2012, p. 9). This report accelerated the educational reform movement. These efforts to improve public education were known as the “Excellence Movement” and became the “blueprints” for the current educational reform movement (DuFour, 2015; DuFour & Eaker, 1998; Gouwens, 2009; Hampton, 2008).

In 1994, President Bill Clinton signed the Goals 2000: Educate America Act into law (Heise, 1994). This piece of legislation provides resources to states in support of implementing effective educational strategies for improving schools. To support the reform efforts, the state educational agency would receive federal funding to distribute to localities (DuFour, 2015; Hampton, 2008; Gouwens, 2009; Heise, 1994). By the year 2000, it was clear that the “Goals 2000” did not provide the vast educational reform that was anticipated with its conception (DuFour, 2015).

The reauthorization of the ESEA, known as the No Child Left Behind Act (NCLB), became law in 2002 (Fink, et al., 2017). Under the NCLB, states were required to comply with federal accountability systems to ensure all students are achieving academic proficiency at incremental steps until 100% of all students were proficient in math and reading by the year 2014 (Fink et al., 2017). Mandatory testing requirements in the subjects of math and reading were

established for grades 3-8 and then once during high school. NCLB also calls for the disaggregation of data by race, economically disadvantaged status, ethnicity, and students with disabilities (DuFour, 2015; Elmore, 2004). Schools are also required to show adequate yearly progress (AYP) as measured in multiple academic performance areas. The passing of NCLB was a major reform effort to attempt to close achievement gaps by ensuring all students met minimum academic standards (DuFour, 2015; Elmore, 2004; Fink et al., 2017; Gouwens, 2009; Hampton, 2008; Wagner, 2008).

As part of the American Recovery and Reinvestment Act of 2009 (ARRA), funds were made available to schools for educational reform (Howell, 2015). These funds were intended to help states recover from the recession, which have taken a toll on local educational funding. However, states had to improve teacher evaluation processes to include student test scores showing student growth percentiles (DuFour, 2015). The Obama administration expanded the educational reform movement by enhancing NCLB with the competitive grant initiative Race to The Top (RTTT) in 2009 (Fink et al., 2017; Howell, 2015). States would compete for funding to implement educational reform efforts supported by the Obama administration (DeFour, 2015).

On December 2015, Congress reauthorized the 50-year old Elementary and Secondary Education Act and renamed the act the Every Student Succeeds Act (ESSA), replacing NCLB (U.S. Department of Education, 2015). ESSA was designed to continue to promote reform efforts (USDOE, 2015). According to Mathis and Trujillo (2016), ESSA continues to focus on accountability through testing in order to identify low performing schools and require states to provide resources and interventions to ensure schools improve student achievement. In addition, states will also include a non-academic indicator when determining overall school performance. Focusing on preparing all students for success in college and careers is a clear goal of this new

law while continuing the efforts of previous reforms to close the achievement gap among all students (Mathis & Trujillo, 2016).

ESSA accountability goals must be articulated and set in areas of proficiency on state-developed tests, English-language learner proficiency, and one additional measure of academics. For high school, the additional measure of academics is the graduation rate. States are also required to add an additional non-academic factor that will measure school quality. This may include school climate and safety, advanced coursework, chronic absenteeism, student engagement, and postsecondary readiness (USDOE, 2015).

Over the last decade, there has been little improvement in preparing students for the global marketplace as a result of the high stakes-testing and accountability movement (Wagner, 2008). ESSA requires a non-academic indicator to measure school quality. The new non-academic indicator could be the change education reform needs to better prepare students for the 21st century (ASCD, 2016; Klein, 2016b; Wagner, 2008).

According to Martin Blank (2008) Senior Fellow for the Coalition for Community Schools states, “what we should be seeking are measures that help us more fully understand the forces that are influencing student learning and development” (p. 2). School reform approaches focused on creating a high performing school climate may increase the likelihood that students experience an effective, caring learning environment (Bulach, Lunenburg, & Potter, 2008).

ESSA gives educational leaders the ability to use non-academic indicators as a “complementary form of accountability” to measure learning (Cohen, Pickrel, & McCloskey, 2009). Blank (2008) pointed out “chronic absen[teeism] and school climate are two strong examples of non-academic indicators” (p.2). According to Cohen and colleagues (2009) “Schools can use climate data to promote meaningful staff, family, and community engagement -

and to enhance the social, emotional, and ethical, civic, and intellectual skills and dispositions that contribute to success in school and in life” (p. 45). Using only “linguistic and mathematical data” to measure student growth minimizes any consideration of the relationship that exists between climate and achievement (Anderson, 1982; Brookover, Schweitzer, Schneider, Beady, Flood, & Wisenbaker, 1978; Bulach et al., 1995; Cohen, 2013; Cohen et. al., 2009; Smith, 2005; Williams, 1996).

The National School Climate Council (2007) states a positive school climate has a compelling impact on “academic achievement, school success, violence prevention, healthy student development, and the retention of teachers” (p. 6). Increased student achievement scores and reduced student discipline referrals were discovered in schools with a positive school climate as identified by Kutsyuruba et al., (2015). In a study of school climate and academic achievement O’Malley, Voight, Renshaw and Eklund (2015), “suggest that focusing on assessing and improving students’ school climate perception may be a viable means for supporting academic achievement” (p. 155). School climate is at the heart of the challenges that face our educational leaders (Bergren, 2014). Research suggests a compelling association between positive school environment and student performance (Kelley, Thornton, & Daugherty, 2005). Educators may also find it difficult to maintain successful student performance without focusing on the school environment (Kutsyuruba et al., 2015; Zullig, Huebner, & Patton, 2011). ESSA fostered a paradigm shift away from only using the traditional performance measures of cognitive learning to a new assessment approach that may include school climate reform. Fink and colleagues (2017) suggest too much time has been spent focusing on the cognitive and academic performance of students, while ignoring research about what supports academic growth and student success. Fink, et al., (2017) state it is time “for schools to understand that the



path forward to academic achievement is school climate reform” (p. 64). As the reform movement continues, a new focus on school climate advances in an effort to improve academic achievement while preparing students to be successful in a world that is rapidly changing (Bergren, 2014; Wagner, 2008).

### **School Climate versus School Culture**

Reviewing the relationship between climate and culture is necessary to understand fully the organizational climate of a school. Hoy (1990) states the notion of climate and culture are common acceptable rhetoric used in school effectiveness and reform conversations. However, there is misunderstanding regarding the relationship between school climate and school culture. These two terms, climate and culture, are open to two or more interpretations and yet are used interchangeably within the context of school environment (Hoy, Tater, Kottkamp, 1991; MacNeil, et al., 2009).

Despite the blurred boundaries between climate and culture, both originate from different scholarly backgrounds. Cultural researchers tend to have an academic background in anthropology and sociology, while climate is rooted in industrial psychology and social psychology fields (Hoy, 1990; Hoy, et al., 1991; MacNeil, et al., 2009). According to Geertz (2000), norms, beliefs, values, traditions, rituals, and ceremonies that are shared by a group of people describe culture. In a school environment, characteristics of school culture are shared between the students, teachers, community and administrators (Hoy, 1990; Hoy, et al., 1991; MacNeil, et al., 2009; Stolp & Smith, 1995).

Gruenert and Whitaker (2015; 2017) described climate as the school’s attitude, while school culture represents the school’s personality. According to Gruenert (2008) school climate was known as the “school ethos or spirit,” and is now referred to as the school’s attitude (p. 57).

If school climate can be defined as the school's attitude, there needs to be an understanding of how an attitude can change. A person's attitude is reflective of his/her mood or morale, which may be determined by the overall attitude of the organization (Gruenert, 2008). Gruenert (2008) also points out that attitude more than personality, can change frequently based on what is going on in the organization at any given moment. On the other hand, culture reflects personality, which does not change easily. A person's personality is a life trait and would require a continuous and meaningful endeavor to make a change (Gruenert & Whitaker, 2015). Gruenert states, "it is much easier to change an organization's attitude (climate) than it is to change its personality (culture)" (2008, p. 58). In order to make changes to the culture, effort would need to be a slow and steady process (Gruenert, 2008; Gruenert and Whitaker, 2015; Jankens, 20011).

Stolp and Smith (1995) provides a comparison of the defining dimensions of school climate and culture (Figure 2-1 below). According to Jankens (2011) "Culture is associated with historical relationships, which are derived from the internalized values and assumptions of the organization" (p. 29). Climate is focused on the immediate and surface perceptions of people and what is easily observed. In Figure 2-1, note climate is surrounded by a broken circle representing the shared perceptions of culture identifying it as a broader concept (Stolp & Smith, 1995). Another comparison in the relationship between culture and climate (Table 2-1 below) (Hoy, Tarter, & Kottkamp 1991, p. 9) and Hoy and Tarter (1997, p. 7). One difference they use to identify culture is the inclusion of "shared assumptions and ideologies" (p. 7). Researchers typically use a qualitative method to collect data about the atmosphere of organizations. On the other hand, climate is based on "shared perceptions of behavior" (p. 7) while scholars of organizational climate use a quantitative method to collect behavioral data (Hoy, 1990; Hoy,

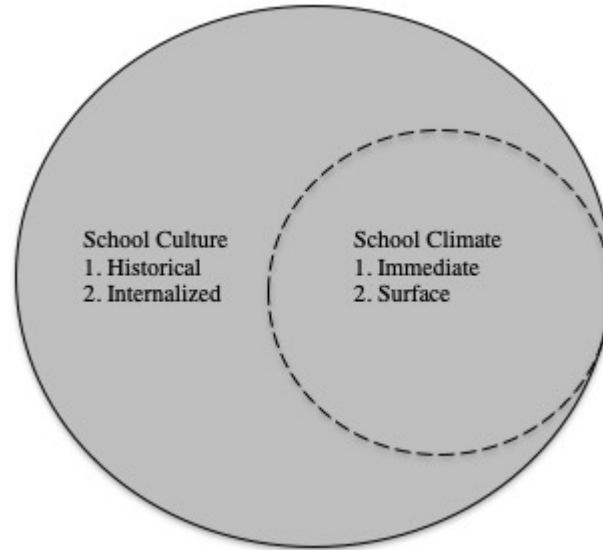


Figure 2-1. Defining Dimensions Between Culture and Climate (Stolp & Smith, 1995, p. 17)

Tarter & Bliss 1990; Hoy, et al., 1991; Hoy & Tarter, 1997; Freiberg, 1999; Ehrhart, Macey & Schneider, 2013).

Ehrhart, Macey & Schneider (2013) point out that climate and culture are competing concepts at the same level yet they are different. This reinforces the importance to understand Table 2-1.

*Comparison of the Perspectives of Organizational Climate and Culture*

<i>Dimensions</i>	Climate	Culture
Discipline:	Psychology & Social Psychology	Anthropology & Sociology
Method:	Survey research Multivariate Statistics	Ethnographic Techniques Linguistic Analysis
Level of Abstraction:	Concrete	Abstract
Content:	Perceptions of Behavior	Assumptions & Ideology

**Note:** From Tarter, & Kottkamp, 1991, p. 9; Hoy and Tarter, 1997, p. 7.

similarities and differences when studying school environment. Both climate and culture identify the “*feel*” of the school environment and present alternative avenues to pursue when studying the organization of school (Freiberg, 1999; MacNeil, et al., 2009).

### **Organizational Climate Theory**

The first mention of organizational climate was by Lewin, Lippitt, and White (1939) when they investigated climate as an “empirical reality” in a study of leadership styles and their relationships to social climates (Litwin & Stringer, 1968; Kundu, 2007; Jankens, 2011; Stringer, 2002, p. 3). According to Jankens (2011) “organizational climate theory uses many concepts from earlier research with individual workers in the fields of industrial and organizational psychology and organizational behavior” (p.23).

Early on, the development of leadership climate was addressed as it relates to training factory foremen, but the concept of climate was never measured or defined specifically (Kunda, 2007; Schneider, 1990). In a case study of “interpersonal relations in a bank, Argyris reintroduces the idea of organizational climate in terms of formal organizational policies, employee needs, values, and personalities” (Kundu, 2007, p. 100).

Throughout the 1960s, the study of organizational climate continued to evolve and attract interest. During a 1966 conference on organizational climate, Litwin and Stringer, identified a framework to describe and measure organizational climate (Kundu, 2007). The framework included “structure, responsibility, reward, risk, warmth and support” (Kundu, 2007, p. 100). This provided a well-rounded framework for organizational climate (Kundu, 2007; Stringer, 2002).

Litwin and Stringer (1968) point out in their research, “[t]he realities of the organization are understood only as they are perceived by members of that organization allowing climate to

be viewed as a filter through which objective phenomena must pass” (p. 22-23). This was part of Litwin’s theory on motivation, as he described climate as the interlocking link between the person’s motivation and the environment in which one works (Stringer, 2002). In an introductory essay, “The Concept of Organizational Climate,” Tagiuri and Litwin (1968) defined organizational climate as “the general notion to express the enduring quality of organizational life” (Stringer, 2002, p. 4). Thus, the term, organizational climate, had fully emerged and started taking solid conceptual shape (Kundu, 2007).

Throughout the 1970s, researchers continued to focus on measurement and instrument methodologies for organizational climate. Kundu (2007) notes during this time frame the means to measure and conceptualize organizational climate was by identifying the perceptions and attributes of people working in the organization. James and Jones (1974) attempt to clear up misconceptions regarding organizational climate. After synthesizing past research, theories and measures, they developed three different approaches to defining and measuring organizational climate: “Multiple Measurement-Organizational Attributes Approach (MMOAA), Perceptual Measurement-Organizational Attributes Approach (PMOAA); and Perceptual Measurement-Individual Attributes Approach (PMIAA)” (Kundu, 2007, p.101). The first approach focuses on the taxonomy, context, models, and structures of an organization. The second approach, PMOAA considers organizational climate as attributes and examines the perceptions of its members. The last approach, PMIAA examines the perceptions individuals have of the organizational environment. Since the 1970s, most of the work in organizational climate can be found under one of these models. The PMIAA model has been used far more by organizational climate researchers than the other two models. Jankens (2011) states most of the work in

organizational theory is found in the world of corporate culture where they are continuously striving to improve productivity (James & Jones, 1974; Kundu, 2007).

### **School Climate Theory**

School climate research grows from the original study of organizational climate (Anderson, 1982; Cohen, et al., 2009; Schneider, 1990). Over 100 years ago, Arthur Perry became one of the first educational leaders to recognize school climate influenced student achievement (Cohen, et al., 2009; Thapa, Cohen, Guffey, Higgins-D'Alessandro, 2013; Zullig, Koopman, Patton, Ubbes, 2010). With the study of organizational climate emerging, Halpin and Croft (1963) initiated a systematic approach to investigating how climate impacted student educational development (Cohen et al., 2009; Zullin et al., 2010). According to Anderson (1982), effective schools research was fostered through research about school climate.

Perry (1908) observed schools need to be “something more than mere housing” or a place to learn; schools needed to be a place for students to grow (Freiberg, 1999, p. 18). Perry identifies *esprit de corps* as what schools need to promote. *Esprit de corps* is defined as “a common spirit existing in the members of a group and inspiring enthusiasm, devotion, and strong regard for honor of the group” (Webster’s Ninth New Collegiate Dictionary, 1984, p. 425). School spirit was identified as an important facet of the school climate and has direct influence on student learning and achievement (Cohen et al., 2009; Freiberg, 1999).

Beginning with Perry (1908), educators have recognized the importance of school climate. Tagiuri and Litwin (1968) found a way to connect the business world and education by identifying all the elements of an organizational environment. As such, Tagiuri developed a taxonomy to organize like descriptors as they relate to school climate (Anderson, 1982; Cohen, et al., 2009; Jankens, 2011).

## **Atmosphere**

Tagiuri and Litwin (1968) defines climate and “atmosphere as summary concepts that refer to the environmental quality experienced by an individual: a particular configuration of enduring characteristics of the ecology, milieu, social system, and culture would constitute a climate” (p. 23). These summary concepts or dimensions include:

- Ecology - the physical and material aspects of the organization
- Milieu - the social dimension concerned with the presence of persons or groups
- Social Systems - the social dimension concerned with the patterned relationships of persons and groups
- Culture - the social dimension concerned with belief systems, values, cognitive structures, and meaning (Anderson, 1982; Ellis, 1988; Hoy, 1990; Hoy, Tarter & Kottkamp, 1991; Hoy & Miskel, 2005; Tagiuri & Litwin, 1968, p.23)

## **Physical and Social**

A similar classification system was presented by Moos (1974) and Moos & Insel (1974) to identify climate using only two environmental dimensions: physical and social. However, Tagiuri’s system has continued to be preferred by many climate researchers because it includes the total experience of the school environment (Anderson, 1982; Jankens, 2011). Researchers found Tagiuri’s cultural and social systems domains were most often exhibited when measuring school climate (Anderson 1982; Hoy, 1990; Hoy, Kottkamp & Mulhern, 1987; Jankens, 2011).

## **School Life**

Researchers have converged on the “subjective nature” of school climate while others have called climate an “objective facet” of school life (Cohen et al., 2009). Climate was initially used to describe the “enduring quality of organizational life” (Hoy & Miskel, 2005; Hoy et al.,

1991; Stringer, 2002). According to Hoy and Miskel (2005), “school climate is an enduring quality of school life” and impacts the behavior of those who are influenced by the collective perceptions of the individuals experiencing the school environment (p.185). Several researchers have concluded that a school’s climate could be analogous to the school’s attitude (Hoy et al., 1991).

### **Heart and Soul**

Freiberg (1999) states that “school climate is the heart and soul of a school,” which is considered the most important aspect that keeps bringing people back day after day (p. 11). According to Perry (1908), climate is the feeling one has when walking into a school. School climate is also described by Gruenert (2008) as the “ethos or spirit” of an organization, which is experienced walking into a school (p. 57). Cohen and colleagues (2009) identify school climate as the “quality and character of school life...based on patterns of people’s experience of school life and reflects norms goals, values, interpersonal relationships, teaching and learning practices, and organizational structures” (p. 10). Climate connects people to the school and “is much like tending a garden, it takes continuous effort” to develop a positive school climate (Freiberg, 1999, p. 25).

### **Defining School Climate**

Over the years, researchers have not agreed upon one definition of school climate (Cohen et al. 2009). Several researchers indicate school climate is commonly used to describe something that one can feel, but otherwise difficult to define and measure (Ellis, 1988; Maxwell & Ross, 1991). According to Wang, Berry & Swearer (2013) the study of climate is “still murky among researchers and educators” (p. 296). This suggests the difficulty and challenge that surrounds researchers’ abilities to agree upon one definition to describe school climate (Anderson, 1982;



Zullig, et al., 2010). Educators and researchers suggest many definitions for school climate based on the foundations of organizational climate, but no single definition has emerged (Cohen, et al., 2009; Jankens, 2011).

### **Organization Climate**

Tagiur and Litwin (1968) define organizational climate as “a relatively enduring quality of the internal environment of an organization that (a) is experienced by its members, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics or attributes of the organization” (p. 27). From their definition, it is understood that climate is an essential and distinguishing quality of the internal organization (Jankens, 2011; Stringer, 2002). Litwin and Stringer (1986) state, “organizational climate refers to a set of measurable properties of the work environment, perceived directly or indirectly by the people who live and work in this environment and assumed to influence their motivation and behavior” (p. 1).

Another definition from Litwin & Stringer (1968) states the “[o]rganizational climate is a concept describing the subjective nature or quality of the organizational environment. Its properties can be perceived or experienced by members of the organization and reported by them in an appropriate questionnaire” (1968, p. 187). Their definition expands the understanding of organizational climate as a concept “to express the enduring quality of organizational life” which can be researched and measured (Hoy & Miskel, 2005, p. 185).

Through their research, Ehrhart, Schneider & Macey (2014) offer an overview of the history and literature on organizational climate and identified five themes (see Table 2-2 below) that emerged from their literature review.

Table 2-2

*Organizational Climate Themes*

	Theme
1	Organizational climate emerges through numerous mechanisms including leadership, communication, training and so forth.
2	It is not the mechanisms that are climate but rather the experience those produce and meaning attached to them.
3	Organizational climate is a property not of individuals but of units/organizations; it is based on shared experiences and shared meaning.
4	Shared experiences and meaning attached to them emerge from natural interaction in units/organization's; climate is shared in natural course of work and the interactions happening at and surrounding work.
5	Organizational climate is not an effective evaluation of the work environments - it is not satisfaction - but rather a descriptive abstraction of people's experiences at work and the meaning attached to them.

*Note:* From Ehrhart et al., 2014, p. 64.

From the aforementioned themes Ehrhart et al., (2014) formulates the following definition: “Organizational climate is the shared meaning organizational members attached to the events, policies, and procedures they experience and the behaviors they see being rewarded, supported and expected” (p. 69). Their definition focuses on the critical aspect’s members of an organization place on their experiences within the organization, and the perceptions they internalize regarding the organization's attributes (Assiri, 2015). Although several definitions and five themes have been presented in the research regarding organizational climate, consensus for a universal definition of school climate has not been identified in the literature.

**School Climate**

Focusing on school climate, Hoy and colleagues (1991) observe, “[s]chool climate [a]s the relatively enduring quality of the school environment that is experienced by participants,

affects their behavior, and is based on their collective perception of behavior in schools” (p. 10). Yet another definition was offered by Hoy, Hannum & Tschannen-Moran (1998), who wrote “school climate is a relatively enduring quality of the entire school that is experienced by members, describes their collective perceptions and routine behavior, and affects their attitudes and behavior in the school” (p. 337). Again, school climate is impacted by the people and their experiences within the organization which impacts their attitudes and behaviors.

Schools also differ in their atmosphere as described by Halpin (1966) as he suggests that each school has its own unique feel that anyone will notice upon entering the building. He also states that as one “moves to other schools, one finds that each appears to have an attitude of its own” (Halpin, 1966, p. 131). Freiberg (1999) supports this premise as he identifies “feel, well-being, health, learning environment, safety, openness, and caring” as the common words that come to mind when people think of school climate (p. 13). According to Norton (1984) every entrance into a school yields a specific description of its climate. School environments are different and each encounter is unique (DeWitt & Slade, 2014).

The National School Climate Center (NSCC) and later supported by Cohen et al., (2009) it is suggested that school climate be defined as:

School climate refers to the quality and character of school life. It is based on patterns of school life experiences and reflects norms, goals, values, interpersonal relationships, teaching, learning, and leadership practices, and organizational structures. A sustainable, positive school climate fosters youth development and learning necessary for a productive, contributing and satisfying life in a democratic society. This climate includes norms, values, and expectations that support people feeling socially, emotionally and, physically safe. People are engaged and respected. Students, families, and educators

work together to develop, live, and contribute to a shared school vision. Educators model and nurture attributes that emphasize the benefits and satisfaction gained from learning. Each person contributes to the operations of the school and care of the physical environment (Cohen et al., 2009, p. 180-181; NCSS, 2007, p. 5).

This is similar to a definition by Hoy, et al., (1991) which states “climate [i]s a general term that refers to teachers’ perceptions of their work environment; it is influenced by formal and informal relationships, personalities and participants, and leadership in the school” (p. 9). Thus, there is an emphasis on the human attributes that play an important aspect in the creation of climate within the school.

Climate, in the educational environment, has been linked to a school's attitude and is connected by the relationships between the students, teachers, parents, and community stakeholders who relate to the organization. Freiberg (1999) reflects, “school climate is about that quality of a school that helps each individual feel personal worth, dignity and importance, while simultaneously helping create a sense of belonging to something beyond ourselves. The climate of a school can foster resilience or become a risk factor in the lives of people who work and learn in a place called school” (p. 11). He suggests students’ academic achievement can be influenced through the success or failure of school climate.

Through the review of various school climate definitions, the literature identified the existence of climate and its impact on an organization or school as being real. They determined climate is within the organization as an internal or intrinsic behavior that influences all of its members (Ehrhart et al., 2014). In addition, the researchers found the effectiveness of a school is a direct consequence of climate (Freiberg, 1999). Researchers also identified climate evolves

from shared values, characteristics and attributes of the organization's members (Hoy et al., 1998).

For this study, school climate was defined as the quality of school life experiences with caring adults who are committed to developing positive relationships while providing a safe learning environment for all to achieve.

A student's academic achievement may be directly impacted by the quality of the school's climate and should be studied to better understand the educational implications (Brookover et al., 1978; Cohen et al., 2009; Hoy et al., 1991; Sirin, 2005; Zullig et al., 2010).

### **School Climate Studies**

Halpin and Croft (1963) developed the Organizational Climate Descriptive Questionnaire (OCDQ). The OCDQ framework was developed to gather information and identify the concepts of school climate. This was the first instrument to quantify the characteristics of elementary school atmosphere. The OCDQ was based on identifying the interactions of "*teacher to teacher*" and "*teacher to principal*." The researchers developed eight dimensions of school climate to measure school life. The eight dimensions (see Table 2-3 below) were divided into two subgroups addressing group dynamics and principal behaviors (Freiberg, 1999; Halpin, 1966; Halpin & Croft, 1963; Hoy, et al., 1991; Hoy, 1990; Hoy, et al., 2002; Hoy & Miskel, 2005; Hoy, et al., 1990).

Using the eight OCDQ dimensions, schools were assigned a climate profile. After each school's profile was established, Halpin and Croft (1963) categorized the schools from open to closed. The six categories of climate were "open, autonomous, controlled, familiar, paternal, and closed" (Hoy et al., 1998, p. 13). An open climate is best described as one that exhibits respect, trust, and open lines of communication by the principal. He also leads the staff by examples and

Table 2-3

*The Eight Dimensions of QCDQ*

	Characteristics of the Group		Behavior of the Leader
Dimension		Dimension	
1	Disengagement	5	Aloofness
2	Hindrance	6	Production Emphasis
3	Esprit	7	Thrust
4	Intimacy	8	Consideration

*Note:* From Hoy, et al., 1991, p. 11.

they react enthusiastically to the leadership in the building. Basically, the principal and the teacher relationship is genuine. A closed climate is absent of respect and trust while exhibiting poor communications. The teachers become frustrated, have low morale, and show little commitment to the school. When the principal displays an ineffective leadership style, the mentality of simply going through the motions is reinforced. The school atmosphere is apathetic and not genuine (Halpin, 1966; Hoy, et al., 1987; Hoy, 1990; Hoy, et al., 1991).

Since the development of the OCDQ, the instrument has been replicated, scrutinized and revised. Today, researchers have developed questionnaires specifically for elementary, middle and high school levels following the methodology as the original OCDQ (Hoy, et al., 1990). The Organizational Climate Descriptive Questionnaire - Rutgers Secondary (OCDQ-RS) is established on Halpin and Croft's (1963) original OCDQ. Revisions were made to the OCDQ by Hoy and Freldman (1987) as the instrument was not designed to assess school climate at high school.

Five dimensions of high school climate are identified by the OCDQ-RS instrument. The five climate aspects (see Table 2-4 below) that Hoy and colleagues (1991) developed fell into

Table 2-4

*The Five Climate Aspects of QCDQ-RS*

Principal's Behavior:
<i>Supportive principal behavior</i> is directed toward both the social needs and task achievement of the faculty. The principal is helpful, genuinely concerned with teachers, and attempts to motivate them by using constructive criticism and by setting an example through hard work.
<i>Directive principal behavior</i> is rigid and domineering control. The principal maintains loose and constant monitoring of all teachers and school activities down to the smallest detail.
Teachers' Behavior:
<i>Engaged teacher behavior</i> reflects a faculty in which teachers are proud of their school, enjoy working with each other, are supportive of their colleagues, and committed to the success of their students.
<i>Frustrated teacher behavior</i> depicts a faculty that feels itself burdened with routine duties, administrative paperwork, and excessive assignments unrelated to teaching.
<i>Intimate teacher behavior</i> reflects a strong and cohesive network of social relations among the faculty.

**Note:** From Hoy, et al., 1991, p. 172.

two categories: two identify “principal behavior while the other three zeroed in on teacher behavior, specifically teacher relationships with students, administrators, and colleagues” (p.172).

The five aspects of principal leadership and teacher interactions creates two basic dimensions to measure a school’s climate called openness and intimacy. An open principal is one who is supportive, professional, energetic, and who meets the social needs of the staff. The behavior of an intimate teacher is identified as one who finds work fulfilling, energetic, and optimism working with other teachers (Hoy, et al., 1987; Hoy, et al., 1991).

### **School Organizational Health**

Organizational health is another way to examine school climate (Hoy & Feldman 1997; Hoy, Sabo, Barnes, Hannum & Hoffman, 1998; Hoy, et al., 1991; Freiberg, 1999; Hoy, et al. 2002; Hoy 1990; Hoy & Tarter, 1992; Hoy, et al., 1990; Hoy & Hannum, 1997; Hoy & Miskel, 2005). Miles (1969) was the first to use the metaphor of “health and well-being” when evaluating school climate (p. 376). In defining a healthy organization, Miles writes “a healthy organization not only survives in its environment, but continues to cope adequately over the long haul, and continuously develops and extends its surviving and coping abilities” (Miles, 1969, p. 378). The premise for this is a healthy school can continue to grow and succeed despite the interruptions from outside forces when all the energies are focused in one direction. Miles developed three basic characteristics with 10 dimensions (see Table 2-5 below) for evaluating the health of a school that encompassed task, maintenance and growth needs (Hoy & Feldman, 1987; Hoy, et al., 1991).

### **Organizational Health Index**

Researchers Hoy and Feldman (1987) believe in the theory of organizational health, so they continued to investigate the concept of a healthy school. This time they returned to the 1967 theoretical work of Parsons measuring school health as all organizations must “have three distinct levels of control over these needs: the institutional, managerial, and technical” when addressing issues in schools (p. 86). Parsons suggests all organizations work to meet the basic needs in adaptation, goal attainment, integration, and latency if the organization is to continue to prosper (Freiberg, 1999; Hoy, et al., 1991).

After a series of pilot studies, Hoy and Feldman (1987) developed a framework of eight dimensions to identify school organizational health and later revised the framework to seven



Table 2-5

*Miles' (1969) Ten Dimensions of School Healthiness*

<i>Task Needs</i>
Goal Focus--Goals are reasonably clear to the system members as well as accepted by them. The goals must also be realistic and appropriate-consistent with the demands of the environment.
Communication Adequacy--Communication is relatively distortion free; it produces a good and prompts sensing of internal strains. Members have the information that they need to function efficiently.
Optimal Power and Equalization--The distribution of influence is relatively equitable. Subordinates can exert influence upward, and they perceive their superiors can do likewise.
<i>Maintenance Needs</i>
Resource Utilization--Personnel is used effectively. The organization is neither overloaded nor idling. There is a good fit between individual needs and organizational demands.
Cohesiveness--Members are attracted to the organization and wish to remain. They are influenced by the organization and exert their own influence on the organization in a collaborative fashion.
Morale--The organization displays a general sense of well-being and group satisfaction.
<i>Growth and Development Needs</i>
Innovativeness--The organization invents new procedures, moves toward new goals, and becomes more differentiated over time.
Autonomy--The organization is not passive to the environment. It demonstrates some independence from outside forces.
Adaptation--The organization has the ability to bring about corrective changes in it to grow and develop.
Problem-Solving Adequacy--Problems are solved with minimal energy, and problem-solving mechanisms are not weakened, but maintained or strengthened.

*Note:* From Hoy, et al., 1991, p. 66.

dimensions. The Organizational Health Index (OHI) was created to measure a school's health as related to the three levels and associated dimensions (see Table 2-6 below). The OHI

questions are descriptive in nature to identify the patterns and interactions between the students, teachers, principals, and superiors (Hoy & Feldman, 1987; Hoy, et al. 1991; Freiberg, 1999).

When the three levels of the institutional, managerial, and technical are compatible, an organization is highly functioning (Hoy et al., 1991). The OHI can assist in identifying schools that are healthy and those that are unhealthy (Hoy & Feldman, 1987). A healthy school is a

Table 2-6

*Seven Dimensions and Organizational Levels*

<i>Institutional level</i>
Integrity - the school's ability to cope with the community in a way that maintains the educational integrity of its programs.
<i>Managerial level</i>
Principal influence - the ability of the principal to affect the decisions of superiors, to effectively go to bat for teachers.
Principal consideration - principal behavior that is friendly, open, supportive and collegial.
Principal initiating - is both task and achievement oriented principal behavior.
Principal resource support - the extent to which the principal obtains the materials and supplies that are needed and requested by teachers.
<i>Technical level</i>
Moral - is a collective sense of satisfaction, enthusiasm, pride, and friendliness that teachers feel about their job and school.
Academic emphasis - is the school's press for achievement by setting high, but achievable goals and providing an orderly and serious learning environment.

*Note:* From Hoy, 1990, p. 154.

school in which the principal is a strong leader who maintains high standards for all those in the school. Healthy schools have teachers who care about teaching and learning as they develop expectations for their students and themselves. A healthy school has students who work hard, are

motivated and respect one another. Finally, a healthy school exhibits pride and school spirit (Freiberg, 1999; Hoy & Miskel, 2005).

An unhealthy school is susceptible to outside influences, which can negatively impact the learning environment. The principal is not a strong leader with no vision for the school and is overwhelmed by parental and community demands. Teachers are not supported by the administration, which creates low teacher morale. Unfortunately, academic excellence is not the top priority of an unhealthy school (Freiberg, 1999; Hoy & Miskel, 2005).

As with the other climate measures, the OHI has since been revised and now offers tools at each school level: elementary, middle, and high. The OHI is very consistent with Effective Schools research findings in evaluating the school workplace (Hoy & Feldman, 1987; Freiberg, 1999; Hoy & Miskel, 2005).

### **Organizational Climate Index**

The previous two climate measures, openness and health, are different, but have overlapping components in their measures and frameworks. Hoy et al. (1998) found open schools are generally seen as healthy schools, while healthy schools are seen as open (Hoy, et al., 1990; Hoy & Feldman, 1987; Hoy, et al., 1998; Hoy & Sabo, 1998; Hoy, et al., 2002). When Hoy et al., (2002) combined the eight dimensions from the OCDQ with the seven dimensions from OHI, they discovered that the sum could be scaled down to four specific dimensions. This combination created the Organizational Climate Index (OCI), which measured both the openness and health of a school (Hoy, et al., 1998; Hoy & Sabo, 1998; Hoy, et al., 2002). The four factors that were developed to serve the OCI were “environmental press, collegial leadership, teacher professionalism, and academic press” (Hoy, et al., 2002, p. 41). Press is used to describe the force placed upon the school or school personnel to develop a positive climate or increase

academic achievement. These four dimensions focused on the relationships that exist in a school between the students, teachers and administrators (DeAngelis & Presley, 2011; Hoy, et al., 2002).

In the final revision of the tool and a closer examination of the dimensions, academic press and environmental press were renamed to achievement press and institutional vulnerability respectively. The four dimensions are defined as follows:

*Institutional Vulnerability* is the extent to which the school is susceptible to a few vocal parents and citizen groups. High vulnerability suggests that both teacher and principals are unprotected and put on the defensive.

*Collegial Leadership* is principal behavior directed toward meeting both social needs of the faculty and achieving the goals of the school. The principal treats teachers as colleagues, is open, egalitarian, and friendly, but at the same time sets clear teacher expectations and standards of performance.

*Professional Teacher Behavior* is marked by respect for colleagues, competence, commitment to students, autonomous judgmental, and mutual cooperation and support of colleagues.

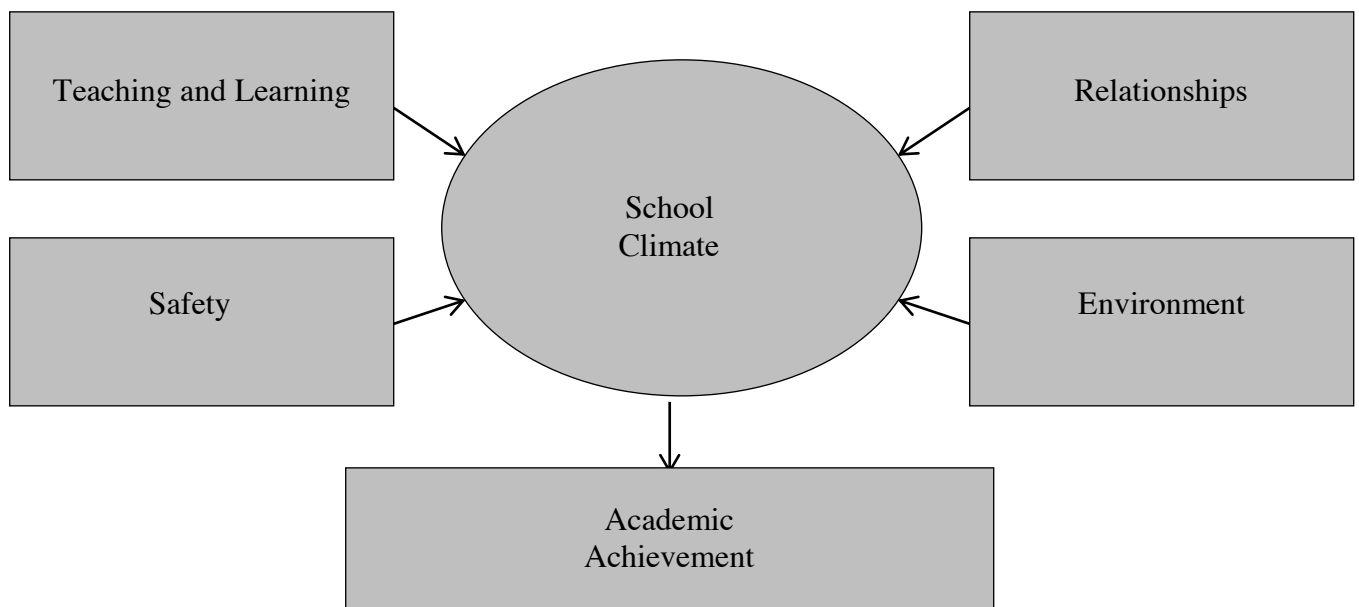
*Achievement Press* describes a school that sets high but achievable academic standards and goals. Students persist, strive to achieve, and are respected by both students and teachers for their academic success. Parents, teachers, and the principal all exert pressure for high standards and school improvement (Hoy, et al., 2002, p. 42).

Hoy and colleagues (2002) developed a concise, reliable, valid, and a simple framework for measuring school climate utilizing the four dimensions describing the organizational life found in a high school.

### **School Climate Domains**

Cohen, et al. (2009), identified school climate as a “group phenomenon” which is bigger than one person's individual experience within a school. In NSCC (2007) and Cohen’s (2009) definition of school climate, “school climate refers to the quality and character of school life...” (p.180) which is composed of multiple dimensions. Cohen’s research on four dimensions of

climate is grounded in the theoretical framework of Hoy et al. (2002). The dimensions (Figure 2-3 below) developed by Cohen et al. (2009) include: “safety (teacher professionalism), relationships (collegial leadership), teaching and learning (achievement press), and the institutional environment (institutional vulnerability)” (para . 4). The dimensions in parentheses are parallel constructs from Hoy and colleagues study (2002). Other researchers agree that the four dimensions configure the quality of a school climate while aspects of each domain may overlap and support another dimension (Cohen, 2006; Cohen, 2007; Cohen, 2014; Cohen et al., 2009; Cohen & Geier, 2010; DeAngelis & Presley, 2011; Freiberg, 1999; Hoy et al., 2002; Piscatelli & Lee, 2011; Maxwell, 2016).



*Figure 2-3.* Four Dimensions of School Climate as stated by Cohen et al., 2009

### **Safety**

Feeling safe in school is a fundamental expectation for students to learn and teachers to teach. In every school division, safety is a top priority and by developing a positive school

climate, school systems may capitalize on that priority (Thapa, et al., 2012). According to Maslow (1943), the feeling of safety is one of our basic human needs. Academic achievement and healthy development of students can be found in a school where students feel safe. Students are more likely to experience violence, bullying, and other risk behaviors in schools without a strong and supportive school climate. These students are also more susceptible to out-of-school suspensions and increased absenteeism resulting in poor academic performance (Collins & Parson, 2010; Klein, Cornell & Konold, 2012; Thapa, et al., 2012; Thapa, et al., 2013; Kutsyuruba, et al., 2015).

Cohen (2006), reports that multiple National School Climate Council (NSCC) surveys have shown that parents, guardians, and school personnel see school violence and bullying as a minor issue as compared to students who identify the problem at a critical level, thereby, impacting student achievement. Bullying behaviors against students in school not only reduces their ability to complete assignments but affects their engagement levels as well (Thapa, et al., 2012, Thapa, et al., 2013). Thapa, et al., (2012; 2013) suggests a correlation between reduced violence, bullying, and aggressive behaviors and positive school climate. Maxwell (2016) confirms that a school with clearly defined rules and expectations promotes student academic achievement, as students feel safe and supported in a positive learning environment.

### **Relationships**

Relationships formed within the school between caring adults and the students is another dimension. These relationships are not only among individuals but also include the way students feel about themselves. Collins and Parsons (2010) observed positive relationships and respectful schools have a strong correlation with performance of economically disadvantaged or culturally

diverse students. Thapa, et al. (2012; 2013) add that schools with proactive school-wide discipline plans and strong teacher-student relationships experience fewer behavioral infractions.

The National School Climate Center (2007) found a positive school climate is characterized by collaborative learning experiences between students and teachers resulting in higher levels of classroom engagement. When students are pushed to learn and feel supported by a caring adult, their academic achievement increases. Several researchers focused on how school climate, student dropout rates, suspensions, and absenteeism levels decrease in a positive school climate composed of supportive caring adults (Cohen, 2009; Kutsyruba, et al., 2015; Maxwell, 2016; NSCC, 2007; Thapa, et al., 2012; Thapa, et al., 2013).

### **Teaching and Learning**

NSCC (2007) and Cohen et al., (2009) state that teaching and learning is the most important school climate domain (Thapa et al., 2012; Thapa et al., 2013). Teachers who articulate clearly state expectations for academic success tend to develop stronger relationships with their students and are a contributing factor in academic achievement (Maxwell, 2016). Hoy and Hannum (1997) state that academic emphasis, setting high but attainable goals for students, is one of the best predictors of academic achievement. Teachers who provide students with positive feedback will help them to develop stronger self-esteems. Students who experience a renewed confidence about themselves are reported to have decreased rates of absenteeism and suspensions, having a direct impact on reducing student dropout rates (Cohen, 2009; Maxwell, 2016; NSCC, 2007; Thapa, et al., 2012; Thapa, et al., 2013).

### **Environment**

One can divide environment domain into two sections: a) connectedness and engagement, and b) physical layout and school surroundings. Connectedness is defined as “the belief by

students that adults and peers in the school care about their learning as well as about them as individuals” (NSCC, 2007, p. 9). Research indicates that students who are connected to a caring adult at school are less likely to be involved in high-risk behaviors, violence, and bullying (NSCC, 2007). Environment also has great influence on a student’s academic performance (Klein et al., 2012). Collins and Parson (2010) state that the physical condition of a school, the size of the school, and its organizational layout has an impact on school climate. These elements can affect the feelings adults and students have about their safety in the school building. Researchers agree school climate is the only remedy for improving the academic achievement of a school impacted by the poor quality of its facilities (Maxwell, 2016; Thapa et al., 2012; Thapa et al., 2013).

### **School Climate Impact Factors**

A positive school climate fosters students to be successful academically and also in life (Freiberg, 1999). A positive school climate, as studied by Thapa, et al., (2013), has been identified as a factor to decrease truancy rates, reduce suspension rates, lower dropout rates, and diminishes the impact of low socioeconomic status (Cohen et al., 2009; Sugai, LaSalle, Freeman, Simonsen & Chafouleas, 2016).

### **Student Discipline**

According to Howard, et al. (1987) if the school is to “be successful, the school climate must address the safety needs of both students” and teachers (p. 6)., The fundamental human need of feeling safe, according to Cohen & Geier (2010), may have a strong impact on students’ academic outcomes. Students cannot focus on academic success, if their attention is distracted by disruptive behaviors in school or in the classroom (Bosworth, Ford & Hernandez, 2011). Thus, it is important to focus on the establishment and maintenance of a positive school environment to



promote academic success. According to Sugai and Horner (2001) “learning and teaching occur best in school climates that are positive, orderly, courteous, and safe” (p. 2).

In promoting a positive school climate, schools must address the issue of bullying (Cohen & Freiberg, 2013; Cohen & Geier, 2010; Fink, et al., 2017). Students who witness, engage in, or are being bullied suffer academically. Schools are often reported by the media as saying they could not find any evidence of bullying. Thus, it is important to take a look at the definition of bullying (Fink, et al., 2017). Olweus (193) defined bullying as “a person is bullied when he or she is exposed repeatedly and over time, to negative actions on the part of one or more students” (p. 9). Bradshaw, Waasdorp, Debnam, & Johnson (2014) observe that bullying can take on the form of “teasing, spreading of rumors, name-calling, threatening actions, being left out of a group, and the sending hurtful emails and text messages” (p. 597). Schools can address bullying issues through the creation of positive school climates that support students and through “which bullying is no longer rewarded with social status and power” (Fink, et al., 2017, p. 92). Fink et al. (2017) emphasizes the importance of “systematically improving school climate and ensuring all youth are healthy, safe, engaged, supported, and challenged” (p. 89). By improving climate, schools will establish environments where all students are accepted for who they are and thus more likely to achieve academically in a positive atmosphere (Hinduja & Patchin, 2012).

Research identifies positive school climate as a means to prevent unwanted behavioral problems such as “bullying, delinquency, and aggression” (Wang & Degol, 2016, p. 329). In a study by Astor, Benbenishty, Zeira, & Vinokur (2002), they found students who were afraid and not attending school was resultant of observing violence or being a victim of violence while attending school. Another study by Cohen & Geier (2010), find that students are more likely to be verbally bullied in larger schools and do not feel safe when compared to smaller school

environments. There has also been a connection found between the nature of relationships in a school and the negative exposure of bullying, delinquency, and aggression. Students who feel connected and maintain a sense of belonging in a caring school environment are less likely to experience bullying and/or violence (Cohen & Geier, 2010; LaRusso, Romer & Selman 2008; Wang & Degol, 2016). Strong relationships found in positive school climates between students, teachers, and the administration are associated with decreased student behavior problems and increased academic achievement (Cohen & Geier, 2010; Marshall, 2004; Wang, Berry, & Swearer, 2013; Wang & Degol, 2016).

In a study conducted by Goddard, Sweetland, and Hoy (2000), student behavior was found to be influenced by the emphasis on academic press, which was also found to improve school climate. Hoy and Hannum (1997) identifies academic press as “the single best organizational health predictor of student achievement” (p. 297). As stated previously, a healthy school has students who work hard, are motivated and respect one another (Hoy et al., 1998; Hoy & Miskel, 2005). In their study, Hoy and Hannum (1997) found schools “with an orderly and serious learning environment, with teachers who set high but achievable goals, and with students who work hard and respect others who do well academically have higher levels of student achievement” (p. 297). According to research conducted by Goddard et al. (2000) “Academic emphasis is a way of conceptualizing the normative and behavioral environment of a school, and we postulate that it influences both personal and organizational behavior” (p. 686).

Schools that are fair, firm, and consistent in enforcing discipline consequences have lower rates of students involved in behavioral problems resulting in fewer disciplinary suspensions. These reduced suspension rates are associated with increased academic press found in high-quality academic atmospheres (Cohen & Geier, 2010; Fox & Boies, 1970; Wang &

Degol, 2016). Climate research conducted by Freiberg (1998) find “[s]chool [c]limates can be a positive influence on the health of the learning environment or a significant barrier to learning” (p. 22). This research supports the idea that school climate can be measured by student performance and discipline.

### **Attendance**

Hendron & Kearney (2016) report that student absenteeism has increased and impacts “14 percent to 15 percent of American students” (p. 109). Chronic absenteeism “is linked to many serious problems such as internalizing and externalizing behavioral disorders, lower reading and mathematics test scores, lower academic performance and achievement, fewer literacy skills, grade retention, juvenile justice system involvement, and dropouts” (Hendron & Kearney, 2016, p. 109). McCluskey, Bynum, & Patchin (2004) have identified increased student discipline behaviors, increased student dropout rates, and poor academic performance are related to students who are chronic truants. Absenteeism is also directly related to juvenile delinquency, alcohol, and substance abuse (Cohen & Geier, 2010; Hendron & Kearney, 2016; Koth, Bradshaw & Leaf, 2008; Thapa et al., 2012; Thapa et al., 2013;).

Research shows decreased student absenteeism is directly correlated to a positive learning environment, positive student-teacher relationships, increased class participation, and appropriate student decorum at school (Brookmeyer, Fanti & Henrich, 2006; Cohen & Geier, 2010; Green, Liem, Martin, Colmar, Marsh, & McInerney, 2012; Hendron & Kearney, 2016; Koth, et al., 2008; Thapa et al., 2012; Thapa et al., 2013; Zullig, et al., 2010). School climate has been significantly found to relate to academic achievement, increased attendance, and reduced dropout rates in a study conducted by Brookmeyer et al., (2006) and in another study by Zullig, et al. (2010). Freiberg (1999) states that a school climate is “...the heart and soul of the school. It

is about that essence of a school that leads a child, a teacher, and an administrator to love the school and to look forward to being there each school day” (p. 11). Research supports the notion that attendance is a factor of school climate.

### **Socioeconomic Status**

Socioeconomic status has always been a valid concern of practitioners when examining academic achievement. Ainley, Graetz, Long & Batten (1995), defined socioeconomic status (SES) as “a person’s overall social position...to which attainment both the social and economic domain contribute” (p. ix). Low SES often reveals inequities in access to resources and opportunities (White, 1982). Hoy, et al. (1998) state “the socioeconomic status of the community is always a strong predictor of student achievement” (p. 353). The link between SES and academic performance has been solidified through research (Considine and Zappala, 2002).

These researchers describe socioeconomic status as “determined by an individual’s achievements in education; employment and occupational status; and income and wealth” (Considine & Zappala, 2002, p. 130). This definition was corroborated in a study by Sirin (2005) in which SES was identified as consisting of three parts: parental occupation, parental education, and parental income. Academic performance of a student is strongly associated with socioeconomic status according to researchers (Benson, 2003; Berkowitz, Moore, Astor & Benbenishty, 2017; Brookover et al., 1978; Bulach et al., 1995; Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld & York, 1966; Considine & Zappala, 2002; Hoy et al., 1998; Sirin, 2005; Smith, 2005; Spence, 2003; Weber, 1971).

Considine and Zappala (2002) state students and schools with low SES are at a disadvantage to students and schools with higher SES status as related to academic achievement.

The researchers report students who come from low SES families may experience the following traits more than peers of high SES families:

1. have lower levels of literacy, numeracy, and comprehension;
2. have lower retention rates (i.e., children from low SES families are more likely to leave school early);
3. have lower higher education participation rates (children from low SES families are less likely to attend university);
4. exhibit higher levels of problematic school behavior (e.g. truancy);
5. are less likely to study specialized math and science subjects;
6. are more likely to have difficulties with their studies and display negative attitudes to school; and,
7. have less successful school to labor market transitions (Considine & Zappala, p. 130).

SES was established as one of the strongest forecasters of academic performance (Berkowitz et al., 2017; Coleman et al., 1966). Educational researchers suggest students perform significantly higher academically in schools which boast a positive climate despite having a low socioeconomic status (Sirin, 2005; Berkowitz, et al., 2017). Berkowitz et al., (2017), suggests that students may experience academic success as a result of student engagement and school connectedness, created through a positive learning environment that neutralizes the impact of a low SES. When a school changes its atmosphere, it can “mitigate the negative contribution of weak SES background on academic achievement” (Berkowitz et al., 2017, p. 425).

In a study of four low SES inner-city schools, three non-reading factors emerge that had a surprising impact on reading achievement helping these schools exceeded the national norms on standardized reading tests (Weber, 1971). These factors, which can be controlled at the building

level, are identified as “a good atmosphere, high expectations, and strong leadership” (Weber, 1971, p. 26). The identified factors are similar to the domains discussed in later studies by Cohen, et al., (2009) and Hoy, et al., (2002).

An Education Performance Review (NYSOE, 1974) was conducted a case study in two low SES inner-city elementary schools on academic achievement. The findings support the earlier study of Weber in 1971, suggesting that SES does not have to be a negative impact on academics given the right learning environment.

In another study, Benson (2003) examined four elementary schools with low SES populations to identify the relationship of the school environment and student performance. Benson’s findings support the notion that school climate is related to student performance and SES (Benson, 2003). Benson’s (2003) research found similar results to a study conducted by Brookover et al. (1978), which suggested SES and student achievement maybe related to a conducive learning environment.

Spence (2003), while reviewing school climate and academic achievement in low SES schools, reported results that supported those of Benson’s (2003) research. The research findings from Spence (2003) support a positive relationship between school environment and student performance. Findings also suggest teacher beliefs and academic attention are strongly correlated to academic growth in schools with low SES. This suggests that school climate must be given attention as a means to improving achievement in schools with low SES (Spence, 2003). As suggested earlier, school climate has a direct connection to SES.

### **School Size**

In looking at the implications of school size on academic achievement, Luyten, Hendriks & Scheerens (2014) found the size of a school might have an impact on overall academic

performance and the schools' atmosphere experienced by its students. Smaller sized schools are often seen as "creating a personalized learning environment and greater interaction and participation by students and teachers" (Luyten et al., p. 9). In contrast, a larger school had a wider variety of curriculum and extracurricular opportunities for students than what was found in smaller sized schools (Luyten et al., 2014).

In a study, in the state of Texas, regarding the relationship of school size on student performance and high school environments, Greeney (2010) found a significant relationship between large high schools and student performance, while a positive learning environment related to smaller high schools. Greeney (2010) also found medium high schools out-performed small high schools on state assessments. Newman, Garrett, Elbourne, Bradley, Noden, Taylor & West (2006) state that school size had a bigger impact on student achievement and school climate at the secondary level than the primary level.

In a study of South Carolina middle schools, Kaczor (2006) looks at the relationship between academic achievement and school climate as it related to school size. Through the data analysis, Kaczor (2006) identified a direct relationship between the school size and school climate. Research suggests that school size may be a measure of school climate.

### **Pupil/Teacher Ratio**

Research on the reduction of class size has been debated for several decades as an approach to increase academic achievement. Fewer students in a classroom at one time makes sense as teachers would be able to spend more time teaching less students to performance better. However, some researchers have not found a connection between improved achievement and smaller classes (Center on Public Education, 2019). Another question that has not been fully

answered in the research is whether pupil/teacher ratios have a positive impact on school climate (Borland, Howsen & Trawick, 2005).

According to Perrigan (2010) schools have placed much emphasis on reducing pupil/teacher ratios despite a lack of educational research to support the claim. In a study conducted by Alspaugh (1994) the results were mixed regarding the impact of lower classroom sizes on student performance. The mixed results were also verified in a study by Borland et al. (2005) who concluded that pupil/teacher ratios were misleading. Borland et al. (2005) identifies an interesting fact concerning student achievement and class size. According to Perrigan's (2010) research "students continue to learn from their peers as well as the teacher" in larger class sizes (p. 34).

Whitehurst and Chingos (2011) reviewed an analysis of the Tennessee STAR experiment and found that students who were assigned to smaller classrooms outperformed their peers who were assigned to larger classrooms. Over the course of four years this equated to approximately three additional months of schooling for the students in the smaller classes. The researchers pointed out the benefits were largest for boys, economically disadvantaged students, and black students (Whitehurst & Chingos, 2011). Focusing on the reduction of pupil/teacher ratios has shown mixed results. However, most of the research suggests that a well-designed class size initiative can make a difference in the overall school climate by improving student academic achievement (CPE, 2019). The pupil/teacher ratio may be a factor of school climate.

### **Provisionally Licensed Teachers**

In a study on teacher quality and academic achievement, Sun (2016) suggests the quality of the teacher has a significant impact on the quality of the teaching and learning in the classroom and on student performance. Current research indicates teacher preparation,



qualifications, and licensure certification constitutes a broad definition of teacher quality.

However, some researchers suggest that teacher quality can be multi-dimensional including: the behavior of the teacher, traits in personality, the teacher preparation program, the experience of the teacher, and teacher professional learning (Darling-Hammond, 2000; Sun, 2016).

Teacher preparation, qualifications and licensure are about the experiences, content knowledge, instructional pedagogy and classroom experiences the teacher brings to the classroom when they begin teaching (Sun, 2016). Darling-Hammond (2000) found “teacher preparation and certification are by far the strongest correlates of student achievement in reading and mathematics” (p. 1). Suggesting the qualifications teachers bring to the classroom are controlled by state policies that regulate teacher hiring, licensing, qualifications, and preparation can make an important difference to academic achievement in schools (Darling-Hammond, 2000; Zumwalt & Craig, 2005).

Individuals possessing a provisional teaching license can temporarily provide classroom instruction to students in public schools within the state issuing the license (Longren, 2019). Many educational state departments provide alternative routes for individuals with a non-educational degree to obtain a provisional license. During the past 10 years, the number of provisionally licensed teachers in Virginia has increase by 40 percent as a result of an increased shortage of qualified teachers (VDOE, 2017b). In a teacher shortage, states often rely on hiring provisionally licensed teachers to fill their teaching vacancies. These teachers who are not fully-certified, make up a small percentage of the teaching force when compared to the overall number of certified teachers across the nation. However, when states and individual school divisions reach a crisis in teacher shortages, more classrooms will be filled without a qualified teacher (USDOE, 2016; VDOE, 2017b).

When Darling-Hammond (2000) studied alternative route teaching candidates, student performance was found to be substantially lower than students who received classroom instruction from traditionally certified teachers. Certified teachers, who possess a teaching license, are a stronger predictor of academic achievement compared provisionally licensed teachers. In a study by Coltfelter, Ladd & Vigdor (2007), similar results were found relating to stronger academic performance by students taught by a non-provisionally licensed teacher. These studies suggest that states who are looking to improving teaching and learning should focus on teacher preparation, qualifications and licensure certification requirements (Darling-Hammond, 2000; Sun, 2016; VDOE, 2017b). By investing and supporting in the preparation and retention of provisionally licensed teachers, school divisions can make an enormous contribution to a positive school climate and improved student performance (VDOE, 2017b). Research suggests provisionally licensed teachers may be a climate factor.

### **Summary**

This chapter reviewed the related literature on school climate versus school culture, organizational climate theory, school climate theory, defining school climate, school climate studies, school organizational health, school climate domains and factors impacting school climate. This chapter also provides a historical overview of the educational reform movements during the past seven decades.

As identified in the literature, school climate has a compelling impact on student achievement and should continue to be explored as a focus of school improvement (Bradshaw et al., 2014; Thapa, et al., 2012; Center on Educational Policy, 2010; Kelly et al., 2005). Even though the research has not agreed upon one common definition to define school climate, the

literature has presented common themes. For the purpose of this study the following definition was used to define school climate.

School climate is the quality of school life experiences with caring adults who are committed to developing positive relationships while providing a safe learning environment for all to achieve.

The current school reform legislation, ESSA, has opened the door to a non-academic indicator to be used as an additional measure of academic performance. Once such indicator is school climate. According to Freiberg (1998) “[s]chool climate can play an important role in school reform” resulting in improved student performance (p. 1).

Since the 1960s, researchers have continued to develop instruments designed to measure school climate. These tools have evolved over the years and rely heavily on personal responses to questionnaires and surveys (Freiberg; 1999; Hoy 1990; Hoy, et al., 1990; Hoy, et al., 1991; Hoy et al., 1998; Hoy, et al. 2002; Hoy & Feldman 1987; Hoy & Hannum, 1997; Hoy & Miskel, 2005; Hoy & Tarter, 1992). The research identified four dimensions used in measuring school life. The four climate dimensions are: “safety, teaching and learning, relationships and environment” (Cohen et al., 2009, para. 4).

The research identifies an association between school climate and academic achievement requiring further study to understand the factors impacting the school environment (Cohen et al., 2009; Kelly et al., 2005). The research problem and methodology used in this study is present in the next chapter.

### Chapter 3

#### Methodology

This chapter proposes the research methodology and briefly reviews the purpose of the study, the guiding research questions and a case for replicating a study. Other topics in this chapter include methodology, population, data collection, research design, pre-analysis data screening, and summary of methodology.

The purpose of this study was to examine the relationship between school climate and academic achievement of select high schools in the Commonwealth of Virginia. It was also of interest to identify the impact of each of the independent variables on academic achievement. This study was guided by the following research questions:

1. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?
2. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on mathematics VA SOL assessments in those schools?

This research study was a partial replication of a quantitative research study completed by Smith (2005) entitled: *The Relationship Between School Division Climate and Student Achievement of School Divisions in the Commonwealth of Virginia* (p. 12). Smith's (2005) study was unique in that it used pre-existing data to examine the relationship between climate and

achievement. The current study used pre-existing data focusing on high school as the unit of analysis. However, this study used multiple regression as its methodology to perform the data analysis.

Smith's (2005) study has been replicated three times. Research conducted by Warren (2007) evaluated the relationship among school division discipline and student performance in the states of Maryland, New Jersey, Pennsylvania, and Virginia. A hierarchical cluster analysis was used to create categories of school divisions. The findings of this study identified a relationship exists between academic performance and division discipline (Warren, 2007). In another study, the relationship between school climate and academic achievement was investigated at the elementary level by Phillips (2010). In this study, Phillips (2010) used hierarchical clustering to examine the relationship between school environment and academic performance. The results suggested a positive relationship between school climate and academic achievement (Phillips, 2010). Bergren (2014) studied school climate and academic achievement at the middle school level in the Commonwealth of Virginia. This study-utilized climate factors in creating a climate index through a hierarchical cluster analysis. This study determined the higher the academic achievement the more a school climate is positive (Bergren, 2014). In addition to the hierarchical cluster analysis, Bergren (2014) utilized multiple regression analysis and found similar results. While each of these studies used pre-existing data, they did not use precisely the same methodology. Heffner (2018) stated that the replication of a study is beneficial by a) ensuring the results are reliable and valid, b) determining generalizations, c) applying the results to new situations and d) inspiring new research. Ary, Jacobs & Razavieh (1996) contended that, "repeating a study increases the extent to which the research findings can be generalized and provides additional evidence of the validity of the findings" (p. 49). This

study continued along the same lines as Smith (2005) by analyzing pre-existing data. However, this study used a multiple regression analyze to examine the relationship between school climate and academic achievement at the high school level in the Commonwealth of Virginia, and not on school divisions as Smith (2005) focused.

### **Research Methodology**

#### **Population**

The population of this study was comprised of 314 public high schools in the Commonwealth of Virginia as identified by the Virginia Department of Education (VDOE). The high school population included 376,940 students. The data was extracted from the VDOE School Quality Profile (SQP) website. The unit of analysis was the school site.

#### **Data Collection**

The Commonwealth of Virginia measures school accountability through annual assessments of student achievement, known as the Virginia Standards of Learning (SOL) tests. The SOLs are also used in determining school accreditation. Results from the SOL assessments identify schools as fully accredited, partially accredited or accreditation denied. Accreditation benchmarks are set by the state requiring schools to meet or exceed the pass rate each year or meet it based on a three-year average (VDOE, 2018b).

The 2018-2019 accreditation ratings for Virginia schools are based on the 2017-2018 SOL results. SOL data from the two content areas of English and mathematics were used as the dependent variable to measure academic achievement. Performance data on the SOLs was extracted from the VDOE School Quality Profile website.

The VDOE SQP website was used to identify this study's independent variables. Data on attendance rates, school size, free and reduced meal eligibility (FRME), provisionally licensed

teachers, and student discipline were obtained from the SQP website. The pupil/teacher ratio was obtained from the Virginia Department of Education (VDOE) Superintendent's Annual Report located on the VDOE website.

Students who are eligible for free and reduced meals (FRME) for each school determined SES per 100 students. FRME data was identified in the SQP for the 2017-2018 school year. Attendance data for each school was acquired from the 2017-2018 SQP report. This rate is determined by dividing the schools current Average Daily Attendance (ADA) by its Average Daily Membership (ADM). School size was also identified from the 2017-2018 SQP report. The Fall Membership was used to identify school size in this research study. The Fall Membership is the total number of students enrolled in a school on September 30 of each school year. Each school division is required to submit their total school enrollment taken on September 30 of every school year to the VDOE. The percentage of provisionally licensed teachers was acquired from the 2017-2018 SQP report for each school. The Code of Virginia (22.1-279.3:1) requires each school division to report all discipline, crime and violence infractions to the VDOE annually (VDOE, 2018c). Under the new ESSA Act of 2015, Virginia schools continued to report safety incidents for schools that are persistently dangerous (VDOE, 2017a) as outlined in Virginia's Unsafe School Choice Option as part of the Annual Discipline, Crime, and Violence Report (VDOE, 2018e). Information obtained from the Discipline, Crime, and Violence (DCV) annual report was included on the VDOE SQP website. Discipline data found in the SQP represents nine reporting categories: alcohol, tobacco and other drug offenses, technology offenses, offenses against students, offenses against staff, weapons offenses, property offenses, all other offenses, other offenses against persons, and disorderly or disruptive behavior offenses (VDOE, 2017a). For the purpose of this study, school discipline was regrouped into three

categories creating sub variables for discipline. The sub variables are: D1 (Assaults) -offenses against students, staff, property, persons, and all other offenses; D2 (Drugs/Weapons) -drug, alcohol, tobacco, drugs, and weapons; D3 (Disorderly/Disruptive) -disorderly or disruptive behaviors, and technology offenses. The sub variables were determined based on the disciplinary infractions frequency of occurrence in a typical high school and grouped accordingly. School administration tend to deal with D3 infractions most frequently followed by D1 and then D2. The number of disciplinary infractions in each category were rescaled per 100 students. The pupil/teacher ratio for each school was obtained from the 2017-2018 Superintendent's Annual Report located on the VDOE website.

### **Research Design**

This study delineated the relationship between school climate factors and student achievement through a quantitative research design. Yilmaz (2013) describe quantitative research as “explaining a phenomenon according to numerical data which are analyzed by means of mathematically based statistics” (p. 311). Another researcher described quantitative research as “a process of collecting, analyzing, and interpreting data in order to understand a phenomenon” (Williams, 2007, p. 65). According to Isaac & Mitchell (1981) descriptive research “describes systematically the facts and characteristics of a given population or area of interest, factually and accurately” (p. 46).

Both descriptive statistics and multiple regression analysis were used to determine if any relationships exist between the climate measures and academic performance. According to Beals, Bailey & Ryan (2009) “descriptive statistics are used to organize, summarize, and focus on the main characteristics of your sample” (p.1-9). Descriptive statistics for each item were calculated using the JMP software program. A multiple regression analysis was used to “understand the



predictive power of the independent variables on the dependent variable once a relationship has been established” (O’Brian & Scott, 2012, p. 3). Plotts (2011) stated, “the regression analysis enables us to predict future outcomes based on the independent variables” (p.56).

The purpose of the multiple regression analysis is to identify the best relationships between the independent variables to predict the impact and outcome on the dependent variable (Ary, Jacobs & Razavieh, 1996). For the purpose of this research design, the multiple regression analysis method was used. The mathematical equation for multiple regression is shown in Table 3-1 below.

Table 3-1

*Mathematical Equation for Multiple Regression*

Dependent Variables	Independent Variables
Y	$\alpha + \beta_1X_1 + \beta_2X_2 + \dots \beta_nX_n + e$
English	$\alpha + \beta_1D1 + \beta_2D2 + \beta_3D3 + \beta_4\text{attendance rate} + \beta_5\text{school size} + \beta_6\text{SES} + \beta_7\text{provisional teachers} + \beta_8\text{pupil/teacher ratio} + e$
Math	$\alpha + \beta_1D1 + \beta_2D2 + \beta_3D3 + \beta_4\text{attendance rate} + \beta_5\text{school size} + \beta_6\text{SES} + \beta_7\text{provisional teachers} + \beta_8\text{pupil/teacher ratio} + e$

Data from each high school ( $N = 314$ ) was extracted from the VDOE SQP report for the following categories: (a) school discipline in the areas of alcohol, tobacco, and other drug

offenses, technology offenses, offenses against students, offenses against staff, weapons offenses, property offenses, all other offenses, other offenses against persons, and disorderly or disruptive behavior offenses; (b) attendance rate; (c) school size; (d) SES as determined by free and reduced meal eligibility; (e) provisionally licensed teachers. The pupil/teacher ratio data was obtained from the 2017-2018 Superintendent's Annual Report located on the VDOE website. The discipline, SES, and provisionally licensed teacher data was rescaled for each high school per 100 students. Descriptive statistics were used to calculate a mean and standard deviation score in each variable using the rescale data.

The 2017-2018 SOL student pass percentage scores for English/Reading and mathematics were taken from the VDOE SQP and analyzed with the climate measures to identify a relationship between school climate and academic performance.

The validity and reliability of a research study must be considered when reporting findings to ensure the rigor of the study (Heale & Twycross, 2017). According to Jankens (2011) "validity and reliability are the factors within a study and the manner in which the research is conducted, which provide evidence that interpretations of the data are correct and that the method in which the interpretations are applied is appropriate" (p. 68). The data used in this study was pre-existing and extracted from the Virginia Department of Education (VDOE) website.

The Virginia Department of Education (VDOE, 2018f) requires all school divisions to follow consistent requirements when reporting data "[t]o comply with the information and reporting requirements for report cards and performance indicators of the Every Student Succeeds Act (ESSA)" (para. 1). The data reporting system is part of the School Records Collection process providing strong reliability (VDOE, 2018f). The measures used in this study

were reliable, which aided the validity of this research design. The data used in this study, was publicly made available on the VDOE website making it uncomplicated to replicate this research study.

### **Pre-Analysis Data Screening**

Data screening to identify missing values and outliers was performed prior to statistical analysis. This process helped to ensure all data were reliable. Missing data and data with outliers can cause unwanted distortions in the statistical results (Donnelly, 2007). After running a frequency distribution analysis on the demographic data in JMP Pro 14 (Lehman, O'Rourke, Hatcher & Stepanski, 2005) it was determined that data on the percentage of provisionally licensed teachers was missing for Augusta County's Riverhead High School. The pupil/teacher ratio for Campbell County Public Schools was incorrect as the decimal point was located in the wrong place skewing the numbers. It was also determined that the VDOE SQP report data identified 328 total high schools in Virginia. The high schools identified by VDOE, contained 14 alternative education schools ranging in a variety of grade levels from grade K – 12 with low enrollments. As a result of the significantly small sample size, these schools were removed from the high school data. The population size of 314 high schools is the same number of high schools identified by the Virginia High School League (VHSL) for the same year as the high school data. High schools identified by the VDOE SQP report included traditional high schools consisting of grades nine through twelve. Several of the high schools included in the data were secondary schools consisting of grades seven through twelve and grades eight through twelve. The pupil/teacher ratio from the 2017-2018 Superintendents Annual Report located on the VDOE website was provided by division by Elementary (K-6) and Secondary (7-12). The secondary

pupil/teacher ratio used in this study and applied to each school in the division. All other independent variables and dependent variables were satisfactory.

### **Summary**

The purpose of this study was to determine the relationship between school climate and academic achievement at the high school level in the Commonwealth of Virginia. The population for his study was 314 public high schools in Virginia. Student achievement data from the SOL's were taken from the SQP report located on the VDOE website for the 2017-2018 school year in the two content areas of English and mathematics. Climate measures were also taken from data obtained from the VDOE SQP report on attendance rates, school size, FRME, provisionally licensed teachers, and student discipline. The pupil/teacher ratio data was acquired from the Superintendent's Annual Report located on the VDOE website. Through a multiple regression, the independent variables (attendance rates, school size, FRME, provisional teachers, pupil/teacher ratio, and school discipline) and the dependent variable (SOL English/Reading and SOL Mathematics) were used to determine if a relationship existed between school climate and high school academic achievement in the Commonwealth of Virginia. Discussions on the findings of the research study are in Chapter 4.

## Chapter 4

### Presentation of Data

This chapter is comprised of a short introduction and overview of the population for this study proceeded by the methodology procedures and research questions. A presentation of data and analysis are also included.

This study's purpose was to examine the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia. It was also of interest to determine the impact of each of the climate variables on academic achievement. The population of this study was 314 public high schools. Descriptive statistics, Pearson's correlation coefficient and multiple regression analyses were used to address the overarching research question: What is the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia?

The following research questions guided this study:

1. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?
2. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on mathematics VA SOL assessments in those schools?

Data from each high school in the Commonwealth of Virginia (N=314) was gathered in the following categories: discipline (D1, D2, D3) infractions per 100 students, attendance, school size, SES per 100 students, percentage of provisionally licensed teachers, and pupil/teacher ratios. These data were extracted from the 2017-2018 School Quality Profile (SQP) website and the Virginia Department of Education (VDOE) Superintendents Annual Report. Raw data from student discipline (D1, D2, D3), SES (FRME) and provisionally licensed staff was rescaled to a ratio for every 100 students and used in all calculations. Student performance data were also extracted from the VDOE SQP website for the 2017-2018 school year for SOL assessments in English/Reading and Mathematics.

### **Presentation of Results**

The following sections presents the descriptive and inferential statistical analysis using data compiled in an Excel database and entered into JMP Pro 14 software (Lehman, et al., 2005). The independent variables (school climate) and dependent variables (academic achievement) were analyzed using descriptive statistics, and with the Pearson Product-Moment coefficient of correlation to determine the direction and strength of the relationship between variables (Ary et al., 1996). Finally, multiple regression analysis was run to identify the relationships between predictor and response variables to see which is more important or less important in predicting the dependent variable (Lehman et al., 2005).

### **Presentation of Descriptive Statistics**

The data were analyzed using JMP Pro 14 to conduct descriptive statistics. Mean, minimum, maximum and standard deviation are included in Table 4.1 below for each of the independent variables (climate) and the dependent variables (achievement).

Table 4.1

*Descriptive Statistics for Climate and Achievement Variables*

<b>Variables</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Standard Deviation</b>
<b>English/Reading</b>	314	53.71	100.00	86.31	7.07
<b>Mathematics</b>	314	38.48	100.00	78.39	10.28
<b>Total Enrollment</b>	314	106.00	3987.00	1245.72	723.80
<b>% of Low SES (FRME)</b>	314	2.20	100.00	40.25	17.86
<b>Attendance (ADM)</b>	314	45.70	99.60	83.39	8.23
<b>% D1 (Assaults)</b>	314	0.00	84.00	1.62	5.08
<b>% D2 (Drugs/Weapons)</b>	314	0.00	9.00	2.10	1.86
<b>% D3 (Disorderly/Disruptive)</b>	314	0.00	168.00	11.70	14.96
<b>% Provisional Teachers</b>	314	0.00	32.80	8.15	5.51
<b>Pupil/Teacher Ratio</b>	314	4.90	17.90	12.14	2.02

The high school Standards of Learning (SOL) mean and standard deviation scores in each content area were as follows: English/Reading,  $M=86.31$  ( $SD=7.07$ ) and Mathematics SOL pass rates,  $M=78.39$  ( $SD=10.28$ ). The mean SOL pass rate was higher on the English/Reading SOL. The mean scores for high school discipline infractions are as follows: D1 (Assaults),  $M=1.62$  ( $SD=5.08$ ); D2 (Drugs/Weapons),  $M=2.10$  ( $SD=1.86$ ); D3 (Disorderly/Disruptive),  $M=11.70$  ( $SD=14.96$ ). D3 had the highest mean score of all discipline categories. The percentage of low SES had a  $M=40.25$  ( $SD=17.86$ ); attendance had a  $M=83.39$  ( $SD=8.23$ ); percentage of provisional teachers had a  $M=8.15$  ( $SD=5.51$ ) and pupil/teacher ratio had a  $M=12.14$  ( $SD=2.02$ ).

### Presentation of Data from Correlation Analysis

The Pearson-Moment correlation analysis was used to determine whether relationships exist between the climate variables and the achievement variables. In addition, multivariate statistics were used to determine the correlations between each group of multiple variables (Lehman et al., 2005). For the purpose of this study, the following  $r$  - values indicate the strength of the coefficient correlation: An  $r$  - value of -1.0 to -0.5 and 1.0 to 0.5 are considered a strong correlation; -0.5 to -0.3 and 0.5 to 0.3 are considered a moderate correlation; -0.3 to -0.1 and 0.3 to 0.1 are weak correlations; and -0.1 to 0.1 is considered a very weak to no correlation. Correlation analysis results for each predictor variable and responder variable are presented in Table 4.2 below.

The correlation yielded many significant results. A strong positive correlation was found between English/Reading and Mathematics,  $r = 0.63, p < 0.001$ , as would be expected. Significant correlations between the climate variables and English/Reading was found: a strong positive correlation between English/Reading and Attendance,  $r = 0.60, p < 0.00$ ; strong negative correlation between English/Reading and low SES,  $r = -0.65, p < 0.001$  and between English/Reading and D3,  $r = -0.51, p < 0.001$ ; a moderate negative correlation between English/Reading and provisional teachers,  $r = -0.46, p < 0.001$  and between English/Reading and D1,  $r = -0.39, p < 0.001$ . School Size,  $r = 0.13, p = < 0.01$  and pupil/teacher ratio,  $r = 0.13, p = < 0.001$  both had a significant weak correlation between English/Reading. D2 was not significantly correlated to English/Reading performance.

Mathematics showed a moderate correlation with attendance,  $r = 0.45, p < 0.001$ . A moderate negative correlation was observed between Mathematics and low SES,  $r = -0.46, p < 0.001$ ; between D3 (Disorderly/Disruptive),  $r = -0.46, p = < 0.001$ ; and between provisional



Table 4.2

*Pearson-Moment Correlation Coefficient (r), Means and Standard Deviations for Each Climate and Achievement Variables*

Variables	English/Reading	Mathematics	School Size	% SES (FRME)	Attendance (ADM)	% D1 (Assaults)	% D2 (Drugs/Weapons)	% D3 (Disorderly/Disruptive)	% Provisional Teachers	Pupil/Teacher Ratio	Mean	Standard Deviation
English Reading											86.31	7.07
Mathematics	0.63**										78.39	10.28
School Size	0.13*	0.05									1245.72	723.80
% of Low SES (FRME)	-0.65**	-0.46**	-0.37**								40.25	17.86
Attendance (ADM)	0.60**	0.45**	0.22**	-0.60**							83.39	8.23
% D1 (Assaults)	-0.39**	-0.34**	-0.04	0.26**	-0.37**						2.00	5.00
% D2 (Drug/Weapons)	0.03	0.04	-0.07	-0.08	-0.02	0.09					2.00	2.00
% D3 (Disorderly/Disruptive)	-0.51**	-0.46**	-0.17**	0.45**	-0.52**	0.71**	0.07				12.00	15.00
% Provisional Teachers	-0.46**	-0.43**	-0.17**	0.37**	-0.33**	0.22**	0.00	0.35**			8.15	5.51
Pupil/Teacher Ratio	0.13*	0.09	0.42**	-0.26**	0.04	-0.06	0.01	-0.15*	-0.01		12.14	2.02

*Note:* N = 314. \* $p < 0.01$ . \*\* $p < 0.001$

teachers,  $r = -0.43$ ,  $p = < 0.001$ . A negative moderate correlation was seen between Mathematics and D1 (Assaults),  $r = -0.34$ ,  $p < 0.001$ . Conversely, the remaining variables were not significant.

### Results of Multiple Regression

A multiple regression analysis was performed to identify the best combination of independent variables (climate indicators) to predict the outcome of the response variables (academic performance). The multiple regression will identify the average change in the response variable for every unit of change in the predictor variable (Lehman et al., 2005). The multiple regression analysis will produce a nonstandard and a standard coefficient. A nonstandard coefficient ( $b$  weight) is a raw score where every variable has a different mean and standard deviation (Lehman et al., 2005). A multiple regression standardized coefficient ( $\beta$  weight) is generated when all the predictor and response variables are in a standard format with the same mean and standard deviation (Lehman et al., 2005). For the purpose of this study,  $\beta$  weights were used to identify the multiple regression analysis results. The *R-Square* and *F-Statistic* results are shown in Table 4.3 below.

The *R-Square* measurement indicates the percentage of the variance in the response variables explained for by the predictor variables when all are taken together (Lehman et al.,

Table 4.3

*R Squared (Percentage of Variance) in English/Reading and Mathematics by Climate Variables*

	English/Reading	Mathematics
<i>R-Squared</i>	0.58	0.38
<i>F-Statistic</i>	54.14	23.61
<i>P-Value</i>	0.0001	0.0001

2005). The climate variables explain a higher percentage of the variance on English/Reading ( $R^2 = 0.58$ ) than Mathematics ( $R^2 = 0.38$ ). The regression results for English/Reading show that the independent variables explain 58 percent of variance in achievement is explained by the independent variables. The percentage of variance explained by the climate variables is lower in Mathematics at 38 percent of the variability in achievement explained by the independent variables.

The multiple regression analysis generated an analysis of variance table presenting the *F-Statistic*, which indicates if the combination of linear predictor variables account for a significant amount of variance in the responder variables (Lehman et al., 2005). The significance of the *F-Statistic* is at .05 level. Both achievement areas, English/Reading and Mathematics, are significant ( $p < 0.0001$ ), suggesting that the climate variables account for a significant amount of the variance in English/Reading and Mathematics. Further analysis by predictor variables follows.

### **Research Question 1**

*Question 1: What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?*

Table 4.3 above indicates 58 percent of the variance in English/Reading is explained by the variance in the predictor variables. Table 4.4 below presents the analysis of the climate predictor variables influence on the English/Reading criterion variable.

The  $\beta$  weights for the standardized multiple regression coefficients were reviewed to identify the relative importance of the eight climate predictor variables in the prediction of English/Reading achievement. In Table 4.4 below, a decrease in school size ( $\beta = -0.15$ ,  $p =$

Table 4.4

*Multiple Regression Coefficients,  $\beta$  Weights and P-Values of Each Predictor Variable for English/Reading*

Predictor	<i>b</i> Weights	SE <i>b</i> Weights	Std Beta $\beta$	<i>t</i>	<i>p</i>
Intercept	77.82	4.82	0	16.16	0.0001
School Size	-0.00	0.00	-0.15	-3.35	0.0009**
% of Low SES (FRME)	-0.17	0.02	-0.42	-8.01	0.0001**
Attendance (ADM)	0.21	0.04	0.24	4.77	0.0001**
% D1 (Assaults)	-16.20	7.43	-0.12	-2.18	0.0300*
% D2 (Drugs/Weapons)	1.00	14.41	0.00	0.07	0.9447
% D3 (Disorderly/Disruptive)	-2.56	2.84	-0.05	-0.90	0.3685
%Provisional Teachers	-0.27	0.05	-0.21	-5.05	0.0001**
Pupil/Teacher Ratio	0.20	0.15	0.06	1.33	0.1861

Note: \* $p < .05$ . \*\* $p < .001$ .  $R^2 = 0.58$ ,  $F(8, 305) = 52.02$ ,  $p < .0001$  for predictor variables.

0.000), percentage of low SES ( $\beta = -0.42$ ,  $p = 0.000$ ), D1 ( $\beta = -0.12$ ,  $p = -0.030$ ), and provisional teachers ( $\beta = -0.21$ ,  $p = .000$ ) corresponds with an increase in English/Reading student achievement. An increase in attendance ( $\beta = 0.24$ ,  $p = 0.000$ ) also corresponds with increased English/Reading student achievement. However, D2, D3 and pupil/teacher ratio were not significant in the regression model. Significant predictors included school size, percentage of low SES, attendance, D1 (Assaults), and provisional teachers at the .05 and .001 levels.

### Research Question 2

*Question 2: What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the Mathematics Virginia Standards of Learning (VA SOL) assessment in those schools?*

Table 4.3 above indicates 38 percent of the variance in Mathematics is explained by the variance in the climate predictor variables. Table 4.5 below presents the analysis of the climate predictor variables influence on the Mathematics criterion variable.

Table 4.5

*Multiple Regression Coefficients,  $\beta$  Weights and P-Values of Each Predictor Variable for Mathematics*

Predictor	$b$ Weights	SE $b$ Weights	Std Beta $\beta$	$t$	$P$
Intercept	72.21	8.46	0	8.53	0.0001
School Size	-0.00	0.00	-0.17	-3.57	0.0012**
% of Low SES (FRME)	-0.13	0.04	-0.23	-3.39	0.0003**
Attendance (ADM)	0.19	0.08	0.15	2.49	0.0135*
% D1 (Assaults)	-7.88	13.05	-0.04	-0.60	0.5465
% D2 (Drugs/Weapons)	17.20	25.32	0.03	0.68	0.4975
% D3 (Disorderly/Disruptive)	-12.68	4.98	-0.18	-2.54	0.0115*
% Provisional Teachers	-0.47	0.09	-0.25	-5.01	0.0001**
Pupil/Teacher Ratio	0.32	0.26	0.06	1.23	0.2204

Note: \* $p < .05$ . \*\* $p < .001$ .  $R^2 = 0.38$ ,  $F(8, 305) = 23.61$ ,  $p < .0001$  for predictor variables.

The  $\beta$  weights for the standardized multiple regression coefficients were reviewed to identify the importance of the eight climate predictor variables in the prediction of Mathematics achievement. In Table 4.5 below, a decrease in school size ( $\beta = -0.17, p = 0.001$ ), percentage of low SES ( $\beta = -0.23, p = 0.000$ ), D3 ( $\beta = -0.18, p = 0.012$ ) and provisional teachers ( $\beta = -0.25, p = 0.000$ ) correspond with an increase in Math student achievement. An increase in attendance ( $\beta = 0.15, p = 0.014$ ), corresponds with an increase in Math student achievement. However, D1, D2 and pupil/teacher ratio are not significant in the regression model. Significant predictors include school size, low SES, attendance, D3 (Disorderly/Disruptive) and provisional teachers at the .05 and .001 levels.

In addition to the two multiple regression tables above, a multiple regression analysis was run combining all discipline into one category (All Discipline). This regression model was run to determine the overall influence of All Discipline infractions as one variable on English/Reading and Mathematics. Tables 4.6 and 4.7 below presents the analysis of the climate predictor variable all discipline's influence on the English/Reading and Mathematics criterion variables.

Table 4.6

*Multiple Regression Coefficients,  $\beta$  Weights and P-Values of All Discipline as a Predictor Variable for English/Reading*

Predictor	<i>b</i> Weights	SE <i>b</i> Weights	Std Beta $\beta$	<i>t</i>	<i>P</i>
Intercept	72.21	8.46	0	8.53	0.0001
All Discipline	-18.41	1.81	-0.50	-10.50	0.0001**

Note: \* $p < .05$ . \*\* $p < .001$ .  $R^2 = 0.38, F(8, 305) = 23.61, p < .0001$  for predictor variables.

The  $\beta$  weights for the standardized multiple regression coefficients were reviewed to identify the importance of the all discipline climate predictor variable in the prediction of

English/Reading achievement. An increase in academic achievement corresponds with a decrease in all discipline ( $\beta = -0.50, p = 0.000$ ). The all discipline predictor variable is the most significant predictor of English/Reading achievement.

Table 4.7

*Multiple Regression Coefficients,  $\beta$  Weights and P-Values of All Discipline as a Predictor Variable for Mathematics*

Predictor	<i>b</i> Weights	SE <i>b</i> Weights	Std Beta $\beta$	<i>t</i>	<i>P</i>
Intercept	72.21	8.46	0	8.53	0.0001
All Discipline	-23.96	2.72	-0.45	-8.80	0.0001**

Note: \* $p < .05$ . \*\* $p < .001$ .  $R^2 = 0.38, F(8, 305) = 23.61, p < .0001$  for predictor variables.

The  $\beta$  weights for the standardized multiple regression coefficients were reviewed to identify the importance of the all discipline climate predictor variable in the prediction of Mathematics achievement. An increase in academic achievement corresponds with a decrease in all discipline ( $\beta = -0.45, p = 0.000$ ). The all discipline predictor variable is the most significant predictor of Mathematics achievement.

### Summary

The purpose of this study was to determine the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia. The population of this study was 314 public high schools in Virginia.

Student achievement was measured using the results of the 2017-2018 Virginia SOL tests for English/Reading and Mathematics. Preexisting data found on the VDOE SQP website was used to assess school climate. Using bivariate correlation and multiple regression data were

analyzed to determine the direction and strength of variables and the relationships between the predictor variables and the response variables for high schools in the Commonwealth of Virginia.

The multiple regression analysis identified the variance on the dependent variables explained by the variance in the independent variables. The climate variables explained the highest variance ( $R^2 = 0.58$ ) in English/Reading, while the climate variables explained a lower variance ( $R^2 = 0.38$ ) in Mathematics. An analysis of each climate predictor variable in English/Reading and Mathematics showed school size, percentage of low SES, attendance, and provisional teachers as consistently corresponding across both content areas as predictors. D1 and D3 were significant predictors of English/Reading and Mathematics respectfully. D2 and pupil/teacher ratio showed as weak or insignificant predictors for English/Reading and Mathematics. D2 and D1 were not significant predictors of English/Reading and Mathematics respectfully. When the all discipline predictor variable regression analysis was run it showed a strong significance for predicting academic achievement in English/Reading and a moderate significance for predicting academic achievement in Mathematics.

Presented in Chapter 5 will be the findings from the multiple regression analysis used to provide a summary, discussion of the findings, implications for practice and recommendations for future studies.



## Chapter 5

### Discussion and Recommendations

Chapter 5 includes a brief introduction of the topic, review of the findings and implications for practice. Recommendations for future studies, a summary and personal reflections will end this chapter.

Existing literature suggests there is a relationship between school climate and student performance (Bulach, 1994; Bulach Malone, & Castleman, 1995; Freiberg, 1999; Kutsyruba, Klinger, & Hussain, 2015; MacNeil, Prater, & Busch, 2009; Thapa, Cohen, Higgins-D'Alessandro, & Guffey, 2012). Bradshaw, Waasdorp, Debnam, & Johnson (2014), found positive school climate has an impact on the academic and behavioral outcomes of students. The Center on Education Policy (2012) observed a positive school climate has a strong relationship to academic achievement. Thapa and colleagues (2012) confirmed the body of research on school climate recognizes the importance of the impact of a positive school climate on education. According to the National School Climate Council (2007) a “positive school climate is directly related to academic achievement” (p. 6). DeWitt & Slade (2014) found evidence suggesting the effects of a positive school climate could continue for years resulting in not only immediate but lasting impact on student achievement. Another group of researchers found a positive school environment could result in greater academic achievement and fewer dropouts when coupled with effective teaching (Bruggencate, Luyten, Scheerens, & Slegers, 2012).

No studies were identified, in the review of literature, specifically looking at the relationship between school climate and academic achievement using high schools as a unit of analysis. The purpose of this study was to examine the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia. The population of this

study was 314 public high schools. Descriptive statistics, Pearson-Moment correlation coefficient and multiple regression analyses were used to address the overarching research question: What is the relationship between school climate and academic achievement of high schools in the Commonwealth of Virginia?

The following research questions guided this study:

1. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?
2. What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on mathematics VA SOL assessments in those schools?

Information regarding the relationship between school climate and student academic achievement for high schools in the Commonwealth of Virginia are included in this study. Data from each high school in the Commonwealth of Virginia (N=314) were gathered in the following categories: discipline (D1, D2, D3) infections per 100 students, attendance, school size, SES (FRME) per 100 students, percentage of provisionally licensed teachers, and pupil/teacher ratios. These data were extracted from the 2017-2018 SQP website and the VDOE Superintendents Annual Report. Student Achievement data, for SOL assessments in English/Reading and Mathematics, were also pulled from the VDOE SQP website for the 2017-2018 school year.

Educational leaders will be able to evaluate their schools' climate using existing data, climate factors and student academic achievement to make informed school climate improvement decisions to increase student performance. A summary of results follows.

### **Summary of Results**

A statistically significant relationship was displayed between the independent variables and dependent variables in high schools in the Commonwealth of Virginia as a result of the multiple regression analysis. When the variables were examined individually within the regression model, only school size, percentage of low SES, attendance, all discipline, and provisionally licensed teachers were identified as a statistically significant relationship across both content areas. However, D1(Assaults) was found to be statistically significant in English/Reading, while D3 (Disorderly/Disruptive) was statistically significant in Mathematics, but overall all discipline matters. The results of the multiple regression analysis identified D2 (Drugs/Weapons) and pupil/teacher ratio as having weak or insignificant relationships with academic achievement in both content areas. The overall findings of this study suggest that climate factors, all together, show a statistically significant relationship with student academic achievement in high schools in the Commonwealth of Virginia. The next section will discuss the findings as it relates to each research question.

#### **Research Question 1**

The first research question was *What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on the English/reading Virginia Standards of Learning (VA SOL) assessment in those schools?* The multiple regression analysis revealed that the climate variables were strongly correlated to

English/Reading ( $R^2 = .58$ ), suggesting that 58 percent of the variance in achievement is explained for by the predictor variables. When the  $\beta$  weights for the standardized multiple regression were reviewed to identify the relative importance of the eight climate predictor variables in the prediction of English/Reading achievement, five variables emerged as statistically significant. Achievement scores in English/Reading increased with a decrease in low SES ( $\beta = -0.42, p = .000$ ). A decrease in D1 (Assaults) ( $\beta = -0.12, p = .030$ ) behaviors resulted in an increase in English/Reading student academic achievement scores. An increase in English/Reading scores was also evident by a decrease in provisionally licensed teachers ( $\beta = -0.21, p = .000$ ). At the same time, English/Reading achievement increased with a decrease in school size ( $\beta = -0.15, p = .000$ ). Higher rates of student attendance ( $\beta = 0.24, p = .000$ ) also showed significant increases in student English/Reading academic achievement scores. A decrease in the all discipline ( $\beta = -0.50, p = .000$ ) resulted in an increase of English/Reading academic achievement scores.

## **Research Question 2**

The second research question was *What is the relationship between school climate in Virginia high schools, as measured by school size, attendance rate, discipline, percentage of low SES, pupil/teacher ratio, and provisionally licensed teachers on student achievement on mathematics VA SOL assessments in those schools?* The multiple regression analysis revealed that the climate variables showed a high variance on Mathematics ( $R^2 = .38$ ), suggesting that 38 percent of the variance in achievement is explained for by the climate variables. When the  $\beta$  weights for the standardized multiple regression were reviewed to identify the relative importance of the eight climate predictor variables in the prediction of Mathematics achievement, five variables stood out as statistically significant. Mathematics achievement

increased with a decrease in low SES ( $\beta = -0.23, p = .000$ ). Academic achievement in Mathematics showed an increase in performance when there was a decrease in D3 (Disorderly/Disruptive) ( $\beta = -0.18, p = .012$ ) student behaviors in school. A decrease in provisionally licensed teachers ( $\beta = -0.25, p = .000$ ) also resulted an increase in student academic performance in Mathematics. At the same time, Mathematics achievement increased with a decrease in school size ( $\beta = -0.17, p = .001$ ). The increase in student Math academic achievement scores was directly related to an increase in student attendance ( $\beta = 0.15, p = .014$ ). A decrease in the all discipline ( $\beta = -0.50, p = .000$ ) resulted in an increase of Mathematics academic achievement scores.

### **Interpretation of the Findings**

The findings were relatively uniform across the two content areas being studied. The results showed that in schools with fewer disciplinary infractions academic achievement increased. This increase in performance was stronger for English/Reading achievement. These findings support previous research on the premise that a positive school climate reduces student discipline behaviors and increases student academic success (Kutsyuruba et al., 2015) as students social and emotional needs are met through a positive learning environment (Zulling et al., 2010).

Literature indicates an increase in student discipline infractions are associated with a decrease in student academic performance as safety is a fundamental expectation for students to learn (Collins et al., 2010; Klien, Cornell & Konold, 2012; Kutsyuruba et al., 2015; Thapa et al., 2012; Thapa et al., 2013). A school with clearly defined rules, expectations and a proactive school-wide disciplinary plan will experience fewer disciplinary infractions and promote student academic achievement (Thapa et al., 2012; Maxwell, 2016). The findings of this study support

the research indicating reduced disciplinary infractions are directly related to increased student performance (Fox & Boies, 1970; Cohen & Geier, 2010, Wang & Degol, 2016).

The percentage of provisionally licensed teachers showed a direct relationship to academic achievement. A higher number of provisionally licensed teachers in a school results in poorer performance in both English/Reading and Mathematics. The relationship to performance was almost equal in both content areas. These results are consistent with a study by Darling-Hammond (2000) who also found a strong correlation between teacher quality and achievement in Reading and Mathematics. These findings also support previous research on provisionally licensed teachers (Coltfelter et al., 2007; Darling-Hammond, 2000; Sun, 2016; Zumwalt & Craig, 2005). The findings support the work of Zumwalt & Craig (2005) as schools are filling teaching vacancies with provisionally licensed teachers due to a teacher shortage. States need to evaluate their provisional teacher licensure requirements if they expect to improve student academic performance (Zumwalt & Craig, 2005). Provisional teachers are the strongest predictor of student academic achievement for Mathematics.

The school size predictor was found to be of significance in both English/Reading and Mathematics achievement. The findings indicate that academic achievement will increase when school size decreases. These results are consistent with the research studies reviewed on school size in previous studies (Kaczor, 2006; Newman et al., 2006; Greeney 2010; Luyten et al., 2014). Findings from Luyten and colleagues (2014) supports the results of this study indicating smaller sized schools tend to provide more one-on-one intervention and remediation to students resulting in greater academic success. These findings also support the work of (Newman et al., 2006) as it relates school size and its impact on student achievement at the secondary level. The study

findings also support previous research by Kaczor (2006) regarding smaller sized schools and increased student performance.

Socioeconomic status (SES) was one of the most important climate factors predicting academic achievement in English/Reading student performance. The findings of this study support previous literature as the percentage of low SES is lower, academic achievement will increase in a school (Benson, 2003; Berkowitz et al., 2017; Brookover et al., 1978; Bulach et al., 1995; Coleman et al., 1966; Considine & Zappala, 2002; Hoy et al., 1998; Sirin, 2005; Smith, 2005; Spence, 2003; Weber, 1971). Schools that have lower percentages of SES tend to have higher student academic achievement scores over schools with higher percentages of low SES (Considine & Zappala, 2002). Schools with a lower percentage of SES students significantly perform higher academically as a result of a positive school climate supporting the findings of this study (Berkowitz et al., 2017; Sirin, 2005).

Findings of this study indicate that academic achievement is higher when student attendance is higher. These findings fully support previous research on student performance and attendance (Brookmeyer, Fanti & Henrick, 2006; Zullig et al., 2010). The results are consistent with research correlating the direct impact of decreased student absenteeism with a positive learning environment, positive student-teacher relationships and increased class participation supporting the research on attendance (Brookmeyer et al., 2006; Cohen & Greier, 2010; Green et al., 2012; Hendron & Kearney, 2016; Koth et al., 2008; Thapa et al., 2012; Thapa et al., 2013; Zullig et al., 2010). The findings also support McCluskey, Bynum & Patchim (2004) who identified students with chronic attendance issues as having poor academic performance.

Pupil/teacher ratio and D2 were not strong predictors of academic achievement when measuring their individual significance. The findings relating to pupil/teacher ratio, support the

results found in previous studies (Alspaugh, 1994; Borland et al., 2005; CPE, 2019; Perrigan, 2010) that identified pupil/teacher ratio as not having a strong relationship with academic achievement. D2 (Drugs/Weapons) was not found to be significant in the regression model for English/Reading and Mathematics. The D2 discipline category reported the least amount of infractions provided in the school discipline reports.

### **Implications for Practice**

The results of this study have implications for potential positive change at the school level, division level, and at the state level. Conclusions from this research support the relationship between climate and student performance as a way of informing the school improvement process to increase student achievement and meet new accountability measures.

At the school level, the results may suggest school leaders focus on the overall school climate as a significant step to improving student academic performance as a whole. As stated by Dewitt & Slade (2014) every school has a climate, when planned with intent it can have a positive impact on the teaching and learning in the school. School leaders need to identify the climate factors that are within their control and focus on their sphere of influence. For example, a leader might focus professional learning on building stronger student-teacher relationships that would encourage students to attend school while feeling safe and connected to a caring adult (Brookmeyer, Fanti & Henrich, 2006; Cohen & Geier, 2010; Green, Liem, Martin, Colmar, Marsh, & McInerney, 2012; Hendron & Kearney, 2016; Koth, et al., 2008; Thapa et al., 2012; Thapa et al., 2013; Zullig, et al., 2010). School leaders who focus on building a positive school climate to enhance student engagement and school connectiveness may neutralize the overall impact of low SES (Berkowitz et al., 2017). School leaders also need to provide additional professional learning and additional resources to their teachers to support the academic needs of



low SES students (Sirin, 2005; Spence, 2003; Weber, 1971). Positive relationships between students and teachers have a direct impact on the overall school climate and academic achievement for all students (Collins & Parsons, 2010). By focusing on school climate, positive relationships, SES, and school attendance student performance will improve.

At the school and division level, the results of this study have implications for addressing school discipline needs. Focusing on reducing disciplinary infractions suggests an increase in academic performance, which has a positive impact on school and division climate. When students feel safe at school, academic achievement will improve as a result of a safe learning environment ((Cohen & Geier, 2010; Fink et al., 2017; Fox & Boies, 1970; Howard et al., 1987; Wang & Degol, 2016). Leaders who implement a schoolwide positive behavioral intervention and support system to reduce unwanted student discipline infractions of bullying, violence, delinquency and aggressive behaviors will help in establishing and maintaining a positive learning environment that promotes academic achievement (Thapa et al., 2012; Maxwell, 2016). Students who feel safe at school will feel a stronger connection and a feeling of belonging to one another as a result of a positive learning climate.

As this study suggests, division leaders may also want to review educational specifications on school size when suggesting, reviewing, and implementing new school designs and construction (Newman et al., 2006). Smaller schools tend to create environments where adult and student interactions and relationships aid in the development of a strong school climate resulting in increased student performance (Greeney, 2010; Kaczor, 2006; Luyten et al., 2014; Newman et al., 2006).

However, the results of this study might also have implications at the state level. As a result of a teacher shortage, school divisions are forced to hire provisionally licensed teachers to

fill vacancies (VDOE, 2017b; Zumwalt & Craig, 2005). As this study suggests, provisionally licensed teachers have a negative relationship to student performance (Coltfelter et al., 2007; Darling-Hammond, 2000). State leaders may need to reevaluate alternative paths to teacher licensure to ensure highly qualified teachers are entering classrooms. State education departments should collaborate with school divisions to provide provisionally licensed teachers with appropriate professional learning experiences to improve their abilities in the classroom (Darling-Hammond, 2000; Sun, 2016; VDOE, 2017b). Focusing on incentive programs to attract future teachers to enroll in education programs at the university level should be a priority of all state and national leaders to ensure a quality teacher in every classroom (VDOE, 2017b). Teachers who set high expectations for student learning and provide informative feedback tend to develop deeper relationships with their students, which is a contributing factor to increased academic achievement and a positive school climate (Hoy & Hannum, 1997; Maxwell, 2016). Improving teacher quality by reducing the number of provisionally licensed teachers as the results of this study suggest would ultimately benefit student performance.

The results of this study support prior research on school climate and its relationship to improved academic performance with implications at the school, division and state level. Understanding the relationship between climate factors and academic performance is essential for educational leaders in evaluating their school's climate in order to make changes and inform the school improvement process to meeting new accountability measures with increased results in academic achievement. The following section will discuss the recommendations for future studies.

### **Recommendations for Future Studies**

The following recommendations are being made for future studies based on this studies results:

1. It is recommended that this study be replicated using the VDOE Climate Survey results to examine the relationship between school climate and academic achievement.
2. It is recommended that this study be replicated looking specifically at the three sub-variables on disciplinary infractions, identified in this study, to understand why one impacts English/Reading, while another impacts academic achievement in Mathematics.
3. It is recommended that this study be replicated using accountability subgroups to focus student achievement such as: Asian students, Black students, Hispanic students, economically disadvantaged students, English learners and students with disabilities.
4. It is recommended that this study be replicated using additional high school accreditation data relating to the On-Time Graduation Rate.
5. It is recommended that this study be replicated by using additional variables such as per-pupil spending to identify another factor that may impact school climate and there for academic achievement.
6. A study using qualitative or mixed methods could be conducted to look at principal, teacher, student and parent perspectives on school climate and its impact on academic achievement.

### Summary

In a time of increased accountability measures and continued pressure to improve student academic performance, school leaders must focus on developing and creating a positive school climate to reach the success they are searching. The benefits of a positive school learning environment can significantly reduce the barrier to learning for all students (Freiberg, 1998; Cohen, 2014), while bringing the excitement back into teaching and learning (Zakrzewski, 2013). The primary purpose of this study was to examine the relationship between school climate and academic achievement in high schools in the Commonwealth of Virginia. This study identified a compelling relationship between school climate and student performance.

Identifying and focusing on climate factors can have a positive impact on academic achievement. This study identified school size, SES, attendance, discipline and provisionally licensed teachers as the significant factors having the biggest impact on learning. Division leaders can impact increased academic performance by considering school size when building new schools. School leaders can provide additional resources and professional development for teachers to improve their teaching strategies to meet the needs of low SES students. Leaders can also focus on developing systems to improve student attendance and reduce unwanted discipline behaviors. Investing in teacher quality is another area school leader's might focus to increase the academic performance of their students. The significant climate factors identified in this study will aid school practitioners in meeting school accountability measures.

The results of this study were not surprising based on the current body of literature. Perry (1908) understood the importance of a positive school climate in the early 20<sup>th</sup> Century and its overall impact on student life and learning. Regardless of the amount of time needed to invest in the development of a positive learning environment that promotes increased student academic

success, a positive school spirit and appropriate student behaviors is well worth the effort (Cohen, et al., 2009; DeWitt & Slade, 2014)

This study provided another methodology for studying school climate and academic achievement at the high school level and should be used as a bases for additional research on this topic. Chapter 5 presented the findings and recommendations.

### **Personal Reflections**

While reflecting on the experience of writing a dissertation, I find myself amazed at the journey that has brought me this far. The journey was difficult, challenging and at the same time enlightening. This is not only true with my own growth as a researcher, but in the knowledge and understanding I've gained regarding school climate. As an educational leader, I felt I had the practical knowledge and experience to fully understand the impact of school climate. However, after completing a literature review and completing the research my perception was changed.

Though it was difficult at times to focus and motivate myself to begin the process, it was well worth the time and commitment. I have learned to organize my time and commitments which has increased by productivity in many areas of my life. Throughout my life, I was not always confident in my writing skills and felt it to be a challenge every time I would sit down to work on this study. However, after looking back over this process my writing skills have improved, and I feel more confident. Perhaps the practice and persistence has made the difference in my writing and my overall confidence.

As an educational leader, my perception has shifted regarding the understanding of school climate. Prior to completing my literature review, I used to believe, I fully understood the context of school climate due to my experience within the school building. Yet, now as the literature review is completed, I find myself much more informed as to what and how school

climate impacts student performance. Researching and trying to identify one specific definition once seemed obvious was not to be. However, I was able to synthesize my own meaning of school climate as the quality of school life experiences with caring adults who are committed to developing positive relationships while providing a safe learning environment for all to achieve academically. This definition was based on the research of other practitioners (Cohen, 2006; Cohen, 2007; Cohen, 2014; Cohen & Geier, 2010; DeAngelis & Presley, 2011; Freiberg, 1999; Maxwell, 2016; Piscatelli & Lee, 2011) and the theoretical framework of Hoy et al., (2002) and Cohen et al., (2009). Therefore, it may be more accurate to suggest that the quality of school life experiences with positive relationships built with caring adults is what provides and promotes a safe place for student to learn. Through this research experience, as an educational practitioner, I have reaffirmed my focus on controlling school climate factors that influence a positive learning environment at the school, division and state level in meeting accountability requirements for all students.

The dissertation experience has made a change in me personally and in my beliefs about school climate. Personally, my perceptions have changed regarding my own confidence in the research and writing process. According to Gruenert & Whitaker (2015) “[b]y developing an awareness of what [school climate] is, being able to understanding it, measure it and change it-is one of the most important things we can do for our students” (p.166). I have truly developed a deeper understanding of school climate and the overall impact it has on student academic achievement. As a former coach once said “if the journey was not challenging, the destination would not be rewarding.” Overall, I feel this process has been both challenging and rewarding at the same time.

## References

- Ainley, J., Graetz, B., Long, M., & Batten, M. (1995). *Socio-economic status and school education*. Canberra, AU: DEET/ACER.
- Alspaugh, J. W. (1994). The relationship between school size, student teacher ratio, and school efficiency. *Education, 114*(4), 593-602.
- Amrein, A. L., & Berliner, D. C. (2003). *The effects of high-stakes testing on student motivation and learning*. Alexandria: Association for Supervision and Curriculum Development.
- Anderson, C. S. (1982). The search for school climate: A review of the research. *Review of educational research, 52*(3), 368-420
- Ary, D. (2014). *Introduction to research in education* (9th ed.). Belmont, Calif: Wadsworth Cengage Learning.
- Ary, D., Jacobs, L. C., & Razavieh, A. (1996). *Introduction to research in education* (5th ed.). Fort Worth: Harcourt Brace College Publishers.
- Argyris, C. (1958). Some Problems in Conceptualizing Organizational Climate: A Case Study of a Bank. *Administrative Science Quarterly, 2*(4), 501-520. doi:1. Retrieved from: <http://www.jstor.org.ezproxy.lib.vt.edu/stable/2390797> doi:1Copy
- ASCD (n.d.). *ESSA essentials for educators*. Retrieved November 5, 2017, from: <http://www.ascd.org/ASCD/pdf/siteASCD/policy/ESSA-Essentials-for-Educators.pdf>
- ASCD (2016, May). *ESSA accountability FAQ*. Retrieved from:

[http://www.ascd.org/ASCD/pdf/siteASCD/policy/ESSA-Accountability-FAQ\\_Jul72016.pdf](http://www.ascd.org/ASCD/pdf/siteASCD/policy/ESSA-Accountability-FAQ_Jul72016.pdf)

Assiri, M. A. (2015). The organizational climate of public schools in muhayil school district, saudi arabia. (Order No. 10003017). Available From ProQuest Dissertations & Theses Global. (1761167437). Retrieved from:

<http://login.ezproxy.lib.vt.edu/login?url=https://search-proquest-com.ezproxy.lib.vt.edu/docview/1761167437?accountid=14826>

Astor, R. A., Benbenishty, R., Zeira, A., & Vinokur, A. (2002). School climate, observed risky behaviors, and victimization as predictors of high school students' fear and judgments of school violence as a problem. *Health Education & Behavior*, 29(6), 716–736. <https://doi.org/10.1177/109019802237940>

Beals, M., Bailey, M., & Ryan, L. (2009). JMP Software: ANOVA and Regression Course Notes. Clay, NC: SAS Institute Inc.

Benson, E.E. (2003). The relationship between school climate and student achievement in low-income elementary schools. Unpublished doctoral dissertation, University of Virginia, Commonwealth of Virginia.

Bergren, D. A. (2014). *The impact of school climate on student achievement in the middle schools of the commonwealth of Virginia: A quantitative analysis of existing data* (Order No. 3615518). Available from ProQuest Dissertations & Theses Global. Retrieved from:



<http://login.ezproxy.lib.vt.edu/login?url=http://search.proquest.com.ezproxy.lib.vt.edu/docview/1532779626?accountid=14826>

Berkowitz, R., Moore, H., Astor, R. A., & Benbenishty, R. (2017). A research synthesis of the associations between socioeconomic background, inequality, school climate, and academic achievement. *Review of Educational Research, 87*(2), 425-469.

Blank, M. J. (2016). *Measuring school quality: non-academic measures in the every student succeeds act*. The Huffington Post. Retrieved from:

[http://www.huffingtonpost.com/martin-j-blank/measuring-school-quality\\_b\\_987176.html](http://www.huffingtonpost.com/martin-j-blank/measuring-school-quality_b_987176.html)

Borland, M. V., Howsen, R. M., & Trawick, M. W. (2005). An investigation of the effect of class size on student academic achievement. *Education Economics, 13* (1), 73-83

Bosworth, K., Ford, L., & Hernandez, D. (2011). School climate factors contributing to student and faculty perceptions of safety in select arizona schools. *Journal of School Health, 81*(4), 194-201

Bradshaw, C. P., Waasdorp, T. E., Debnam, K. J., & Johnson, S. L. (2014). Measuring School Climate in High Schools: A Focus on Safety, Engagement, and the Environment. *Journal Of School Health, 84*(9), 593-604.

Bradshaw, C.P., Koth, C.W., Bevans, K.B., Ialongo, N., & Leaf, P.J. (2008). The impact of school-wide behavioral interventions & supports (PBIS) on the organizational health of

elementary schools. *School Psychology Quarterly*, 23, 462-473.

Bradshaw, C. P., Waasdorp, T. E., Debnam, K. J., & Johnson, S. L. (2014). Measuring school climate in high schools: A focus on safety, engagement, and the environment. *Journal of School Health*, 84(9), pp. 593-604.

Brookmeyer, K., Fanti, K., & Henrich, C. (2006). Schools, parents, and youth violence: A multilevel, Ecological Analysis. *Journal of Clinical Child and Adolescent Psychology*. 35(4), 504-514.

Brookover, W., Schweitzer, J., Schneider, J., Beady, C., Flood, P., & Wisenbaker, J. (1978). Elementary School Social Climate and School Achievement. *American Educational Research Journal*, 15(2), 301-318. Retrieved from:  
<http://www.jstor.org.ezproxy.lib.vt.edu/stable/1162468>

Bruggencate, G., Luyten, H., Scheerens, J., & Slegers, P. (2012). Modeling the influence of school leaders on student achievement: How can school leaders make a difference? *Educational Administration Quarterly*, 48(4), 699-732.

Bulach, C. (1994). The Relationship of School Climate to the Implementation of School Reform. *Spectrum (Arlington, VA.)*, 12(4), 3.

Bulach, C., Lunenburg, F. & Potter, L. (2008). *Creating a culture for high-performing schools: A comprehensive approach to school reform and dropout prevention*. Rowman & Littlefield.

Bulach, C, Malone, B., & Castleman, C. (1995). An investigation of variables related to student achievement. *Mid-Western Educational Researcher* 8(2), 23-29.

Center on Education Policy. (2012). *Changing the School Climate is the First Step to Reform in Many Schools with Federal Improvement Grants*. Washington, DC: Author.

Center for Public Education (CPE). (2019). *Class size and student achievement*. Retrieved from: [www.centerforpubliceducation.org/research/class-size-and-student-achievement](http://www.centerforpubliceducation.org/research/class-size-and-student-achievement)

Ciccone, P. A. & Frieberg, J. A. (2013). School Climate and National School Climate Standards. In Dary, T. & Pickeral, T. (ed) (2013). *School Climate Practices for Implementation and Sustainability*. A School Climate Practice Brief, Number 1, New York, NY: National School Climate Center.

Cohen, J. (2006). Social, Emotional, Ethical, and Academic Education: Creating a Climate for Learning, Participation in Democracy, and Well-Being. *Harvard Educational Review*, 76(2), 201-237.

Cohen, J. (2007). Evaluating and improving school climate. *Independent School*, 67(1), 18-26.

Cohen, J. (2009). Transforming School Climate: Educational and Psychoanalytic Perspectives: Introduction. *Schools: Studies in Education*, 6(1), 99-103.

Cohen J. (2013) Creating a positive school climate: A foundation for resilience. In Goldstein S., Brooks R. (Eds.), *Handbook of resilience in children* (pp. 411-423). Springer, Boston, MA

Cohen, J. (2014). School climate policy and practice trends: a paradox. *Teachers College*

*Record*. Retrieved from: <http://www.tcrecord.org>

Cohen, J. & Freiberg, J. (2013). School climate and bullying prevention. In Dary T. &

Brookmeyer, K. A., Fanti, K. A., & Henrich, C. C. (2006). Schools, parents, and youth

violence: A multilevel, ecological analysis. *Journal of Clinical Child & Adolescent*

*Psychology*, 35(4), 504-514.

Cohen, J. & Geier, V. K. (2010). *School climate research summary: January 2010*. New York,

NY. Retrieved from: [www.schoolclimate.org/climate/research.php](http://www.schoolclimate.org/climate/research.php)

Cohen, J., & Hamilton, R. (2009). Caring for the individual student and the community of

learners: Interlocking relationships and comprehensive school climate

improvement. *Schools: Studies in Education*, 6(1), 104-116.

Cohen, J., Kincaid, D., & Childs, K. E. (2007). Measuring school-wide positive behavior

support implementation: Development and validation of the benchmarks of quality.

*Journal of Positive Behavior Interventions*, 9(4), 203-213.

Cohen, J., McCabe, L., Michelli, N. M., & Pickeral, T. (2009). School Climate: Research,

Policy, Practice, and Teacher Education. *Teachers College Record*, 111(1), 180-213.

Cohen, J., Pickeral, T., & McCloskey, M. (2009). Assessing School Climate. *Education Digest:*

*Essential Readings Condensed for Quick Review*, 74(8), 45-48.

Collins, T., & Parson, K. (2010). School climate and student outcomes. *Journal of*

*Cross-Disciplinary Perspectives in Education*, 3(1), 34-39.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M.,

Weinfeld, F. C., & York, R. I. (1966). *Equality of Educational Opportunity Study*.

Washington D.C.: U.S. Government Printing Office.

Coltfelter, C. T., Ladd H. F. & Vigdor, J. L. (2007). *How and why do teacher credentials matter in student achievement?* Retrieved from:

[https://caldercenter.org/sites/default/files/1001058\\_Teacher\\_Credentials.pdf](https://caldercenter.org/sites/default/files/1001058_Teacher_Credentials.pdf)

Considine, G., & Zappala, G. (2002). The influence of social and economic disadvantage in the academic performance of school students in Australia. *Journal of Sociology*, 28(2), 129-148.

Crenshaw, M. D. (2003). The relationship among school size, school climate variables, and achievement ratings in South Carolina high schools: A conceptual model examined

Darling-Hammond, L. (2000). *Teacher quality and student achievement: A review of state policy evidence*. Educational Policy Analysis Archives, Stanford University, 10 (1).

Deal, T., & Peterson, K. (1990). *The principal's role in shaping school culture*. Washington Office of Educational Research and Improvement, U. S. Department of Education.

DeAnglis, K. J., & Presley, J. B. (2011). Teacher Qualifications and School Climate: Examining Their Interrelationship for School Improvement. *Leadership & Policy In Schools*, 10 (1).

Dewey, J., 1859-1952. (1916). *Democracy and education: An introduction to the philosophy of*

*education*. United States:

DeWitt, P., & Slade, S. (2014). *School Climate Change: How Do I Build a Positive Environment for Learning? (ASCD Arias)*. ASCD.

Donnelly, R., A. (2007). *The complete idiot's guide to statistics*. New York, NY: Alpha.

DuFour, R. (2015). *In praise of American educators: And how they can become even better*.  
Bloomington, IN: Solution Tree Press.

Dufour, R. (2016). *PLC at work: ESSA an opportunity for american education*. Bloomington,  
IN: Solution Tree.

DuFour, R. & Eaker, R. E. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Alexandria, VA; Bloomington, IN: National Education Service.

Ed Trust (2016). *What's in the every students succeed act -accountability*. Retrieved  
from: <https://edtrust.org/resource/whats-in-the-every-student-succeeds-act-accountability>

Edmonds, Ronald, R. (1979). Effective schools for the urban poor. *Educational Leadership*, 37  
(1), 15-24.

Ehrhart, M. G., Schneider, B., & Macey, W. H. (2013). *Organizational climate and culture: An introduction to theory, research, and practice*. Retrieved from:  
<http://www.ebilib.com>

Ehrhart, M. G., Schneider, B., & Macey, W. H. (2014). *Organizational climate and*

*culture: An introduction to theory, research, and practice*. New York: Routledge.

Ellis, T. I. (1988). School climate. *Research Roundup*, 4(2) 3-6.

Elmore, R. F. (2004). *School reform from the inside out: Policy, practice and performance*.

Cambridge: Harvard Education Press

Everitt, B. (1974). *Cluster analysis: An SSRC review of current research*. Heinemann

Educational Books Ltd., London.

Everitt, B., Landau, S., Leese, M., & Stahl, D., (2011;2010;). *Cluster analysis* (5th., ed)).

Chichester, West Sussex, U.K: Wiley.

Every student succeeds act (ESSA): Where to learn more. (2017). *Curriculum Review*, 57(2), 9.

Every student succeeds act: Federal elementary and secondary education policy

(2017). *Congressional Digest*, 96(7), 4.

Every student succeeds act: federal elementary and secondary education policy (2017,

September). *Congressional Digest*, 96(7), 4-6. Retrieved from:

[www.congressionalDigest.com](http://www.congressionalDigest.com)

Faster, D. & Lopez, D. (2013). School Climate and Assessment. In Dary, T. & Pickeral, T. (ed)

(2013). *School Climate Practices for Implementation and Sustainability*. A School

Climate Practice Brief, Number 1, New York, NY: National School Climate Center.

Ferguson, M. (2016). ESSA is more than the latest acronym on education's block. *Phi Delta*

*Kappan*, 97(6), 72.

Fink, K., Cohen, J., Slade, S. (2017). *Integrating prosocial learning with educational standards: School climate reform initiatives*. New York, NY: Routledge.

Fink, K., & Slade, S. (Eds.). (2016). *Integrating Prosocial Learning with Education Standards: School Climate Reform Initiatives*. Taylor & Francis. Retrieved from:  
[www.tandfebooks.com.ezproxy.lib.vt.edu](http://www.tandfebooks.com.ezproxy.lib.vt.edu)

Fleishman, E. A. (1953). Leadership climate, human relations training, and supervisory behavior. *Personnel Psychology*, 6(2), 205-222.

Fox, R. S., & Boies, H. E. (1970). *School climate improvement: A challenge to the school administrator*. Bloomington, Ind.: Phi Delta Kappa

Freiberg, H. J. (1998). Measuring school climate: let me count the ways. *Educational Leadership*, 56(1), 22+

Freiberg, H. J. (1999). *School climate: measuring, improving and sustaining healthy learning environments*. Retrieved from: <https://ebookcentral-proquest-com.ezproxy.lib.vt.edu>

Geertz, C. (1973; 2000). *The interpretation of cultures: Selected essays*. New York: Basic Books.

Goddard, R. D., Sweetland, S. R., & Hoy, W. K. (2000). Academic emphasis of urban elementary schools and student achievement in reading and mathematics: A multilevel analysis. *Educational Administration Quarterly*, 36(5), 683-702.



Gouwens, J. A. (2009). *Education in crisis: a reference handbook*. Retrieved from:

<https://ebookcentral.proquest.com>

Green, J., Liem, G. A., Martin, A. J., Colmar, S., Marsh, H. W., & McInerney, D.

(2012). Academic motivation, self-concept, engagement, and performance in high school:

Key processes from a longitudinal perspective. *Journal of Adolescence*, 35(5), 1111.

Greeney, B. S. (2010). *High school size, student achievement, and school climate: A multi-year*

*Study*. Sam Houston State University, Texas.

Gruenert, S. (2008). School culture, school climate: they are not the same thing. *Principal*,

March/April, 56-59. Retrieved from: [www.naesp.org](http://www.naesp.org)

Gruenert, S. and Whitaker, T. (2015). *School culture rewired: How to define, access, and*

*transform it*. Alexandria, VA: ASCD.

Gruenert, S. and Whitaker, T. (2017). *School culture recharged: Strategies to energize your staff*

*and culture*. Alexandria, VA: ASCD.

Guilfoyle, C. (2006). NCLB: Is there life beyond testing. *Educational Leadership*, 64(3), 8.

Hampton, K. B. (2008). *The perceptions of teachers on the relationship between school climate*

*and student achievement* (Order No. 3324001). Available from ProQuest Dissertations &

Theses Global. (304840065). Retrieved from:

<http://login.ezproxy.lib.vt.edu/login?url=http://search.proquest.com.ezproxy.lib.vt.edu/docview/304840065?accountid=14826>

Halpin, A.W., & Croft, D.B. (1962). *The organizational climate of schools*. Chicago: University of Chicago.

Halpin, A. W., & Croft, D. B. (1963). *The organizational climate of schools*. Danville, IL: Interstate Printers and Publishers, Inc.

Halpin, A. W. (1966). *Theory and research in administration*. New York: Macmillan.

Heale, R. & Twycross, A. (2017). Validity and reliability in quantitative research studies.

Retrieved from: <https://ebn.bmj.com/content/ebnurs/18/3/66.full.pdf>

Heffner, C. (2018). Introduction to Research. In All Psych Editor (Ed.), *Research Methods 1.11*,

Retrieved from: <https://allpsych.com/researchmethods/replication>

Heise, M. (1994). Goals 2000: Educate America Act: The federalization and legislation of educational policy. *Fordham L. Rev.*, 63, 345.

Hendron, M., & Kearney, C. A. (2016). School climate and student absenteeism and internalizing and externalizing behavioral problems. *Children & Schools*, 38(2), 109-116.

Hinduja, S., & Patchin, J. (2012). *School climate 2.0*. Thousand Oaks, CA: Sage Publications.

Howard, E., Howell, B., & Brainard, E. (1987). *Handbook for conducting school climate improvement project*. Bloomington, IN: Phi Delta Kappa.

Howell, W. G. (2015). Results of President Obama's Race to the top: Win or lose, states enacted education reforms. *Education Next.*,15(4), 1-11. Retrieved from

<http://educationnext.org/results-president-obama-race-to-the-top-reform>

- Hoy, W. K. (1990). Organizational climate and culture: A conceptual analysis of the school workplace. *Journal of Educational and Psychological Consultation*, 1(2), 149-168.
- Hoy, W. K. (2010). *Quantitative research in education: A primer*. Los Angeles: SAGE.
- Hoy, W. K., & Clover, S. I. R. (1986). Elementary school climate: A revision of the OCDQ. *Educational Administration Quarterly*, 22(1), 93-110.
- Hoy, W. K., & Tarter, C. J. (1992). Measuring the Health of the School Climate: A Conceptual Framework. *NASSP Bulletin*, 76(547), 74-79.
- Hoy, W. K., & Tarter, C. J. (1997). *The road to open and healthy schools: A handbook for change*. Corwin Press.
- Hoy, W. K., & Hannum, J. W. (1997). Middle school climate: An empirical assessment of organizational health and student achievement. *Educational Administration Quarterly*, 33(3), 290-311. doi:10.1177/0013161X97033003003
- Hoy, W. K., Hannum, J., & Tschannen-Moran, M. (1998). Organizational climate and student achievement: A parsimonious and longitudinal view. *Journal of School Leadership*, 8(4), 336-359.
- Hoy, W. K., Kottkamp, R. B., & Mulhern, J. A. (1987). Secondary school climate: A revision of the OCDQ. *Educational Administration Quarterly*, 23(3), 31-48.
- Hoy, W. K., & Miskel, C. G. (2005). *Educational administration: Theory, research, and Practice* (7th ed.). Boston: McGraw-Hill.

Hoy, W.K. & Sabo, D.J. (1998) *Quality middle schools: Open and healthy*. Thousand Oaks, CA: Corwin Press.

Hoy, W. K., Sabo, D. J., Barnes, K. M., Hannum, J. W., & Hoffman, J. D. (1998). *Quality middle schools: Open and healthy*. Thousand Oaks Ca: Corwin Press.

Hoy, W., Smith, P., & Sweetland, S. (2002). The Development of the Organizational Climate Index for High Schools: Its Measure and Relationship to Faculty Trust. *The High School Journal*, 86(2), 38-49. Retrieved from:  
<http://www.jstor.org.ezproxy.lib.vt.edu/stable/40364336>

Hoy, W. K., & Tarter, C. J. (1992). Measuring the Health of the School Climate: A Conceptual Framework. *NASSP Bulletin*, 76(547), 74-79.

Hoy, W. K., & Tarter, C. J. (1997). *The road to open and healthy schools: A handbook for change*. Corwin Press.

Hoy, W. K., Tarter, C. J. & Bliss, J. R. (1990). Organizational Climate, School Health, and Effectiveness: A Comparative Analysis. *Educational Administration Quarterly*, 26(3), 260-279.

Hoy, W.K., Tarter, C.J., & Kottkamp, R.B. (1991). *Open schools, healthy schools, measuring organizational climate*. Newbury Park, CA: Sage Publications.

Hoy, W. K., & Woolfolk, A. E. (1993). Teachers' sense of efficacy and the organizational health of schools. *The Elementary School Journal*, 93(4), 355-372.

Isaac, S., 1925, & Michael, W. B. (1981). *Handbook in research and evaluation: A collection of principles, methods, and strategies useful in the planning, design, and evaluation of studies in education and the behavioral sciences* (2nd ed.). San Diego, Calif: EDITS Publishers.

James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. *Psychological Bulletin*, 81(12), 1096-1112.

Jankens, B. P. (2011). *An evaluation of the relationship between school climate and student growth in select Michigan charter schools*. Available from: ProQuest Dissertations and Thesis database. 355. <http://commons.emich.edu/theses/355>.

James, L., & Jones, A. (1974). organizational climate - a review of theory and research. *Psychological Bulletin*, 81(12), 1096.

Kaczor, J. A. M. (2006). *A study of student achievement and school climate and their respective relationships to middle school size within four poverty strata in South Carolina* (Doctoral dissertation). Retrieved from: Dissertations & Theses: Full Text. (Publication No. AAT 3232516)

Kelley, R. C., Thornton, B., & Daugherty, R. (2005). Relationships between measures of leadership and school climate. *Education*, 126(1), 17+. Retrieved from: <http://ezproxy.lib.vt.edu/login>

Klein, A. (2016a). The every student success act: An ESSA overview. *Education Week*,

Retrieved from:

<http://www.edweek.org/ew/issues/wvery-student-succeeds-act/index.html>

Klein, A. (2016b). Under ESSA, states, districts to share more power. Education Week.

Retrieved from: <https://www.edweek.org/ew/articles/2016/01/06/under-essa-states-districts-to-share-more.html>

Klein, J., Cornell, D., & Konold, T. (2012). Relationships between bullying, school climate, and student risk behaviors. *School Psychology Quarterly*, 27(3), 154.

Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology*, 100(1), 96-104.

Kottkamp, R. B., Mulhern, J. A., & Hoy, W. K. (1987). Secondary school climate: A revision of the OCDQ. *Educational Administration Quarterly*, 23(3), 31-48.

Kundu, K. (2007). Development of the conceptual framework of organizational climate. *Vidyasagar University Journal of Commerce*, 12(1), 99-108.

Kutsyruba, B., Klinger, D. A., & Hussain, A. (2015). Relationships among school climate, school safety, and student achievement and well-being: a review of the literature. *Review of Education*, 3(2), 103-135.

LaRusso, M. D., Romer, D., & Selman, R. L. (2008). Teachers as builders of respectful school climates: Implications for adolescent drug use norms and depressive symptoms in high

school. *Journal of Youth and Adolescence*, 37(4), 386.

Lehman, A., O'Rourke, N., Hatcher, L., & Stepanski, E. J., (2005). *JMP for basic univariate and multivariate statistics: A step-by-step guide*. Cary, NC: SAS Institute Inc

Lehr, C. A. (2004). Positive school climate: Information for educators. Retrieved from:

<https://kellyschloss.wikispaces.com/file/view/Positive+School+Climate,+Information+for+Educators.pdf>

Lewin, K., Lippitt, R., & White, R. K. (1939). Patterns of aggressive behavior in experimentally created social climates. *Journal of Social Psychology*, 10(2), 271.

Lezotte, L. W. (2011). Effective schools: past, present, and future. *Journal for Effective Schools*, 10(1), 3+. Retrieved from:

<http://ezproxy.lib.vt.edu/login?url=http://go.galegroup.com.ezproxy.lib.vt.edu/ps/i.do?>

Litwin, G. H., & Stringer, R. A. (1968). *Motivation and organizational climate*. Boston: Division of Research, Graduate School of Business Administration, Harvard University.

Longren, T. (2019). Provisional teacher certification. Retrieved from:

<https://www.theclassroom.com/provisional-teacher-certification-10366.html>

Loukas, A., Suzuki, R., & Horton, K. D. (2006). Examining school connectedness as a mediator of school climate effects. *Journal of Research on Adolescence*, 16(3), 491-502.

Luyten, H., Hendriks, M., Scheerens, J., & SpringerLink (Online service). (2014). *School size effects revisited: A qualitative and quantitative review of the research evidence in primary and secondary education* (1;2014; ed.). Cham: Springer International Publishing.

MacNeil, A. J., Prater, D. L., & Busch, S. (2009). The effects of school culture and climate on student achievement. *International Journal of Leadership in Education*, 12(1), 73-84.

Mathis, W.J. & Trujillo, T.M. (2016). *Lessons from NCLB for the every student succeeds act*. Boulder, CO: National Education Policy Center. Retrieved November 3, 2017 from <http://nepc.colorado.edu/publication/lessons-from-NCLB>

Marshall, M. L. (2004). *Examining school climate: Defining factors and educational influences* [white paper, electronic version]. Retrieved from Georgia State University Center for School Safety, School Climate and Classroom Management website: <http://education.gsu.edu/schoolsafety>

Maxwell, L. E. (2016). School building condition, social climate, student attendance and academic achievement: A mediation model. *Journal of Environmental Psychology*, 46, 206-216.

Maxwell, T. W., & Ross T. A. (1991). School climate and school culture. *Journal of Educational Administration*, 29(2).

Maslow, A. (1943). A theory of human motivation. *Psychological Review*, 370-396.

McCluskey, P.C., Bynum, T.S. & Patchin, J.W. (2004). Reducing chronic absenteeism: an assessment of an early truancy initiative. *Crime & Delinquency*, 50(2), 214-234.

McMillan, J. H., & Wergin, J. F. (1998). *Understanding and evaluating educational research*. Upper Saddle River, N.J: Merrill.



Miles, M. B. (1969). Planned change and organizational health: Figured and ground. In F. D. Carver & T. J. Sergiovanni (Eds), *Organizations and human behavior* (pp. 375-391). New York, NY: McGraw Hill.

Moos, R.H. & Insel, P.M. (Eds.). (1974). *Systems for assessment and classification of human environment: an overview*. Palo Alto, California: National Press Books.

Moos, R. H. (1974). *Systems for the assessment and classification of human environments: an overview*. Palo Alto, CA: National Press Books.

National Center for Education Statistics (2015). *Indicators of school crime and safety: 2014*.

United States Department of Education. Washington: DC. Retrieved from:  
<http://nces.ed.gov>

National Center on Education and the Economy (U.S.). New Commission on the Skills of the American Workforce. (2007). *Tough choices or tough times: The report of the new commission on the skills of the american workforce* (1st ed.). San Francisco: John Wiley & Sons.

The National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform*. A report to the nation and the secretary of education. Washington, DC: United States Department of Education.

National School Climate Council (NSCC) (2007). *The School Climate Challenge: Narrowing the gap between school climate research and school climate policy, practice guidelines and*

*teacher education policy*. Retrieved from:

<http://www.schoolclimate.org/climate/documents/policy/>

The National School Climate Center (2009). *National school climate standards: Benchmarks to promote effective teaching, learning and comprehensive school improvement*. New York, NY. Retrieved from: [www.schoolclimate.org](http://www.schoolclimate.org)

National School Climate Council (NSCC) (2016). School Climate Council. Retrieved on  
From: <http://www.schoolclimate.org/about/council.php>

National School Climate Council (2009). School Climate. Retrieved from:  
<http://www.schoolclimate.org/climate>

National School Climate Council (2016). Guidelines and Resources. Retrieved from:  
<http://www.schoolclimate.org/guidelines/>

Newman, M., Garrett, Z., Elbourne, D., Bradley, S., Noden, P., Taylor, J., & West, A. (2006).  
Does secondary school size make a difference? A systematic review. *Educational Research Review*, 1(1), 41.

New York State Office of Education Performance Review (1974). *School factors influencing reading achievement*. New York: New York.

Norton, M. S. (1984). What's so important about school climate? *Contemporary Education*, 56(1), 43.

O'Brian, D., & Scott, P. (2012). Correlation and Regression. Retrieved from:

<https://arrow.dit.ie/cgi/viewcontent.cgi?article=1006&context=buschmanbk>

Olweus, D., 1931. (1993). *Bullying at school: What we know and what we can do*. Cambridge, USA;Oxford, UK: Blackwell.

O'Malley, M., Voight, A., Renshaw, T.L., & Eklund, K. (2015). School climate, family structure, and academic achievement: A study of moderation effects. *School Psychology Quarterly*, 30(1), 142-157. Doi: 10.1037/spq0000076.

Perrigan, K. (2010). *Is school size important? A study of the relationship between school size and advanced achievement in public secondary schools in Virginia*. Order No. DP20043, Virginia Polytechnic Institute and State University, Ann Arbor, 2010.

Perry, A. (1908). *The management of a city school*. New York, NY: Macmillan.

Peterson, R. & Skiba, R. (2001). Creating school climates that prevent school violence. *The Social Studies*, 92(4), 167-175.

Peterson, R., & Skiba, R. (2001). Creating School Climates That Prevent School Violence. *The Clearing House*, 74(3), 155-163.

Phillips, J. H. (2010). *The relationship between elementary school climate and student achievement in a school division in the commonwealth of virginia*. (Unpublished doctoral dissertation), Virginia Polytechnic Institute and State University, Blacksburg, VA.

Pickeral, T., (2013). *School Climate Practice for Implementation and Sustainability*.

*A School Climate Practice Brief, Number 1*, New York, NY: National School Climate Center.

Pickeral, T., Evans, L., Hughes, W. & Hutchison, D. (2009). *School Climate Guide for District Policymakers and Educational Leaders*. New York, NY: Center for Social and Emotional Education. Retrieved from: [www.schoolclimate.org](http://www.schoolclimate.org)

Piscatelli, J. & Lee, C. (2011). *State Policies on School Climate and Bully Prevention Efforts: Challenges and Opportunities for Deepening State Policy Support for Safe Schools and Civil Schools*. National School Climate Center (July 2011). Retrieved from <http://schoolclimate.org/climate/policy.php>

Plotts, T. (2011). *A Multiple Regression Analysis of Factors Concerning Superintendent Longevity and Continuity Relative to Student Achievement*. Seton Hall University Dissertations and Theses (ETDs).

Punch, K. (1998). *Introduction to social research: Quantitative and qualitative approaches*. Thousand Oaks, CA; London;: SAGE Publications.

Schneider, B. (1990). *Organizational climate and culture* (1st ed.). San Francisco: Jossey-Bass.

Senge, P., Cambron-McCabe, N., Lucas, T., Smith, B., Dutton, J., & Kleiner, A. (2012). *Schools that learn. A fifth discipline field book for educators, parents, and everyone who cares about education*. New York, NY: Crown Publishing Group.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of

research. *Review of Educational Research*, 75, 417–453.

Shindler, J., Jones, A., Williams, A. D., Taylor, C., & Cadenas, H. (2009). *Exploring the school climate--student achievement connection: And making sense of why the first precedes the second*. Los Angeles: Alliance for the Study of School Climate, California State University.

Smith, J. J. (2005). *The relationship between school division climate and student achievement of school divisions in the Commonwealth of Virginia* (Unpublished doctoral dissertation), Virginia Polytechnic Institute and State University, Blacksburg, VA.

Spence, A.C. (2003) *A study of climate and achievement in elementary schools*. Dissertation Abstract International. (UMI No. 3091129).

Stolp, S., & Smith, S. (1995). *Transforming school culture: Stories, symbols, values, and the leader's role*. Eugene, OR: Clearinghouse on education management.

Stringer, R. A. (2002). *Leadership and organizational climate: The cloud chamber effect*. Upper Saddle River, N.J: Prentice Hall.

Sugai, G., & Horner, R. (2001). School climate and discipline: Going to scale. *The National Summit on the Shared Implementation of IDEA*, Washington, DC.

Sugai, G., La Salle, T., Freeman, J., Simonsen, B., & Chafouleas, S. (2016). *Technical brief school climate: Academic achievement and social behavior competence*. Center for Positive Behavioral Interventions and Supports, Center for Behavioral Education and

Research, University of Connecticut. Retrieved

from:[https://www.cga.ct.gov/ed/tfs/20160829\\_School%20Climate%20Task%20Force/201609](https://www.cga.ct.gov/ed/tfs/20160829_School%20Climate%20Task%20Force/201609)

<15/School%20Climate%20Technical%20Brief%202022%20Oct%20PBIS.org%20post.pdf>

Sun, Y. (2016). *A multilevel analysis of student engagement, teacher quality, and math achievement*. Retrieved April 25, 2019 from:

[https://vtechworks.lib.vt.edu/bitstream/handle/10919/82721/Sun\\_Y\\_D\\_2016.pdf?sequence=1&isAllowed=y](https://vtechworks.lib.vt.edu/bitstream/handle/10919/82721/Sun_Y_D_2016.pdf?sequence=1&isAllowed=y)

Tagiuri, R. & Litwin, G.H. (1968). *Organizational climate: Exploration of a concept*. Division of Research Graduate School of Business Administration. Harvard University: Boston, Massachusetts.

Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83(3), 357-385.

Thapa, A., Cohen, J., Higgins-D'Alessandro, A., & Guffey, S. (2012). *School Climate Research Summary*. A School Climate Brief, Number 3, New York, NY: National School Climate Center.

Thomas, A. R. (1976). The Organizational Climate of Schools. *International Review Of Education*, 22(4), 441-63.

U. S. Department of Education. (1983). *A Nation at Risk*. Retrieved from:

<http://www.ed.gov/pubs/NatAtRisk/risk.html>.

U.S. Department of Education. (2001). No child left behind act of 2001. Washington, DC:

Author. Retrieved from: [www.ed.gov/nclb/](http://www.ed.gov/nclb/)

U.S. Department of Education. (2002). School climate and discipline: student victimization

Washington, DC: U.S. Department of Education, p94. Retrieved from:

<http://link.galegroup.com.ezproxy.lib.vt.edu>

U.S. Department of Education (2007). The federal role in education. Retrieved from:

<https://www2.ed.gov/about/overview/fed/role.html>

U. S. Department of Education. (2015). Every student succeeds act (ESSA). Retrieved on

From: <http://www.ed.gov/esea>

U.S. Department of Education (2016). Prevalence of teachers without full state certification and variation across schools and states. Retrieved from:

<http://www.ed.gov/offices/oepdp/ppss/reports.html#tq>.

U.S. Department of Education (USDOE), Office of Safe and Healthy Students, (2016). *Quick guide on making school climate improvements*. Washington, DC. Retrieved

from:[https://safesupportivelearning.ed.gov/sites/default/files/NCSSLE\\_SCIRP\\_QuickGuide508.pdf](https://safesupportivelearning.ed.gov/sites/default/files/NCSSLE_SCIRP_QuickGuide508.pdf)

U.S. Department of Education. (2017, February 20). Elementary and Secondary Education Act.

U.S. Department of Education. Retrieved from: <http://www.ed.gov/esea>

United States. National Commission on Excellence in Education, & United States. National

Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform: A report to the nation and the secretary of education, united states department of education*. Washington, D.C: The Commission.

Virginia Department of Education (VDOE) (2018a). *School Quality Profiles*. Retrieved from:

[http://www.doe.virginia.gov/statistics\\_reports/school-quality-profile/index.shtml](http://www.doe.virginia.gov/statistics_reports/school-quality-profile/index.shtml)

Virginia Department of Education (2018b). *Accountability*. Retrieved from:

[http://www.doe.virginia.gov/statistics\\_reports/accreditation\\_federal\\_reports/federal\\_accountability/index.shtml](http://www.doe.virginia.gov/statistics_reports/accreditation_federal_reports/federal_accountability/index.shtml)

Virginia Department of Education (2018c). *Discipline, crime, and violence annual report*.

Retrieved from: [www.doe.virginia.gov/statistics\\_reports/school.../2016-2017.docx](http://www.doe.virginia.gov/statistics_reports/school.../2016-2017.docx)

Virginia Department of Education (2018d). *February 2017 tips*. Retrieved from:

[http://www.doe.virginia.gov/info\\_management/data\\_collection/student\\_record\\_collection/tip-of-the-week/2017/02-feb.shtml](http://www.doe.virginia.gov/info_management/data_collection/student_record_collection/tip-of-the-week/2017/02-feb.shtml)

Virginia Department of Education (2018e). *Unsafe school choice option*. Retrieved from:

[http://www.doe.virginia.gov/administrators/superintendents\\_memos/2003/inf065.html](http://www.doe.virginia.gov/administrators/superintendents_memos/2003/inf065.html)

Virginia Department of Education (2018f). *2018-2019 Student Record Collection*.

Retrieved from: [http://www.doe.virginia.gov/administrators/superintendents\\_memos/2018/196-18.shtml](http://www.doe.virginia.gov/administrators/superintendents_memos/2018/196-18.shtml)

Virginia Department of Education (VDOE) (2017a). *Comprehensive user guide for discipline, crime, and violence (DCV) data collection and submission*. Retrieved



from: [http://www.doe.virginia.gov/info\\_management/data\\_collection/support/school\\_safety/discipline\\_crime\\_violence/dcv\\_user\\_guide.pdf](http://www.doe.virginia.gov/info_management/data_collection/support/school_safety/discipline_crime_violence/dcv_user_guide.pdf)

Virginia Department of Education (2017b). *Preliminary report from the advisory committee on teacher shortages*. Retrieved from:

<https://www.education.virginia.gov/media/governorvirginiagov/secretary-of-education/pdf/final-acts-report.pdf>

Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need--and what we can do about it*. New York: Basic Books.

Wang, C., Berry, B., & Swearer, M. (2013). The Critical Role of School Climate in Effective Bullying Prevention. *Theory Into Practice*, 52(4), 296–302.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a knowledge base for school learning. *Review of Educational Research*, 63(3), 249-294.

Wang, M. T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review*, 28(2), 315-352.

Warren, A. F. (2007). *The relationship between reported incidents of student discipline and student achievement across four eastern states*.

Weber, G. (1971). *Inner-city children can be taught to read: four successful schools*. Washington, D.C.: Council for Basic Education.

Webster's Ninth New Collegiate Dictionary (1984). Springfield, Ma: Merriam-Webster.

Weinfeld, F. C., & York, R. I. (1966). *Equality of Educational Opportunity Study*.

Washington D.C.: U.S. Government Printing Office.

White, K. R. (1982). The relation between socioeconomic status and academic achievement.

*Psychological bulletin*, 91(3), 461.

White, S. M. T. (2005). *The relationship of school size and school climate in public elementary*

*schools in south carolina* (Order No. 3173203).

Whitehurst, G. J., & Chingos, M. M. (2011). *Class size: what research says and what it means*

*for state policy*. Retrieved from: [https://www.brookings.edu/wp-](https://www.brookings.edu/wp-content/uploads/2016/06/0511_class_size_whitehurst_chingos.pdf)

[content/uploads/2016/06/0511\\_class\\_size\\_whitehurst\\_chingos.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/0511_class_size_whitehurst_chingos.pdf)

Williams, B. (1996). *Closing the achievement gap: A vision for changing beliefs and practices*.

Alexandria, VA: Association for Supervision and Curriculum Development.

Williams, C. (2007). Research methods. *Journal of business & economic research*, 5(3), 65-72.

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions

epistemological, theoretical, and methodological differences. *European journal of*

*education*. 48(2), 311-325. Retrieved from: <https://doi->

[org.ezproxy.lib.vt.edu/10.1111/ejed.12014](https://doi-org.ezproxy.lib.vt.edu/10.1111/ejed.12014)

Zakrzewski, V. (2013). *How to create a positive school climate*. *Greater Good Magazine*,

Retrieved from:

[http://greatergood.berkeley.edu/article/item/how\\_to\\_create\\_a\\_positive\\_school\\_climate](http://greatergood.berkeley.edu/article/item/how_to_create_a_positive_school_climate)

Zullig, K. J., Huebner, E. S., & Patton, J. M. (2011). Relationships among School Climate Domains and School Satisfaction. *Psychology In The Schools, 48*(2), 133-145.

Zullig, K. J., Koopman, T. M., Patton, J. M., & Ubbes, V. A. (2010). School Climate: Historical Review, Instrument Development, and School Assessment. *Journal of Psychoeducational Assessment, 28*(2), 139-152.

Zumwalt, K. & Craig, E. (2005). *Teachers' characteristics: Research on the demographic profile. In M. Cochran-Smith & K. Zeichner (Eds.), Studying teacher education* (pp. 111-156). Mahwah, NJ: Erlbaum.