

The Relationship Between School Climate and Student Achievement at the
Elementary School Level

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ABSTRACT

In the past decade, teachers and researchers have gradually recognized the vital role school climate plays in the public-school setting (Thaps, Cohen, Guffey, & Higgins-D'Alessandro, 2013). One of the greatest indicators of achievement is the relationship between school and student socioeconomic status (Sirin, 2005). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level than what their socioeconomic background would otherwise predict. The purpose of this quantitative study was to identify the relationship between school climate and academic achievement at the elementary school level. The researcher examined extant data from the 2018-2019 school year, which included Grade 5 Mathematics and Reading Standards of Learning (SOL) pass rate and school climate surveys from two school districts in the Commonwealth of Virginia. The first, referred to as the Central VA Division, had 46 elementary schools. The second, referred to as the Northern VA Division, had 51 elementary schools. The findings indicated that the relationship school climate dimension had the strongest correlation to the Reading and Mathematics SOL pass rates in both school districts. School leaders and building-level principals could use these findings to better understand the importance of school climate and make it a priority; this, in turn, could affect student achievement throughout the school and the community.

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GENERAL AUDIENCE ABSTRACT

In the past decade, teachers and researchers have gradually recognized the vital role school climate plays in the public-school setting (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). One of the greatest indicators of achievement is the relationship between school and student socioeconomic status (Sirin, 2005). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level than what their socioeconomic background would otherwise predict. The purpose of this quantitative study was to examine whether there was a relationship between school climate and academic achievement at the elementary school level. The researcher used the Pearson Correlation Coefficient to examine extant data from the 2018-19 school year, including Grade 5 Mathematics and Reading Standards of Learning (SOL) pass rates and school climate surveys from two districts in the Commonwealth of Virginia. The first, referred to in this study as the Central VA Division, had 46 elementary schools. The second, referred to as the Northern VA Division, had 51 elementary schools. The relationship school climate dimension had the strongest correlation to the Reading and Mathematics SOL pass rates in both school districts. School leaders and building-level principals could use these findings to better understand the importance of school climate and make it a priority; this, in turn, could affect student achievement throughout the school and the community.

Dedication

I dedicate this dissertation to my grandmother, Clyrine Belgrave, and father, Desmond Robinson. They have taught me to always work hard and to never give up. They both gave me the strength and wisdom to do whatever my heart desired.

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CHAPTER 1

INTRODUCTION

In the past decade, teachers and researchers have gradually recognized the vital role school climate plays in the public-school setting (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). School climate can improve student attainment and decrease dropout rates and problem behavior (M. T. Wang & Degol, 2015). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level compared to what their socioeconomic background might otherwise predict. How well a student performs in school is a strong predictor of their future education, occupation, and salary potential (United States Department of Labor, 2017).

President Obama signed the Every Student Succeeds Act (ESSA) on December 10, 2015. This act reauthorized the Elementary and Secondary Education Act (ESEA), which was passed by President Lyndon Johnson in 1965 as part of his War on Poverty campaign (Zinskie & Rea, 2016). ESSA offers support and resources to schools that are in danger of academic loss due to environmental factors such as poverty (Zinskie & Rea, 2016). According to Chenoweth (2016), one of the main principles of ESSA is that school personnel must imagine that “all students can succeed” (p. 1).

ESSA goes beyond traditional assessment methods by requiring school districts to use at least one nonacademic measure in their accountability methods for documenting overall student achievement and school quality (Blad, 2016). Schools must have the ability to analyze the data connected to the measures to show whether there is any effect on various subgroups, such as English language learners (ELLs; Blad, 2016). ESSA provides examples of feasible measures states can examine, including school climate and safety and student engagement (Blad, 2016). According to M. T. Wang and Degol (2015), positive school climates can improve student attainment and decrease dropout rates and problem behavior. ESSA highlights the correlation between student achievement and school climate. With this new initiative requires schools to create environments conducive to learning (National Association of School Psychologists, 2016).

Statement of the Problem

School climate affects student discipline, school attendance, and teachers' sense of job fulfillment (National Association of School Psychologists, 2016). Previous researchers have studied secondary school climate and student achievement, but few have focused on climate at the elementary school level. Since elementary school is the foundation of a child's education, there is a need for more research on elementary school climate and its effects on student achievement.

Assessing school climate can bring awareness to key school traditions that are frequently overlooked, which could help advance school culture by refining teaching procedures and schoolwide tactics for supporting students academically, socially, and emotionally (Kostyo, Cardichon, & Darling-Hammond, 2018). Additional research in this area could provide educators with better insight into practices that might have a lasting effect on school communities, such as Positive Behavioral Interventions and Supports (PBIS). Implementing PBIS with fidelity has been shown to improve disciplinary focus and increase staff-student connections (Bradshaw, Waasdorp, & Leaf, 2015; Flannery, Fenning, Kato, & McIntosh, 2014). Additionally, analyzing the data might help practitioners create strategies for underrepresented students (Kostyo et al., 2018).

Purpose Statement

The purpose of this quantitative study was to identify the relationship between school climate and academic achievement at the elementary school level. The researcher examined extant data from the 2018-2019 school year from one Northern VA and one Central VA school district, which included Grade 5 Mathematics and Reading Standards of Learning (SOL) pass rates and school climate surveys.

Research Questions

The following research questions guided this study to determine whether there was a correlation between school climate and academic achievement at the elementary school level.

1. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?

2. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Mathematics SOL pass rate?

Overview of the Methodology

For this study, the researcher analyzed extant data from the 2018-19 school year from elementary schools in two districts in the Commonwealth of Virginia. The first school district, referred to in this study as the Central VA district, has 46 elementary schools. The second, referred to as the Northern VA district, has 51 elementary schools. The Virginia Department of Education (VDOE) mandates that schools in Virginia administer the Virginia School Climate Survey in Grades 4 and 5 as well as Grades 9–12; this is done through a partnership with the University of Virginia and Virginia Department of Criminal Justice Services.

For the data collection section, the researcher followed two steps in collecting data from the 97 elementary schools. The first step was using the VDOE website to review each school's School Quality Profile Report, which showed its accreditation and assessments. According to VDOE (2020), the SOL is a group of assessments public schools in the state of Virginia must administer to their students in Grades 3–12. The SOL assessments determine baseline expectations for skills and knowledge students should know and will acquire at the conclusion of each grade in Mathematics, Science, English, and History (VDOE, 2020). Students are assessed on content that should have been reviewed by their classroom teacher throughout the academic school year. SOL results ultimately affect a school's yearly accreditation status (VDOE, 2020). Public Schools, 2019). After reviewing each school's SOL results, the researcher reviewed their School Climate Survey results. The two school districts administered different School Climate surveys to their communities, but the surveys shared similar underlying concepts and themes.

Conceptual Framework

According to the National School Climate (2007), school climate consists of four essential dimensions: *interpersonal relationships*, *safety*, *teaching and learning*, and *institutional environment*. The researcher believes these four dimensions have a correlation, positive or negative, on student achievement which in this study is pass rate in Grade 5 Mathematics and

Reading Standards of Learning pass rates shown in Figure 1. Figure 1 shows the conceptual framework for this study.

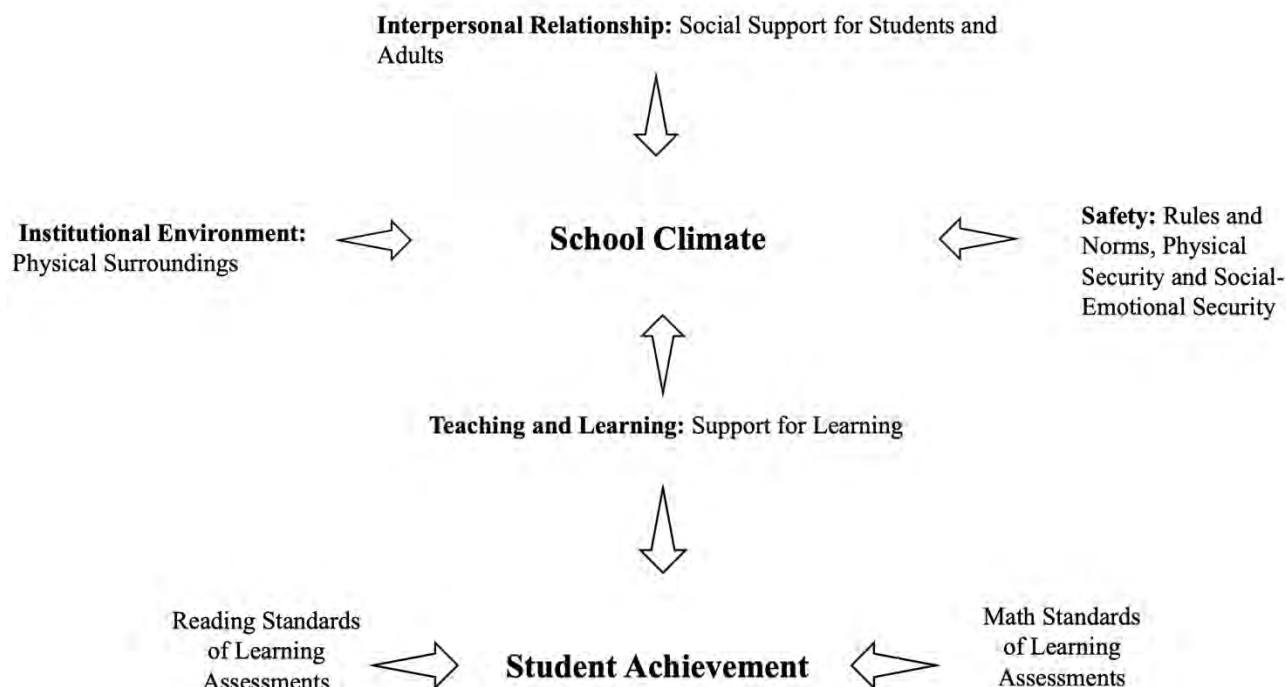


Figure 1. Conceptual framework.

The Interpersonal Relationships dimension which is defined as social support for students and adults helps to form school climate. The Safety dimension, which is defined as rules and norms, physical security and social-emotional security helps to form school climate. The Teaching and Learning dimension which is defined as support for learning helps to form school climate. The Institutional Environment dimension which is defined as physical surroundings helps to form school climate. These four school climate dimensions affect student achievement which is being measured by Reading and mathematics pass rates.

Definition of Terms

Achievement gap: “The difference between the performance of subgroups of students, especially those defined by gender, race/ethnicity, disability, and socioeconomic status” (VDOE, n.d.).

Climate: Climate is “based on patterns of people’s experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures” (National School Climate Center, 2007, para. 3).

Culture: School culture shows itself through people and group behavior, and this is how beliefs, ideas, and values are deduced (T. Maxwell & Thomas, 1991).

Curriculum: “A plan or document that a school or school [district] uses to define what will be taught and the methods that will be used to educate and assess students” (VDOE, n.d.).

Elementary and Secondary Education Act (ESEA/No Child Left Behind Act (NCLB): ESEA presented federal funding to states to refine the quality of elementary, middle, and high school education (Brenchley, 2015). Additionally, ESEA presented grants to high needs school districts and opened new educational centers specifically for special education services (Brenchley, 2015). NCLB was passed in 2001 and was an updated version of ESEA (Brenchley, 2015).

Every Student Succeeds Act (ESSA): “replaced NCLB in 2015 and provides states with more flexibility in designing student assessment and school accountability programs” (VDOE, n.d.).

Institutional environment: Institutional environment can be classified into two components: physical design and surroundings and school engagement/connectedness (Thapa et al., 2013). Physical design and surroundings include order, cleanliness, and the ready availability of supplies and resources (Cohen, Pickeral, & McCloskey, 2008). School engagement/connectedness is a positive association with the school and the feeling of belonging for students and parents when partaking in school activities (Cohen et al., 2008).

Interpersonal relationships: The structure of goals, norms, values, and connections helps form relationships in schools (Thapa et al., 2013).

Organizational climate: The internal qualities that differentiate schools from each other and affect the behavior of staff (Hoy, 1990).

Organizational Climate Description Questionnaire: Comprehensive survey to recognize key characteristics of teacher-principal and teacher-teacher connections in the school environment (Hoy, 1990).

Organizational Health Index: That a healthy organization “not only survives in its environment, but continues to cope adequately over the long haul, and continuously develops and expands its coping abilities” (Miles, 1969, p. 17).

Safety: Rules and norms, physical security, and social-emotional security (Spittler, 2017).

School: “A publicly funded institution where students are enrolled for all or a majority of the instructional day; those students are reported in fall membership at the institution. The institution, at minimum, meets requirements adopted by the Board of Education” (VDOE, n.d.).

Standards of Learning (SOL): “The Virginia SOLs establish minimum expectations for what students should know and be able to do at the end of each grade or course in English, Mathematics, science, history/social science, and other subjects” (VDOE, n.d.).

Student achievement: This is the measurement of academic content a student learns in a given time frame (Student achievement, n.d.). For this study, student achievement is being measured by fifth grade Standards of Learning Reading and Mathematics pass rates.

Teaching and learning: There are two subcategories in teaching and learning: support for learning and social and civic learning. Support for learning is the idea that teachers feel supported in terms of teaching delivery, helpful feedback, and chances to display their skillset in a range of ways (Cohen et al., 2008). Social and civic learning is the encouragement to develop skills and knowledge, such as conflict resolution, ethical decision making, and effective listening (Cohen et al., 2008).

Limitations and Delimitations

Limitations

The greatest limitation to the study was the limited data available about school climate at the elementary level. Although school climate surveys are required at the secondary level, the Virginia Department of Criminal Justice Services does not require them at the elementary level. Because not all school districts choose to survey at the elementary level, data sets are only available from a few districts. Other limitations include the accuracy of the climate surveys and the reliability of the SOL data.

Delimitations

Previous research has been conducted on school climate at the secondary level, but few researchers have examined the elementary school level. The researcher focused on elementary school climate and the relationship it had with student achievement in Grade 5 at two school districts that administer elementary-school climate surveys. Studies were limited to the climate surveys and achievement measured by fifth grade Standards of Learning Reading and Mathematics pass rates.

Organization of the Study

This document is organized into five chapters. Chapter 1 presents a review of the background, statement of the problem, purpose of the study, research questions, overview of the study, conceptual framework, definition of terms, limitations and delimitations, and an outline of the organization of the study. Chapter 2 provides a review of related literature. Chapter 3 describes the purpose of the study, research questions, research design, needed data, sample selection, data collection procedures, data gathering procedures, instrument design, instrument validation, data treatment, data management, data analysis techniques, and the timeline that the study followed. Chapter 4 is an overview of the data, analyses, and discussion. Chapter 5 concludes with major findings, implications of the findings, a discussion of the results, and suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

For over 50 years, there has been conversation among teachers, policymakers, and scholars concerning the correlation of socioeconomic status, social injustice, and student achievement (Alexander, Entwisle, & Olson, 2001). In the past decade, teachers and researchers have gradually recognized the vital role school climate plays in the public-school setting (Thapa et al., 2013). One of the greatest indicators of achievement is the relationship between school and student socioeconomic status (Sirin, 2005). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level than their socioeconomic background might otherwise predict. How well a student performs in school is a strong forecast of their future in terms of education, occupation, and salary potential (United States Department of Labor, 2017).

Educational Reform Movement

Educational reform for systemic change has been an interest of politicians, practitioners, policymakers, and professors for over 50 years (Bjork, Browne-Ferrigno, & Kowalski, 2014). In 1965, President Lyndon B. Johnson signed the Elementary and Secondary Education Act (ESEA), the first law of its kind (Brenchley, 2015). According to Brenchley (2015) “The law represented a major new commitment by the federal government to ‘quality and equality’ in educating our young people” (p. 1). The goal of ESEA was to supply supplementary resources for students with low socioeconomic status; it allocated federal funding to states to refine the quality of elementary, middle, and high school education (Brenchley, 2015). Additionally, ESEA presented grants to high needs school districts and opened new educational centers specifically for special education services (Brenchley, 2015).

According to the American Institutes for Research (2015), “Before 1975, only one in five children with disabilities attended public school” (p. 1). The Education for All Handicapped Children Act, signed by President Gerald Ford in 1975, required that all students with disabilities in the United States receive a free and suitable education (University of Kansas, n.d.). As time went on, additional efforts to support education for all students were put in place.

In 2002, President George W. Bush signed the No Child Left Behind Act (NCLB), which provided new ways to reveal achievement gaps (Brenchley, 2015). NCLB has played a vital part

in safeguarding the civil rights of students from low socioeconomic backgrounds. This law has improved the achievement gap for many; however, it had noteworthy defects. NCLB fixated on supreme scores but did not acknowledge schools that made any type of growth and provided a universal series of strategies for schools that did not achieve their state established goals (Brenchley, 2015).

The NCLB included numerous elements about how crucial supportive school environments are and the significance of social emotional learning, but it only demanded school districts to measure physical violence and mathematics, reading, and science achievement (Cohen et al., 2008). NCLB was supposed to be revised in 2007, but in 2012, the Obama Administration allowed school districts to request modification of oppressively burdensome requirements; states had to provide evidence that they had implemented measures that would help struggling schools close the achievement gap (Brenchley, 2015; US Dept of Education, n.d.). At that time, NCLB was becoming outdated, and the requirements needed to be revised to reflect the current standards.

President Obama signed the Every Student Succeeds Act (ESSA) in December 2015, reauthorizing ESEA, which was 50 years old at the time of the signing (US Dept of Education ESSA, n.d.). The new law had requirements that aimed to promote the achievement of students, teachers, and schools (US Dept of Education ESSA, n.d.). The USDOE (n.d.) stated that for the first time, all students across the United States had to be instructed at higher educational standards that would make them ready for a career or postsecondary education. According to Blad (2016), the law goes beyond traditional assessment methods by requiring school districts to use at least one nonacademic measure in their accountability methods in following overall student achievement and school quality. Schools must analyze the data connected to the measures to show whether there are any effects on various subgroups, such as English language learners (Blad, 2016). ESSA provides examples of feasible measures that states can examine, including school climate and safety, student engagement, and staff engagement (Blad, 2016).

According to DuFour and Eaker (1998), reform attempts over the last several decades have been unsuccessful in increasing student academic achievement, because they failed to effectively tackle the importance of school climate and culture. Assessing school climate can bring awareness to key school traditions that are frequently overlooked and help advance school culture by refining teaching procedures and schoolwide tactics for supporting students

academically, socially, and emotionally (Kostyo et al., 2018). Additionally, analyzing the data might help practitioners create strategies to better support underrepresented students (Kostyo et al., 2018).

School Climate Versus School Culture

Since the early 1950s, school climate and school culture have shared common characteristics, and there is no standard definition for either construct. School climate and culture refer to the setting that affects the performance of students and teachers (Kartal & Bilgin, 2009). School climate is often associated with behavior, while school culture refers to schools' norms and values (Hoy, 1990). M. C. Wang, Haertel, and Walberg (1990) concluded that school climate and school culture have a major impact on increasing student academic achievement. Payne (2018) stated that the educational system needs a unified definition for school climate that centers around schools' standards and includes goals and community input. Teachers and students are attracted to a school based on its climate, which in turn creates a love and bond to the school (Freiberg & Stein, 1999). Teachers who view school in a positive light have been shown to have higher scores in the classroom (Allen, Grigsby, & Peters, 2015).

Researchers define school climate in many different ways, and it lacks an established definition (Johnson & Stevens, 2006). Berkowitz, Moore, Astor, and Benbenishty (2017) stated that school climate and its relationship to school achievement is vital to recognize, so the varying definitions must be considered in trying to understand the connection. The National School Climate Center (2007) defines school climate as being "based on patterns of people's experiences of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures" (para. 3).

Halpin and Croft (1963) wrote that school climate is the temperament of the building, which shapes the behavior and mindset of the students. The National Center on Safe Supportive Learning Environment (n.d.) characterized school climate as being the result of a school's attentiveness to boosting and sustaining thoughtful, trusting, and respectful relationships and promoting safety, producing a supportive educational, structure, and physical environment. According to Clarke, Hall, Jefferson, and Roberts (1993),

the "culture" of a group or class is the peculiar and distinctive "way of life" of the group or class, the meanings, values, and ideas embodied in institutions, in social relations, in

systems of beliefs, in mores and customs. Culture is the distinctive shapes in which this material and social organization of life expresses itself. (p. 4)

T. Maxwell and Thomas (1991) stated that Clarke et al.'s (1993) definition of school culture shows itself in the unusual and unique ways that several groups of the school live between while they are at school or in events connected to the school. School culture shows itself through people and group behavior, which is how beliefs, ideas, and values are deduced (T. Maxwell & Thomas, 1991). According to T. Maxwell and Thomas (1991), school culture offers the foundation for the discovery of meaning for members in an organization.

School Climate Dimensions

According to the National School Climate Center (2007), there are four essential dimensions with 13 elements that form school climate, as shown in Figure 2: *interpersonal relationships*, *safety*, *teaching and learning*, and *institutional environment*. The 13 elements are rules and norms, sense of physical security, sense of social-emotional security, support for learning, social and civic learning, respect for diversity, adults social support, student social support, school connectedness, physical surroundings, social media, leadership, and professional relationships (National School Climate Center, 2013).

Figure 2 presents the four essential school climate dimensions.



Figure 2. Four essential dimensions of school climate. From National Association of Secondary School Principals, 2017, *The Multidimensional Impact of School Climate*. Retrieved from <http://blog.nassp.org/2017/04/05/the-multidimensional-impact-of-school-climate>

Interpersonal Relationships

The structure of goals, norms, values, and connections helps form relationships in schools, which is a vital part of school climate (Thapa et al., 2013). Kutsyuruba, Klinger, and Hussain (2015; citing Demaray, Malecki, & Jenkins [2012]), concluded that “student-teacher, teacher-teachers, student-student (peer), teacher-principal, parent-teacher, and school-community relationships are all important in shaping the social dimension included in school climate” (p. 111). L. E. Maxwell (2016) posited that teachers who create relationships with students that are warm, supportive, and focus on academic goals foster better academic success. Jia et al. (2009) stated that when Chinese and American students felt they had teacher support, they saw positive correlation in grade point average and self-esteem. According to Hamre and Pianta (2001), students who have an adverse and conventional relationship with their kindergarten teacher will most likely have educational and behavioral issues in other grades.

Jimerson, Hart, and Renshaw (2012) stated that “Positive relationships are likely to result in students making increased positive life-course decisions and having more positive perceptions of their self-control, cooperation, self-efficacy, cognitive abilities, and social problem-solving ability” (p. 9). When there is a solid connection between teachers and students, it reduces the likelihood of violence (Loukas, 2007). When students exhibit disruptive and violent behaviors, it is vital for school personnel to maximize and stress the development of personal protective elements (Jimerson et al., 2012). School personnel need to know students’ backgrounds and temperaments to better assist them (Kutsyuruba et al., 2015). Students building positive relationships and having a sense of connection will shape their view of school. According to Brookmeyer et al. (2006), connectedness gives children a buffer to conquer obstacles like poverty that might otherwise impede their educational development. When students have a sense of connection, they feel more secure at school. Teachers need support, help, and guidance from school administrators, which in turn can effectively support children (Hansen, 1991; Hoy & Miskel, 2005).

Safety

School safety plays an important role in school climate and student achievement. Students who feel secure at school will experience more growth and development (Devine & Cohen, 2007). An unbiased and consistent approach to school policies has been connected with enhanced safety conditions (Gregory, Cornell, & Fan, 2012). Thapa et al. (2013) stated that numerous students have reported feeling emotionally and physically unsafe at school, mainly because of breakdowns in the relational and contextual variables that make up a school environment. When there is a lack of relationships, norms, and structures at school, students could experience bullying, violence, and disciplinary infractions which will affect their achievement and attendance (Astor, Guerra, & Van Acker, 2010). McCoy, Roy, and Sirkman (2013) stated, “Higher neighborhood crime predicted a decrease in academic achievement across time” (p. 128).

According to Lleras (2008), students feel safer in small schools compared to larger ones because they feel there are fewer occurrences of verbal bullying. C. Wang, Berry, and Swearer (2013) stated that when the school climate is negative, toxic students will partake in bullying behavior because they feel that the staff is unable to control it. When students feel their

environment is caring and supportive, they will have a better attitude toward reducing the bullying behavior (Eliot, Cornell, Gregory, & Fan, 2010). To help reduce negative behavior and increase positive relationships, adults need to model appropriate behavior, such as being caring (C. Wang et al., 2013).

The growing number of violent acts in the school setting that are associated with aggressive and harmful behaviors between children is the reason student safety remains a concern (Alessandri, Vecchione, & Caprara, 2012; Jimerson et al., 2012). According to Kutsyruba et al. (2015), “These types of [bullying] behaviours occur largely because the school environment serves as a vehicle for them” (p. 108). Bullying affects many students in schools globally (Mucherah, Finch, White, & Thomas, 2018). According to Nansel et al. (2001), roughly 30% of teenagers have experienced some form of bullying as either the persecutor or the target. Verbal tormenting, gossiping, verbal/physical hostility, and social outcasting are all classified as some type of bullying (Mucherah et al., 2018). Bullying and school climate differ depending on background, grade, and gender (Connell, El Sayed, Gonzalez, & Schell-Busey, 2015; Seals & Young, 2003; J. Wang, Iannotti, & Nansel, 2009). A 2007 survey of 6,209 middle and high school pupils on school climate found that approximately 86% of lesbian, gay, bisexual, and transgender students were harassed the previous year at school (Kosciw, Diaz, & Greytak, 2008). There is a growing trend of students being cyberbullied through cell phones and computers while at home (Thapa et al., 2013). According to Thapa et al. (2013), 1 out of 3 teenagers reported being threatened virtually, and 60% of adolescents said they had partaken in bullying someone online. When someone is bullied, it affects student engagement and decreases commitment to school (Thapa et al., 2013).

Cornell, Shukla, and Konold (2015) investigated authoritative school climate and peer victimization with middle school students and discovered that an authoritative school climate helped to decrease peer victimization. When there were firm but fair procedures in place with support from the teachers, these were linked to a decrease in student victimization as well (Mucherah et al., 2018). An authoritative school climate could play a vital part in reducing student victimization (Mucherah et al., 2018). A positive school climate affects all four essential dimensions, especially school safety.

Institutional Environment

Institutional environment is an essential dimension that is often underestimated but plays a key part in students feeling comfortable and connected. Institutional environment can be classified into two components: physical design and surroundings, and school engagement/connectedness (Thapa et al., 2013). Physical design and surroundings include order, cleanliness, and whether the school has plenty of supplies and resources (Cohen et al., 2008). School engagement/connectedness is the positive association with school and the feeling of belonging for students and parents when partaking in school activities (Cohen et al., 2008).

School is the most significant location for a child's development, following the home (Durán-Narucki, 2008). Researchers examining the effect of school building condition (i.e., physical design and surroundings) on school achievement and behavior found a positive association between student achievement and building condition (O'Neill & Oates, 2001). School facilities in poor condition led to a decrease in student learning, and poorly run facilities led to poor student success (Buckley, Schneider, & Shang, 2004). Climate control, design arrangements, lighting, indoor air quality, and acoustical control have been linked to student success (Uline & Tschannen-Moran, 2008). According to Simon, Evans, and Maxwell (2007), facilities with good conditions forecast students' perceived self-respect. Design quality of a building, such as positive classroom furnishings and students' drawings displayed throughout the building, is linked with increased sense of self-respect and connection with the school (Killeen, Evans, & Danko, 2003; L. E. Maxwell & Chmielewski, 2008). In a 2001 study, O'Neil and Oates found a positive connection between facility condition and success on standardized assessments; newer schools and facilities with a higher rating in terms of condition had higher student achievement.

According to the Centers for Disease Control and Prevention (CDC, 2009), school connectedness is "the belief by students that adults and peers in the school care about their learning as well as about them as individuals" (p. 3). Loukas, Suzuki, and Horton (2006) state that school connectedness is associated with student happiness, fewer behavior problems, and violence prevention. In a study of kindergarten students, students who enjoyed school participated more in independent and cooperative engagement activities, which ameliorate their academic success (Ladd, Buhs, & Seid, 2000). Zullig et al. (2015) stated that classroom teachers

have the influence to control the classroom setting and the students' daily events and play a vital part in encouraging students' engagement in education.

It is important to give students responsibilities and chances to participate in decision-making opportunities that go beyond student-related concerns and into broader facets of school life (Fielding, 1997; Huddleston, 2007; Rudduck & Flutter, 2000). Students should be given the chance to get involved in key parts of the school, specifically school climate (management and development, rewards and sanctions, teaching and learning planning; Huddleston, 2007). When students are active in school, they have a better bond with their school (Cohen, McCabe, Michelli, & Pickeral, 2009).

Researchers have also examined how the building arrangement can affect school safety and whether small schools can significantly improve school climate (Thapa et al., 2013). There are other ways to improve the school atmosphere other than decreasing the size of a school; for example, creating smaller learning communities can enhance students' learning conditions (Cotton, 2001).

Teaching and Learning

Thapa et al. (2013) stated that teaching and learning is the most essential domain of school climate. According to Cohen et al. (2008), there are two subcategories in teaching and learning: support for learning and social and civic learning. *Support for learning* is the idea that teachers feel they have support in terms of teaching delivery, helpful feedback, and chances to display their skillset in a range of ways (Cohen et al., 2008). Having a positive school climate can improve morale, student achievement, and teacher performance (Kutsyuruba et al., 2015). A negative school environment could significantly affect learning (Freiberg, 1998; Goddard, Hoy & Hoy, 2000; Heck, 2000). Shochet and Smith (2012) stated that when teachers believe children will not perform up to standard, students might not believe in themselves and can become disconnected from the educational process. Conversely, when there is a higher level of educational pressure, teachers set higher goals, and the principal supports the teacher in accomplishing those goals, pupils work hard to accomplish the goal set by the teacher (Hoy, Smith, & Sweetland, 2002). This idea is supported by Stronge (2010):

If we want to improve the quality of our schools and positively affect the lives of our students, we must change the quality of our teaching. This is our best hope to

systematically and dramatically improve education. Although we can reform the curriculum, ultimately, it is teachers who implement it; although we can provide professional development on new instructional strategies, ultimately, it is teachers who deploy them; although we can focus on data analysis of student performance, ultimately, it is teachers who produce the results we are analyzing. (p. 3)

Social and civic learning is the encouragement to develop skills and knowledge, such as conflict resolution, ethical decision-making, and effective listening (Cohen et al., 2008). Social-emotional programs that are evidence based have been shown to have a positive effect on student achievement in Grades K-5 (Thapa et al., 2013). School administrators and teachers need to have well-defined goals, values, and norms that affect student achievement (Thapa et al., 2013). When schools foster a positive school climate, this allows the students to be successful while also fostering respect, joint trust, group unity, and a willingness to learn (Thapa et al., 2013).

Curriculum and Culture

Cultural and educational mindsets are taught to children throughout their life by their family, educational institutions, and community (Kapur, 2018). Education and culture are intimately and integrally connected. The school curriculum represents the country's views about the type of information the students should be learning and how the classroom teacher should be developing the lesson (Schiro, 2013). By receiving an education, children are able to learn how to follow and respect the cultural beliefs and values (Kapur, 2018). Cultural Barriers to Education

According to Marshall (2014), children and teenagers in non-western countries have to overcome various barriers to access education, such as armed conflict and child labor. Fewer than 50% of the world's poorest children have finished primary school, and this is even lower in places such as Sudan, where the total is only 7% (United Nations Educational, Scientific and Cultural Organization [UNESCO], n.d.). Tammi, Bodo, Pinto, and Silva (2018) stated that there are roughly 75 million school aged children in countries dealing with violence and war, at the expense of their education. The armed conflicts have affected the educational systems and teachers because students and schools are targets (Marshall, 2014). In regions such as Southern Thailand and Bangladesh, armed services have started to recruit young children at school (Marshall, 2014). Children are recruited into the armed services due to their low socioeconomic

status or trying to overcome their lack of basic needs (War Child, 2013). The Coalition to Stop the Use of Child Soldiers (2008) reported “Children in refugee camps, the internally displaced, children separated from their families, and children among the rural poor and in urban slums are at higher risk” (p. 26). Countries that are involved in conflict often lack support, such as short-term humanitarian aid (EFA Global Monitoring Report, 2013). According to the EFA Global Monitoring Report (2013), humanitarian aid given to education has declined over time.

Organizational Climate

The term *organizational climate* dates back to the 1950s when school researchers were attempting to form different types of concepts in the school workplace (Hoy, 1990). School climate is a phrase that indicates teachers’ view of their work setting; it is affected by the school administration, informal organization, formal organization, and the personality of the staff (Hoy, 1990). A school’s organizational climate is based on the internal qualities that differentiate schools from each other and affects the behavior of its staff (Hoy, 1990).

The most widely recognized quantification of organizational climate in schools is the groundbreaking work of Halpin and Croft, who studied elementary school climate in 1963 (as cited in Hoy, 1990). They developed a comprehensive survey called the Organizational Climate Description Questionnaire to identify key characteristics of teacher-principal and teacher-teacher connections. The Organizational Climate Description Questionnaire is given to a school’s staff, and they are asked to define the degree to which each statement describes their school (Hoy, 1990). Survey items include “Administrative paperwork is burdensome in this school” and “The principal goes out of his way to help teachers.” Using factor analytic methods, eight measurements of school climate were created: group characteristics of intimacy, disengagement, hindrance, and esprit; and leader behaviors of thrust, production emphasis, aloofness, and consideration (Hoy, 1990).

According to Hoy (1990), the eight measurements of school climate define six types of climates, ranging from open to closed. When the school principal and staff are authentic in their manner, this is classified as an open climate. Hoy (1990) states that a school leader should have an appropriate balance of order and structure as well as encouragement. Staff should collaborate and engage on any task given (Hoy, 1990). In summary, behavior in the open climate is genuine and the closed climate is the opposite (Hoy, 1990).

Organizational Health Index

Another method for studying school climate is by examining the health of an organization (Hoy & Hannum, 1997). Miles (1969) wrote that a healthy organization “not only survives in its environment, but continues to cope adequately over the long haul, and continuously develops and expands its coping abilities” (p. 17). Organizational health pulls its theoretical underpinning from Parsonian social systems theory (Parsons, 1967; Parsons, Bales, & Shils, 1953). If social systems are meant to live and flourish, it is necessary for them to fulfill the basic needs of goal achievement, latency, and adaptation (Parsons et al., 1953). According to Hoy (1990), it is essential that the organization resolves the following problems: “(a) acquiring sufficient resources and accommodating to their environments, (b) setting and implementing goals, (c) maintaining solidarity within the system, and (d) creating and preserving the unique values of system” (p. 153).

According to Parsons (1967), school districts display three separate levels of control and accountability regarding the needs of the school: technical, managerial, and institutional. The *technical level* in the school is the focus on teaching-learning procedures (Hoy, 1990). Teachers should have input as to what is taught in the classroom (Hoy, 1990). The *managerial level* is the inner administrative role of the organization (Hoy & Woolfolk, 1993). Building level principals serve as the main administrators in schools, and they share resources and organize the various types of work taking place (Hoy & Woolfolk, 1993). It is essential that the principal foster teacher trust, loyalty, commitment, and motivation (Hoy & Woolfolk, 1993). The *institutional level* is the bond the school has with its community, and it is vital to have such endorsement (Hoy & Woolfolk, 1993). The Parsonian view offered the theoretical foundation for outlining school health (Hoy & Feldman, 1987). According to Hoy and Woolfolk (1993), when a school’s technical, managerial, and institutional levels are aligned, the school is classified as a healthy school.

Hoy and Woolfolk (1993) defined six dimensions of organizational health: institutional integrity, principal influence, consideration, resource support, morale, and academic emphasis; these dimensions of organizational health cover Parson’s technical, managerial, and institutional levels. Institutional integrity (institutional) is the school’s skill to manage its community that sustains the academic morals of its educational programs (Hoy & Woolfolk, 1993). Principal influence (managerial) is the school’s skill to influence the actions of higher-ups (Hoy &

Woolfolk, 1993). Consideration (managerial) is shown when a building level principal is open, helpful, and friendly and has an honest concern about the wellbeing of teachers and staff (Hoy & Woolfolk, 1993). Resource support (managerial) takes place when a school has plenty of classroom materials and instructional items available and additional resources are provided when needed (Hoy & Woolfolk, 1993). Morale (technical) is a mutual sense of trust, openness, kindness, and enthusiasm between the staff members; they enjoy their job and have a sense of pride for their profession (Hoy & Woolfolk, 1993). Academic emphasis (technical) is evident when a school is motivated by the pursuit of educational excellence (Hoy & Woolfolk, 1993). The learning setting is organized, and attainable educational goals are set for the students; teachers have faith in their students' skills to succeed (Hoy & Woolfolk, 1993).

According to Hoy and Feldman (1987), when faculty and staff feel protected from outside pressures and there is efficient communication and adequate teaching material, this is an example of a healthy organization. When the principal's skillset is limited, there is pressure on the faculty and staff, no academic standards, and challenging communication within the school, this is an example of an unhealthy organization (Hoy & Feldman, 1987).

Bio-Ecological Theory

Numerous theories affect school climate, such as Bronfenbrenner's bio-ecological theory. This theory states that student development happens over time, through shared connections in their environment (Proshansky & Fabian, 1987). Growing up, students spend most of their time at school, home, and/or in the community, which has a vital influence on their development (L. E. Maxwell, 2016). M. T. Wang and Degol (2015; citing Koth et al., 2008; Kuperminc et al., 1997; and Wang, 2009) noted:

One of the defining characteristics of school climate research is the way individual behaviors are shaped by the school environment, and the very foundation of bio-ecological theory is the multidimensional nature of the environmental contexts in which each child is embedded. (p. 319)

Students participate in various activities throughout the day, including writing, eating, using technology, personal hygiene, listening, and physical activity (L. E. Maxwell, 2016). Bronfenbrenner viewed the school as a microsystem with associations between all parts of a

school setting (L. E. Maxwell, 2016). Bio-ecological theory suggests that every aspect of a student's life is connected and all ties back to school climate (L. E. Maxwell, 2016).

Risk and Resilience Model

The risk and resilience model outlines protective elements in a child's atmosphere that can produce adjustment and reduce negative results in the company of risk (Rutter, 2006; Zimmerman & Arunkumar, 1994). Risk refers to any events that increase the child's chances of experiencing negative results, such as living in poverty (M. T. Wang & Degol, 2015). Resilience can be classified as a buildup of developmental resources that help shield children from negativity in their environment (Brooks, 2006; Fraser, 1999). This model can relate to any aspect of the child's developmental period (M. T. Wang & Degol, 2015). Students must be resilient to survive the challenges of life, and school can provide students with strategies and techniques to do so.

Teachers' Sense of Job Fulfillment

According to Russell et al. (2004), job fulfillment research has been taking place for years and is one of the ways to gauge staff happiness. The performance of staff can add to the organization's overall achievements and failures (Ghavifekr & Pillai, 2016). Job fulfillment plays a vital role in an employee's professional welfare (Tett & Meyer, 1993). School climate is linked heavily to teacher job fulfillment (Aldridge & Fraser, 2016; Collie, Shapka, & Perry 2012).

Imants and Zoelen (1995) posited that a high number of staff absences will eventually cost the school, create a negative work environment, and affect the quality of instruction. For instance, when teachers are absent, the monitoring of students' education is compromised. (Imants & Zoelen, 1995). According to Imants and Van Zoelen (1995), teacher absences and stress are connected and relate back to school climate and teachers' sense of efficacy. The researchers also concluded that in schools with higher absenteeism, there was a connection between the number of teacher absences and the number of years teachers had been employed at that school; this was not true for schools that had a low rate of teacher absences. The researchers attributed this to having a "toxic" and healthy school environment. School climate plays a vital role in teachers being absent from school (Imants & Zoelen, 1995).

Working in the teaching profession is associated with high levels of stress (Dicke, Stebner, Linninger, Kunter, & Leutner, 2018; Dupriez, Delvaux, & Lothaire, 2016). Selamat, Samsu, and Kamalu (2013) stated that teachers who are not pleased with the increasing workload had no time to plan fun activities. According to Day (2004), student conduct, leadership, parents' demands, and education rules are factors that can increase or weaken teachers' commitment. Increased expectations create added stress for teachers to perform well in the classroom (Ghavifekr & Pillai, 2016). Teachers need to adapt to the ever-changing world and having a healthy work setting will help teachers with the newfound changes; this will, in turn, increase staff performance and foster job fulfillment (Ghavifekr & Pillai, 2016). Job fulfillment is one of the most important predictors of teacher retention (Skaalvik & Skaalvik, 2010, 2017). Van Dick and Wagner (2001) stated that when principal support for teachers is high, stress at school is decreased. When teachers have a sense of job fulfillment, it affects every aspect of their lives, personally and professionally.

School Climate Factors

Student Discipline

Reaves, McMahon, Duffy, and Ruiz (2018) stated that negative conduct and school climate are connected. According to Losen and Gillespie (2012), 3.2 million pupils were suspended in the 2011–12 academic year, which equated to approximately 12 million days of missed instructional time. The USDOE (2016) reported that in the 2013–14 academic year, 2.8 million students were suspended, 1.1 million of whom were students of color. Students of color are predicted to have out of school suspension 3.8 times more than Caucasian students (USDOE, 2016). The suspension percentage for students of color has increased from an average of 6% in 1973 to 15% in 2006 (Losen & Skiba, 2010). The out-of-school suspension rate for Caucasian students during the same timeframe rose from only 3.1% to 4.8%. (Losen & Skiba, 2010). Reaves et al. (2018) stated that students who are suspended or in detention during the school year will lose instruction. Out-of-school suspension has been linked with grade retention, student drop out, and student misconduct (Gregory, Skiba, & Noguera, 2010; Skiba, Arredondo, & Rausch, 2014). According to Gregory, Cornell, and Fan (2011), when there is no level of support and structure at school, there will be a higher level of suspensions and a growing gap between White and Black students.

Having a positive school climate is one of the ways to decrease suspension numbers (Huang & Cornell, 2018). School climate plays a vital role in providing a safe school setting for students (Heilbrun, Cornell, & Konold, 2017). According to Cook, Williams, Guerra, Kim, and Sadek (2010), harassment and bullying are best predicted by a school's environment. When school policies are supportive, respectful, and receptive, students are likely to display positive behavior (Daly et al., 2014; Eccles et al., 1993; Shirley & Cornell, 2011). Implementing school wide initiatives such as Positive Behavioral Interventions and Supports (PBIS) aims to improve disciplinary focus and helps increase staff-student connections, which in turn will decrease student misconduct (Bradshaw et al., 2015; Flannery, Fenning, Kato, & McIntosh, 2014).

Attendance

ESSA has changed the way school districts address student attendance (Yaffe, 2018). It is now mandated for school districts to report their attendance rates, and states use these numbers as measures of school achievement in their accountability plans (Yaffe, 2018). According to Balfanz and Byrnes (2012), school attendance affects roughly 14-15% of pupils, which is becoming a widespread issue for schools across the United States. Absenteeism is tied to numerous problems, such as lower mathematics and reading scores, higher rates of grade retention, more frequent internalizing and externalizing behavioral illnesses, lower academic performance and accomplishments, and higher dropout rates (Bridgeland, Dilulio, & Morison, 2006). Attendance is an extremely difficult issue to remedy because of the countless factors that contribute to it (Hendron & Kearney, 2016). According to Conroy, Conroy, and Newman (2006), unbending disciplinary approaches, poorly designed curriculum that does not meet individual needs of students, and conflicts between student and faculty members are some of the factors connected to increased absenteeism in the school setting. In addition, students who felt unsafe at school had increased absences (Henry & Huizinga, 2007). Students who have a negative mindset about school and who have had poor interactions with school staff have greater issues with attendance (Corville-Smith, Ryan, Adams, & Dalicandro, 1998). According to Virtanen et al. (2009), students who felt less supported and thought there were not many opportunities to get involved had more absences. Similarly, Brookmeyer et al. (2006) found that student attendance had a positive connection with school climate and negative relationship with dropout rates.

Farkas et al. (2012) stated that programs such as PBIS can improve school climate and tackle student conduct issues and teacher classroom management. Students who have a positive view of school tend to have better attendance (Gregory et al., 2011). When students have a strong connection with their teacher and feel that they have more autonomy, this has been linked with lower rates of absenteeism (Henry & Huizinga, 2007; Roeser & Eccles, 1998; Valiente, Lemrey-Chalfant, Swanson & Resier, 2008).

School Size

The ideal class size in the United States has been a debate since public education became universal (Chingos, 2013). Children's success in school is measured mostly by how well the school is performing (Giambona & Porcu, 2018). According to Giambona and Porcu (2018), students' personalities, student-teacher ratio, school size, and class size all have an effect on a student's performance. The School Renaissance Institute (2000) stated that smaller schools in the past have been associated with giving children a warm and friendly learning atmosphere that allowed the teacher and pupil to form stronger relationships. According to Leithwood and Jantzi (2009), children in smaller schools exhibited higher academic success than children in larger schools. In another study, children from disadvantaged upbringings showed higher academic success in small schools (Zoda, Combs, & Slate, 2011).

The National Center for Education Statistics published a study with principals and found that discipline issues were linked to the size of the school (Dinkes, Cataldi, Kena, & Baum, 2006). In buildings with over 1,000 pupils, 34% of principals reported discipline referrals happening at a minimum of once a week (Zoda et al., 2011). Principals reported lower rates of discipline referrals in buildings with 500-999 pupils, 21% of principals stated patterns of discipline referrals; in buildings with 300-499 pupils, 17% of principals stated patterns of discipline referrals; and in buildings with fewer than 300 pupils, 14% stated a pattern of discipline referrals (Zoda et al., 2011). Studies have shown that the size of a school also affects relationships with teachers and peers, dropout rates, behavior, feelings of acceptance, levels of noncollegiate participation, and self-concept (Giambona & Porcu, 2018). The Education Next Program (2007) stated that 77% of Americans believed that extra dollars should be allocated to lowering class sizes rather than to increasing teacher pay. Also, 81% of school staff in the same 2007 survey wished for smaller classes than for an increase in pay, as it would make for a better

work condition (The Education Next Program, 2007). School climate affects student discipline, attendance, school size, and teacher job fulfillment in a positive or negative way.

Racial and Ethnic Differences in Perceptions of School Climate

Having a positive school climate is vital for minority and underprivileged children (Booker, 2006; Haynes, Emmons, & Ben-Avie, 1997). Konold, Cornell, Shukla, and Huang (2017) posit that a fundamental question to be considered is whether students from minority groups think about school climate the same way as Caucasian students from majority groups. For instance, school conduct procedures could feel less fair for students of color than for Caucasian students (Gregory & Weinstein, 2008). According to Konold et al. (2017), minority children could also experience higher levels of mistreatment and bullying than Caucasian students. According to Kann et al. (2016), “The prevalence of having not gone to school because of safety concerns was higher among black (6.8%) and Hispanic (7.6%) than white (4.2%) students and higher among black male (6.9%) and Hispanic male (7.6%) than white male (2.9%) students” (p. 9).

According to White, LaSalle, Ashby, and Meyers (2014), student views of and reaction to school climate are because of racial/culture and gender differences. Schneider and Duran (2010) discovered that Hispanic/Latino middle school students’ responses differed significantly from Caucasian and Asian students. The research revealed that intimate connections with teachers were more significant than demonstrating positive behavior for Hispanic/Latino students (Thapa et al., 2013). Hispanic/Latino girls might recognize a positive school climate more than boys in elementary and high school (White et al., 2014). African American students in general usually report a lower awareness of school climate (White et al., 2014). It is vital that school leaders identify how a positive school climate could feel and look for children from various racial, ethnic, and cultural groups (Schneider & Duran, 2010).

Conclusion

From Kindergarten to high school graduation, students will spend approximately 11,700 hours in school (Hull & Newport, 2011). The National School Climate Center (2007) outlines four elements that form school climate: relationship, safety, teaching and learning, and institutional environment. Students who feel secure at school will experience more growth and

development (Devine & Cohen, 2007). School climate has been shown to affect student discipline, school attendance, school size, and teachers' sense of job fulfillment. According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level compared to what might otherwise be predicted by their socioeconomic background. How well students perform in school is a strong forecast of their future education, occupation, and salary potential (United States Department of Labor, 2017).

When conducting my research, I found information on secondary school climate, but no recent studies at the elementary school level. There is a need to focus more research on elementary school climate its relationship with student achievement.

CHAPTER 3

METHODOLOGY

The purpose of this quantitative study was to examine the relationship between school climate and academic achievement at selected elementary schools in Virginia. The researcher examined extant data from the 2018-19 school year, which included reviewing individual school's Grade 5 Mathematics and Reading SOL pass rates and school climate survey data. The relationship between school climate and academic achievement could provide more insight for schools and district leaders as to how these two factors affect one other.

Research Questions

The following research questions guided this study:

1. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?
2. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Mathematics SOL pass rate?

Research Design

Quantitative research uses mathematical calculations to encapsulate, report, and study connections between traits (McMillan & Wergin, 2010). The researcher used the Pearson correlation coefficient (r) to examine the correlation between student achievement and school climate at the elementary level. According to Stevenson and Lindeberg (2010), "a Pearson's Correlation Coefficient is a statistic measuring the linear interdependence between two variables or two sets of data" (p. 389859). Boslaugh (2012), a Pearson correlation coefficient, shown in Figure 4, is also named the product-moment correlation coefficient; it uses p for population and r for a sample. "Pearson's r has a range of $(-1, 1)$, with 0 indicating no relationship between the variables and the larger absolute values indicating a stronger relationship between the variables" (Boslaugh, 2012, p. 182). This formula allowed the researcher to take advantage of the full range of variance in the data without collapsing into categories and provided more detailed and interpretable results. The researcher used Evans's (1996) methods to describe the strength of the

correlations between the school climates and the Reading and Mathematics SOL pass rates. The following is the breakdown: .00-.19 (*very weak*), .20-.39 (*weak*), .40-.59 (*moderate*), .60-.79 (*strong*) and .80-1.0 (*very strong*).

Figure 3 presents the Pearson's Correlation Coefficient Formula.

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^n (x_i - \bar{x})^2 \sum_{i=1}^n (y_i - \bar{y})^2}}$$

Figure 3. Pearson's correlation coefficient formula. From Penn State Eberly College of Science, 2018. 2.6 - (Pearson) Correlation Coefficient r . Retrieved from <https://online.stat.psu.edu/stat462/node/96/>

Needed Data

The researcher used two data sources for this quantitative research study. The first was the two school districts' Grade 5 Reading and Mathematics SOL assessment pass rates. The first school district was in Northern VA and the second was in Central VA. The second data source was the schools' Climate Survey for Grade 5 students, which was divided into four sections for both school districts.

Sample Selection

The sample selection was 97 elementary schools with almost 10,000 fifth graders from two school districts in Virginia: Northern VA had 51 elementary schools and Central VA had 46 elementary schools. The information was retrieved from the VDOE School Quality Profile. These two districts were selected because their school climate data were readily available to the public and they were located in two different regions of Virginia.

Data Collection Procedures

Before collecting data, the researcher received training (see Appendix A) and obtained IRB approval for the study (see Appendix B). The researcher followed two steps in collecting data for the 97 elementary schools, as shown in Table 1. First, the researcher reviewed each school's SOL assessment data. To access each school's report, the researcher used the VDOE School Quality Profiles website to find the school's Grade 5 Reading and Mathematics SOL

assessment pass rates. The assessment data are classified by proficiency level and by school, district, and state. The school data were entered into an Excel spreadsheet.

The second step was to review the Climate Survey results. The researcher emailed the research and planning departments for each district requesting permission to analyze their 2018–19 Climate Survey data. The two school districts administered different School Climate surveys to their communities, but the surveys shared similar underlying concepts and themes. Central VA district’s school climate survey was created by Metropolitan Educational Research Consortium in the School of Education at Virginia Commonwealth University (2020). It consists of 51 questions divided into four sections: Academic Growth, Equity and Opportunity, Relationships, and Safety and Wellness. For the researcher to have access to Central VA’s elementary school climate data, they had to email each principal for written permission for the data to be released. Once the researcher had written permission, the Research and Planning Department emailed the school’s data to the researcher. Northern VA district’s school climate survey was created and administered by VDOE in partnership with the University of Virginia (n.d.). It consists of 59 questions divided into four sections: Engagement, Relationships, Expectations, and Safety. Northern VA’s 2018–19 elementary School Climate data is readily available to the public. To determine whether school climate correlated to student achievement, the researcher compared Grade 5 Reading and Mathematics SOL pass rates to the School Quality Information and School Climate Survey Data. Table 1 presents how the data was collected for the study.

Table 1

Data Collection

Data Source	Data
School Quality Profile	Assessments (Grade 5 Mathematics and Reading pass rates)
Central VA Climate Survey	- Academic Growth - Equity and Opportunity - Relationships - Safety and Wellness
Northern VA Climate Survey	- Engagement - Relationships - Expectations - Safety

Data Treatment/ Data Management

The researcher used the 2018–19 Grade 5 SOL pass rates and Climate Survey results as the data for the study. The researcher downloaded each school’s student survey, and then created a codebook file, a sample datafile, and a template. The codebook provided full question information (categories, text, responses, and notes about coding), and the datafile included the actual data from the report. School climate survey data were publicly available for the Northern VA district but not for the Central VA district. The researcher did not disclose any identifying information, such as the school district and/or elementary school from which the data were derived. The data were stored on a password-protected Google Drive Folder.

Data Analysis Techniques

The researcher used SPSS to analyze the statistical data from the study to determine whether there was an association between the four dimensions of school climate and the SOL assessment pass rates. The researcher entered each school’s data into an Excel data spreadsheet and then combined them all in SPSS. Table 2 shows how the researchers answered Research Questions 1 and 2 with the information from VDOE School Quality Profile assessments pass rates. Table 2 shows the VDOE School Quality Profile Assessment section and the indicators that align with Research Question 1 and 2.

Table 2

Data Source by Research Questions

Research Question	Data Source
What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?	VDOE School Quality Profile: Grade 5 Reading SOL Pass Rates (all students) School climate survey results
What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the 5th grade Mathematics SOL pass rate?	VDOE School Quality Profile: Grade 5 Mathematics SOL Pass Rates (all students) School climate survey results

Note. SOL = Standards of Learning; VDOE = Virginia Department of Education

Figure 4 presents an example of one Climate Survey from the Northern VA school district.

1. What grade are you in this year? *Mark one.*

43% 4th Grade

57% 5th Grade

1. ENGAGEMENT

A. EMOTIONAL ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
2. I like this school.	3%	1%	35%	61%
3. I am proud to be a student at this school.	2%	1%	43%	54%
4. I feel like I belong at this school.	2%	5%	46%	47%

B. ACADEMIC ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
5. I usually work hard on my schoolwork.	0%	10%	52%	38%
6. I want to learn as much as I can at school.	1%	7%	44%	48%
7. I learn about important things at school.	1%	0%	38%	61%

C. BEHAVIORAL ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
8. It is important that I come to school every day.	1%	1%	29%	69%
9. I help my class make decisions at school.	4%	20%	64%	12%
10. I get to do interesting activities at school.	1%	5%	34%	60%

Figure 4. School climate survey sample.

Timeline

The researcher completed the prospectus exam in April 2021 and the IRB application at the beginning of May 2021. The application was exempt because it was not a human subject research and because the data was publicly available. Once the IRB application was approved, the researcher requested permission to analyze the two districts' 2018–19 Climate Survey data.

During the summer of 2021, the researcher collected and analyzed the data. In the early fall of 2021, Chapters 4 and 5 were completed.

Methodology Summary

The researcher conducted a quantitative research design using extant data from the 2018-2019 school year. A Pearson correlation coefficient was used to examine the correlation between student achievement and school climate at the elementary school level. There were two steps the researcher followed in collecting data for the study on the 97 elementary schools. The first step was reviewing each school's School Quality Profile Report in terms of its Standards of Learning assessments data. The second step was reviewing each School's climate survey data. The researcher did not disclose any identifying information, for example, the school district and or elementary school that data were pulled from. The data were stored on a password-protected Google Drive Folder. Both schools' information was entered into an Excel spreadsheet and then transferred into SPSS to see if there was an association between the fifth-grade Standards of Learning pass rates and the four different School Climate domains.

CHAPTER 4

FINDINGS

This chapter contains a report of the data collected with analysis and findings. Also included is an overview of the purpose of the study, the research questions, and information about the methodology. The purpose of this quantitative study was to identify the relationship between school climate and academic achievement at selected elementary schools. The researcher examined extant data from the 2018–19 school year, which included reviewing individual school’s Grade 5 Mathematics and Reading SOL pass rates and Climate Survey data. Climate Survey data came from two school districts in the Commonwealth of Virginia. The first was in Northern Virginia and had 57 elementary schools; the second was in Central Virginia and had 37 elementary schools. The relationship between school climate and academic achievement could provide better insight into how these two factors affect one other.

Research Questions

The following research questions guided this study:

1. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?
2. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Mathematics SOL pass rate?

Presentation of Results

The researcher used the Pearson correlation coefficient to examine the correlation between student achievement (fifth-grade SOL Mathematics and Reading pass rates) and school climate at the elementary level. According to Stevenson and Lindeberg (2010), “a Pearson’s Correlation Coefficient is a statistic measuring the linear interdependence between two variables or two sets of data” (p. 389859). “Pearson’s r has a range of $(-1, 1)$, with 0 indicating no relationship between the variables and the larger absolute values indicating a stronger relationship between the variables” (Boslaugh, 2012, p. 182). This analysis allowed the

researcher to take advantage of the full range of variance in the data without collapsing into categories and provided more detailed and interpretable results.

Data and Methods

The researcher relied on extant data from the 2018–19 school year, which included reviewing individual school’s Grade 5 Mathematics and Reading SOL pass rates and school Climate Survey data. The Climate Survey data came from two school districts in the Commonwealth of Virginia. The districts’ surveys asked different questions but had the same underlining meaning. The Northern Virginia School climate surveys sections are the following: Engagement (N:9), Relationship (N:18), Expectations (N:12) and Safety (N:12). The Central Virginia school climate surveys sections are the following Safety and Wellness (N:11), Academic Growth(N:14), Equity and Opportunity (N:8), and Relationship (N:6). Data for this study were analyzed using SPSS. Scoring scales were constructed using all variables without missing data in the relevant sections of each survey with different questions and scales. For each school district, the researcher created four scales based off the subsets determined by the school district. The researcher coded the original values from the reports and then they were standardized so that the scale for each dimension would range from 0 to 1. The lowest possible value was 0 and the highest possible value was 1. The next step the researcher took was to take the mean from the recoded values to create the scales. For example, if there were nine items, they were added together and then divided by nine. The researcher used Evans’s (1996) methods to describe the strength of the correlations between the school climates and the Reading and Mathematics SOL pass rates. The following is the breakdown: .00-.19 (*very weak*), .20-.39 (*weak*), .40-.59 (*moderate*), .60-.79 (*strong*) and .80-1.0 (*very strong*).

Table 3 presents the four school climate dimensions (Engagement, Relationship, Expectations, and Safety), Cronbach’s alpha reliability, mean, and standard deviation, organized by the school district.

Table 3

Northern VA School Climate Dimensions

Dimension	α	M	SD	Items
Engagement (Institutional Environment)	0.751	.7762	.02550	9
Relationship (Interpersonal Relationships)	0.945	.6883	.01995	18
Expectations (Teaching and Learning)	0.901	.7807	.02407	12
Safety	0.797	.7928	.04125	12

Table 3 shows the Engagement school climate dimension descriptive statistics were as follows: $\alpha = 0.751$, $M = .7762$, and $SD = .02550$. The Relationship school climate dimension descriptive statistics were as follows: $\alpha = 0.945$, $M = .6883$, and $SD = .01995$. The Expectations school climate dimension descriptive statistics were as follows: $\alpha = 0.901$, $M = .7807$, and $SD = .02407$. The Safety school climate dimension descriptive statistics were as follows: $\alpha = 0.797$, $M = .7928$, and $SD = .04125$. The Northern VA district relationship school climate dimension has the highest score, $\alpha = 0.945$, $M = .6883$, and $SD = .1995$, compared to the other school climate dimensions. The Relationship school climate dimension for Northern VA district has the highest Cronbach's alpha. The Safety school climate dimension has the highest mean and standard deviation score compared to the other school climate dimensions.

Table 4 presents the four school climate dimensions (Safety and Wellness, Academic Growth, Equity and Opportunity and Relationships), Cronbach's alpha reliability, mean, and standard deviation, organized by the school district.

Table 4

Central VA School Climate Dimensions

Dimension	α	M	SD	Items
Safety and Wellness (Safety)	0.789	.7702	.05394	11
Academic Growth (Teaching and Learning)	0.823	.8025	.03579	14
Equity and Opportunity (Institutional Environment)	0.852	.8118	.04743	8
Relationships (Interpersonal Relationships)	0.791	.7991	.05686	6

Table 4 shows the Safety and Wellness school climate dimension descriptive statistics were the following: $\alpha = 0.789$, $M = .7702$, and $SD = .05394$. The Academic Growth school climate dimension descriptive statistics were the following: $\alpha = 0.823$, $M = .8025$, and $SD = .03579$. The Equity and Opportunity school climate dimension descriptive statistics were the following: $\alpha = 0.852$, $M = .8118$, and $SD = .04743$. The Relationship school climate dimension descriptive statistics were the following: $\alpha = 0.791$, $M = .7991$, and $SD = .05686$. The Equity and Opportunity school climate dimension for Central VA district had the highest Cronbach's alpha, mean, and standard deviation score compared to the other school climate dimensions.

Data Related to Research Questions

Data were collected to address each of the research questions. Data are presented below by research question.

Research Question 1

What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?

Table 5 presents the Northern VA school climate dimensions and the correlation to the fifth-grade Reading SOL pass rates.

Table 5

Northern VA Reading Correlations

Measure	1	2	3	4	5
1. Reading	—				
2. Engagement	.306*	—			
3. Relationships	.435**	.863**	—		
4. Expectations	-.028	.744**	.752**	—	
5. Safety	.378**	.482**	.536**	.417**	—

Note. $N = 57$

* $p < .05$. ** $p < .01$

Table 5 shows that Northern VA's fifth-grade Reading SOL pass rates had a moderate positive correlation to the Relationships ($r = .435$) dimension and a weak positive correlation to the Engagement ($r = .306$) and Safety ($r = .378$) dimensions. The Grade 5 Reading SOL pass rates had no significant correlation to the Expectations ($r = -.028$) dimension. The Relationships dimension had the strongest correlation to the Reading SOL ($r = .435$), compared to the other school climate dimensions that address Research Question 1. The focus of this study was the correlation between school climate and student achievement. Although not within the scope of this research, the following paragraph highlights the correlations the Northern VA school climate dimensions had with one other.

The first school climate dimension in the Northern VA school district was Engagement. The Engagement dimension had a very strong positive correlation with the Relationships ($r = .863$) dimension, a strong positive correlation with Expectations ($r = .744$), and a moderate positive correlation with Safety ($r = .482$). The second dimension, Relationships, had a very strong positive correlation with Engagement ($r = .863$), a strong positive correlation with Expectations ($r = .752$), and a moderate positive correlation with Safety ($r = .536$). The third school climate dimension was Expectations. The Expectations dimension had a strong positive correlation with Engagement ($r = .744$) and Relationships ($r = .752$) and a moderate positive correlation with Safety ($r = .417$). Finally, the Safety dimension had a moderate positive correlation with Engagement ($r = .482$), Relationships ($r = .536$), and Expectations ($r = .417$). The Northern VA district school climate survey data and the Grade 5 SOL pass rates revealed

that the Relationship dimension had the strongest correlation to the Reading SOL pass rates. The Expectations dimension had no significant correlation to the Reading SOL pass rates compared to the Relationship dimension.

Table 6 presents the Central VA school climate dimensions and the correlation to the fifth grade Reading SOL pass rates.

Table 6

Central VA Reading Correlations

Measure	1	2	3	4	5
1. Reading	—				
2. Safety & Wellness	.613**	—			
3. Academic Growth	.210	.664**	—		
4. Equality & Opportunity	.305	.825**	.872**	—	
5. Relationships	.653**	.839**	.727**	.755**	—

Note. $N = 38-42$

** $p < .01$.

Table 6 shows that the Central VA district Grade 5 Reading SOL pass rates had a strong positive correlation to the Safety and Wellness ($r = .613$) and Relationships ($r = .653$) dimensions but no significant correlation to the Academic Growth ($r = .210$) or Equity and Opportunity ($r = .305$) dimensions. The Relationships dimension had the strongest correlation to the Reading SOL ($r = .653$), compared to the other school climate dimensions that addressed Research Question 1. The focus of this study was the correlation between school climate and student achievement. Although not within the scope of this research, the following two paragraphs highlight the correlations the Central VA school climate dimensions had with one other.

The first school climate dimension in the Central VA district was Safety and Wellness. The Safety and Wellness dimension had a strong positive correlation to Academic Growth ($r = .664$) and a very strong positive correlation with Equity and Opportunity ($r = .872$) and Relationships ($r = .727$). The second school climate dimension in the Central VA school district, Academic Growth, had a strong positive correlation with Safety and Wellness ($r = .664$) and a very strong positive correlation with Equity and Opportunity ($r = .872$) and Relationships ($r = .727$). The third school climate dimension was Equity and Opportunity. The Equity and

Opportunity dimension had a very strong positive correlation to Safety and Wellness ($r = .825$), Academic Growth ($r = .872$), and Relationships ($r = .755$).

Finally, the Relationships dimension had a very strong correlation to Safety and Wellness ($r = .839$) a strong correlation to Academic Growth ($r = .727$) and Equity and Opportunity ($r = .755$). The Relationships dimension had the strongest correlation to the Reading SOL pass rates. The Academic Growth dimension had the weakest correlation to the Reading SOL pass rates, compared to the Relationships dimension.

Research Question 2

What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Mathematics SOL pass rate?

Table 7 presents the Northern VA school climate dimensions and the correlation to fifth-grade Mathematics SOL pass rates.

Table 7

Northern VA Mathematics Correlations

Measure	1	2	3	4	5
1. Math	—				
2. Engagement	.291*	—			
3. Relationships	.383**	.863**	—		
4. Expectations	-.045	.744**	.752**	—	
5. Safety	.339**	.482**	.536**	.417**	—

Note. $N = 57$

* $p < .05$. ** $p < .01$.

Table 7 shows that the Northern VA's fifth-grade Mathematics SOL pass rates had a weak positive correlation with Engagement ($r = .291$), Relationships ($r = .383$), and Safety ($r = .339$), and no significant correlation to Expectations ($r = -.045$). The Relationship dimension had the strongest correlation to the Mathematics SOL ($r = .383$), compared to the other school climate dimensions that address Research Question 2. The focus of this study was the correlation between school climate and student achievement. Although not within the scope of this research, the following paragraph highlight the correlations the Northern VA school climate dimensions had with one other.

The first school climate dimension in the Northern VA school district was Engagement. The Engagement dimension had a very strong positive correlation with Relationships ($r = .863$), a strong positive correlation with Expectations ($r = .744$), and a moderate positive correlation with Safety ($r = .482$). The second school climate dimension in the Northern VA district was the Relationship dimension which had a very strong positive correlation with Engagement ($r = .863$), a strong positive correlation with Expectations ($r = .752$), and a moderate positive correlation with Safety ($r = .536$). The third school climate dimension was Expectations. The Expectations dimension had a strong positive correlation with Engagement ($r = .744$) and Relationships ($r = .752$), and a moderate positive correlation with Safety ($r = .417$). In short, there was a positive relationship between the two dimensions, which was statistically significant. The fourth and final school climate dimension in the Northern VA district is the Safety dimension which had a moderate positive correlation with Engagement ($r = .482$), Relationships ($r = .536$), and Expectations ($r = .417$). In Northern VA, the Relationships dimension had the strongest correlation to Reading SOL pass rates. The Expectations dimension had no significant correlation to the Reading SOL pass rates compared to the Relationship dimension.

Table 8 presents the Central VA district school climate dimensions and the correlation to the fifth grade Mathematics SOL pass rates.

Table 8

Central VA Mathematics Correlations

Measure	1	2	3	4	5
1. Math	—				
2. Safety & Wellness	.591**	—			
3. Academic Growth	.249	.664**	—		
4. Equality & Opportunity	.295	.825**	.872**	—	
5. Relationships	.651**	.839**	.727**	.755**	—

Note. $N = 38-42$

** $p < .01$.

Table 8 shows that the Central VA's fifth-grade Mathematics SOL pass rates had a moderate positive correlation with Safety and Wellness ($r = .591$), a weak positive correlation with Academic Growth ($r = .249$), and Equity and Opportunity ($r = .295$), and a strong positive correlation with Relationships ($r = .651$). This suggests a positive relationship between the two dimension that is statistically significant. The Relationships dimension had the strongest

correlation to the Mathematics SOL ($r = .651$), compared to the other school climate dimensions that addressed Research Question 2. The focus of this study is the correlation between school climate and student achievement. Although not within the scope of this research, the following two paragraphs highlight the correlations the Central VA school climate dimensions had with one other.

The first school climate dimension in the Central VA district was Safety and Wellness. The Safety and Wellness dimension had a strong positive correlation with Academic Growth ($r = .664$) and a very strong positive correlation with Equity and Opportunity ($r = .825$), and Relationships ($r = .839$). This suggests a positive relationship between the two dimensions that is statistically significant. The second school climate dimension in the Central VA district was the Academic Growth dimension which had a strong positive correlation with Safety and Wellness ($r = .664$), and Relationships ($r = .727$) and a very strong positive correlation with Equity and Opportunity ($r = .872$). The third school climate dimension was Equity and Opportunity. The Equity and Opportunity dimension had a very strong positive correlation with Safety and Wellness ($r = .825$) and Academic Growth ($r = .872$), and a strong positive correlation with Relationships ($r = .755$). The fourth and final school climate dimension in the Central VA district was the Relationships dimension which had a very strong correlation with Safety and Wellness ($r = .839$) and a strong correlation with Academic Growth ($r = .727$), and Equity and Opportunity ($r = .755$). In Central VA, the Relationships dimension had the strongest correlation to the Grade 5 Mathematics SOL pass rates. The Academic Growth dimension had the weakest correlation.

Summary

The purpose of this quantitative study was to identify the relationship between school climate and academic achievement at the elementary school level. The researcher examined extant data from the 2018–19 school year, which included reviewing individual school's Grade 5 Mathematics and Reading SOL pass rates and Climate Survey data. The researcher used the Pearson Correlation Coefficient to examine the correlation. In Northern VA the Relationships dimension had the strongest correlation to the Reading SOL ($r = .435$), which is a moderate positive correlation. This correlation is considered statistically significant. Similarly, in Central VA, the Relationships dimension had the strongest correlation to the Reading SOL ($r = .653$), which is a strong positive correlation. The correlation in Central VA was statistically significant.

In Northern VA, the Relationships dimension also had the strongest correlation to the Mathematics SOL pass rates ($r = .383$), which is a weak positive correlation. Likewise, in Central VA, the Relationships dimension had the strongest correlation to the Mathematics SOL pass rates ($r = .651$), which is a strong positive correlation.

Chapter 5 reviews these findings, discusses implications for practice, and makes suggestions for future studies.

CHAPTER 5

IMPLICATIONS & FUTURE RESEARCH

In the past decade, teachers and researchers have gradually recognized the vital role school climate plays in the public-school setting (Thapa et al., 2013). School climate has been shown to impact student discipline, school attendance, and teachers' sense of job fulfillment (National Association of School Psychologists, 2016). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level than would otherwise be predicted by their socioeconomic background. How well a student performs in school is a strong forecast of their future in terms of education, occupation, and salary potential (United States Department of Labor, 2017). The relationship between school climate and academic achievement could provide better insight into how these two factors affect one other.

The purpose of this quantitative study was to investigate the relationship between school climate and academic achievement at selected elementary schools in Virginia. The researcher examined extant data from the 2018–19 school year, including Grade 5 Mathematics and Reading SOL pass rates and school Climate Survey data. The researcher used the Pearson Correlation Coefficient to examine the correlation. The following research questions guided this study.

1. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Reading SOL pass rate?
2. What is the relationship among the four school climate dimensions (interpersonal relationships, safety, teaching and learning, and institutional environment) and student achievement measured by the fifth-grade Mathematics SOL pass rate?

Summary and Discussion of Findings

Finding 1: The Relationships dimension had the strongest positive correlation to the Reading and Mathematics SOL pass rates.

The Relationships dimension was consistent across both school districts. In Northern VA, Relationships had a moderate positive correlation to the Reading SOL pass rates, $r = .435$, presented in Tables 5, 6, 7, and 8. In Central VA, Relationships had a strong positive correlation

to the Reading SOL pass rates, $r = .653$. In Northern VA, the Relationships dimension had a weak positive correlation to the Mathematics SOL pass rates, $r = .383$. In Central VA, Relationships had a strong positive correlation to the Mathematics SOL pass rates, $r = .651$.

According to L. E. Maxwell (2016), teachers who can create relationships with students that are warm, supportive, and focus on academic goals foster better academic success. Jia et al. (2009) found that when Chinese and American students felt they had teacher support, they saw positive correlation in grade point average and self-esteem. Similarly, Jimerson et al. (2012) concluded, “Positive relationships are likely to result in students making increased positive life-course decisions and having more positive perceptions of their self-control, cooperation, self-efficacy, cognitive abilities, and social problem-solving ability” (p. 9).

Finding 2: The Safety dimension had the second strongest positive correlation to both Reading and Mathematics SOL pass rates.

The second school climate dimension that was consistent across both school districts was the Safety dimension presented in Tables 5, 6, 7, and 8. In Northern VA, the Safety dimension had a weak positive correlation to the Reading SOL pass rates, $r = .378$. In Central VA, Safety had a strong positive correlation to the Reading SOL pass rates, $r = .613$. In Northern VA, Safety had a weak positive correlation to the Mathematics SOL pass rates, $r = .339$. In Central VA, there was a moderate positive correlation to the Mathematics SOL pass rates, $r = .591$.

School safety plays an important role in terms of school climate and student achievement. Positive school climate affects all four essential dimensions, especially school safety. When there are weak relationships, norms, and structures at school, students could experience bullying, violence, and disciplinary infractions, which affect their achievement and attendance (Astor et al., 2010). Students who feel secure at school experience more growth and development (Devine & Cohen, 2007).

Finding 3: Institutional Environment (i.e., Engagement/Equity and Opportunity) had a weak positive correlation to the Reading and Mathematics SOL pass rates.

The Institutional Environment dimension did not have a stronger correlation to the Reading and Mathematics SOL pass rates presented in Tables 5, 6, 7, and 8. In Northern VA, the Engagement dimension had a weak positive correlation with Reading SOL pass rates, $r = .306$, and Mathematics SOL, $r = .291$. In Central VA, the Equity and Opportunity dimension had a

weak positive correlation with Reading SOL pass rates, $r = .305$, and a weak positive correlation with Mathematics SOL pass rates, $r = .295$.

Institutional Environment is an essential dimension that is often underestimated but plays a key part in students feeling comfortable and connected. Institutional Environment can be classified into two components: physical design and surroundings and school engagement/connectedness (Thapa et al., 2013). Researchers examining the effect of school building condition on school achievement and behavior found a positive association among student achievement and building condition (O'Neill & Oates, 2001). School facilities in poor condition led to a decrease in student learning, and poorly run facilities lead the way to poor student success (Buckley et al., 2004). Climate control, design arrangements, lighting, indoor air quality, and acoustical control have been linked to student success (Uline & Tschannen-Moran, 2008). According to Simon et al. (2007), facilities with good conditions forecast students' perceived self-respect. Design quality of a building, such as positive classroom furnishings and students' drawings displayed throughout the building, is linked with increased sense of self-respect and connection with the school (Killeen et al., 2003; L. E. Maxwell & Chmielewski, 2008).

According to the CDC (2009), school connectedness is "the belief by students that adults and peers in the school care about their learning as well as about them as individuals" (p. 3). Loukas et al. (2006) found that school connectedness was associated with student happiness, fewer behavior problems, and violence prevention. In a study of kindergarten students, students who enjoyed school participated more in independent and cooperative engagement activities, which ameliorated their academic success (Ladd et al., 2000). Zullig et al. (2015) stated that classroom teachers have the influence to control the classroom setting and students' daily events, and they play a vital part in encouraging students' engagement in education.

Findings 4: The Academic Growth dimension (i.e., Expectations/Teaching and Learning) had a weak positive and or nonsignificant correlation to the Reading and Mathematics SOL pass rates.

The Academic Growth dimension did not have a stronger correlation to the Reading and Mathematics SOL pass rates presented in Tables 5, 6, 7, and 8. In Northern VA, Academic Growth had a nonsignificant correlation with Reading SOL pass rates, $r = -.028$, and Mathematics SOL pass rates, $r = -.045$. In Central VA, Academic Growth had a weak positive

correlation with Reading SOL pass rates, $r = .210$, and a weak positive correlation with Mathematics SOL pass rates, $r = .249$.

Thapa et al. (2013) concluded that teaching and learning is the most essential domain of school climate. According to Cohen et al. (2008), there are two subcategories in teaching and learning: Support for Learning and Social and Civic Learning. Having a positive school climate can increase morale, increase student achievement, and improve teacher performance (Kutsyuruba et al., 2015). A negative school environment could significantly affect learning (Freiberg, 1998; Goddard et al., 2000; Heck, 2000). Shochet and Smith (2012) found that when teachers believed children would not perform up to standard, students did not believe in themselves and became disconnected from the educational process. When there is a higher level of educational pressure, teachers set higher goals, and the principal supports the teacher in accomplishing that goal set, the pupils work hard to accomplish the goals (Hoy et al., 2002). When schools foster a positive school climate, students can be successful while also fostering respect, joint trust, group unity, and a willingness to learn (Thapa et al., 2013).

Implications for Practice

The findings from this research led to four implications for practice for building level principals and school district leaders.

Implication 1: Building level principals should consider creating a team within their school to help outline a plan for identifying social emotional goals for relationship building.

Implication 1 relates to Finding 1.

The Relationships dimension had the strongest correlation to the Reading and Mathematics SOL pass rates (see Tables 5–8 in Chapter 4). This tells researchers that relationships are key to students' academic success. Stakeholders, including teachers, students, school counselors, principal, parents, and other community members should create a comprehensive plan to address the social emotional needs of their students. For example, teachers using a morning meeting time to do social emotional activities with their students could contribute to a sense of belonging among elementary-aged students.

Implication 2: Building level principals should consider offering professional development that is centered around relationship building. Implication 2 relates to Finding 1.

The Relationships dimension had the strongest correlation to the Reading and Mathematics SOLs for both school districts. Professional development related to relationship building, such as the free materials created by Sanford Harmony, would allow teachers to build skills and techniques to create secure relationships with their students and families. This could be year-long or at the beginning of the school year.

Implication 3: Schools should provide a clear understanding of schoolwide expectations to maintain a better sense of emotional and physical wellbeing within the school community.

Implication 3 relates to Finding 2.

The Safety dimension had the second strongest correlation to Reading and Mathematics SOL pass rates. This suggests that safety plays a key role in creating a positive school climate. Schools should consider creating a PBIS team to help with the implementation of the schoolwide expectations that are developmentally appropriate which in return will make it comprehensible for students. The safety and wellness dimension had the second strongest correlation to both Reading and Mathematics which in return tells us that safety plays a key role in school climate.

Implication 4: Building level principals should continually assess school safety. Implication 4 relates to Finding 2.

Principals should regularly and frequently address any miscommunication in terms of the school safety protocols and procedures among teachers, students, and parents. The safety and wellness dimension had the second strongest correlation to both Reading and Mathematics SOL pass rates, which suggests that safety plays a key role in school climate.

Suggestions for Future Studies

1. Data from at least one school district from each of the eight regions in Virginia should be included. This would give a better insight on school climate across the Commonwealth.
2. Items from the Learning Climate section from the VDOE School Quality Report should be included to see the relationships they might have with student achievement.
3. A mixed-methods study should be conducted, incorporating student, parent, and staff interviews to gain insight on various stakeholders' views of school climate and its relationship to student achievement at the elementary school level.
4. Parent survey data, if available, should be included.

5. Use more than one grade level for the school climate surveys such as third, fourth and fifth.

Chapter Summary

School climate has been shown to affect student discipline, school attendance, and teachers' sense of job fulfillment (National Association of School Psychologists, 2016). According to Bryk and Schneider (2003), if schools create positive learning environments, students will achieve at a higher level than would otherwise be predicted by their socioeconomic background. The findings of this study were consistent across both school districts. The Relationship dimension of school climate had the strongest correlation to both Reading and Mathematics SOL pass rates in both school districts, which was consistent with previous research in this area. It is with this information that school districts and building level principals understand the importance of school climate and will now make relationships and safety a priority which in return will impact student achievement throughout the school and the community.

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- Figure 2. Four Essential Dimensions of School Climate. National Association of Secondary School Principals (2017). *The Multidimensional Impact of School Climate*. Retrieved from <http://blog.nassp.org/2017/04/05/the-multidimensional-impact-of-school-climate>
- Figure 3. Half of the world's out-of-school children – 28.5 million – live in conflict-affected countries. Education and International Development: An introduction, Chapter: The Politics of Education in Emergencies and Conflict, Publisher: London: Bloomsbury Academic, Editors: T. McCowan, E. Unterhalter, pp. 181-200
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Appendix A

CITI Program Certificate



Completion Date 17-Oct-2020
Expiration Date 17-Oct-2023
Record ID 38633527

This is to certify that:

David Belton

Has completed the following CITI Program course:

Not valid for renewal of certification
through CME.

Social & Behavioral Research

(Curriculum Group)

Social & Behavioral Research

(Course Learner Group)

1 - Basic Course

(Stage)

Under requirements set by:

Virginia Polytechnic Institute & State University (Virginia Tech)

CITI
Collaborative Institutional Training Initiative

Appendix B

IRB Approval Letter



**Division of Scholarly Integrity and
Research Compliance**
Institutional Review Board
North End Center, Suite 4120 (MC 0497)
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-3732
irb@vt.edu
<http://www.research.vt.edu/sirc/hrpp>

MEMORANDUM

DATE: May 17, 2021
TO: Jodie Lynn Brinkmann, David A Belton
FROM: Virginia Tech Institutional Review Board (FWA00000572)
PROTOCOL TITLE: THE CORRELATION BETWEEN SCHOOL CLIMATE AND ACADEMIC ACHIEVEMENT AT THE ELEMENTARY SCHOOL LEVEL
IRB NUMBER: 21-399

Based on the submitted project description and items listed in the Special Instructions section found on Page 2, the Virginia Tech Human Research Protection Program (HRPP) has determined that the proposed activity is not research involving human subjects as defined by HHS and FDA regulations.

Further review and approval by the Virginia Tech Human Research Protection Program (HRPP) is not required because this is not human research. This determination applies only to the activities described in the submitted project description and does not apply should any changes be made. If changes are made you must immediately submit an Amendment to the HRPP for a new determination. Your amendment must include a description of the changes and you must upload all revised documents. At that time, the HRPP will review the submission activities to confirm the original "Not Human Subjects Research" decision or to advise if a new application must be made.

If there are additional undisclosed components that you feel merit a change in this initial determination, please contact our office for a consultation.

Please be aware that receiving a "Not Human Subjects Research" Determination is not the same as IRB review and approval of the activity. You are NOT to use IRB consent forms or templates for these activities. If you have any questions, please contact the Virginia Tech HRPP office at 540-231-3732 or irb@vt.edu.

PROTOCOL INFORMATION:

Determined As: **Not Human Subjects Research**
Protocol Determination Date: **May 17, 2021**

ASSOCIATED FUNDING:

The table on the following page indicates whether grant proposals are related to this protocol, and which of the listed proposals, if any, have been compared to this protocol, if required.

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

SPECIAL INSTRUCTIONS:

Based on the information provided, it was determined that this is not human subjects research. While the activities do meet the federal definition of research, the described activities do not meet the definition of human subjects research because it is de-identified data that is publicly available.

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this protocol is to cover any other grant proposals, please contact the HRPP office (irb@vt.edu) immediately.

Appendix C

School Climate Survey Sample

The Virginia Department of Education (VDOE) thanks you for recently participating in the Virginia School Climate Survey as part of our work to support the efforts of schools and divisions to improve school climate.

We are pleased to provide you with the average survey responses of students at your school. 134 responses were received which equates to a response rate of 74%.

1. What grade are you in this year? *Mark one.*

43% 4th Grade

57% 5th Grade

1. ENGAGEMENT

A. EMOTIONAL ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
2. I like this school.	1%	2%	50%	46%
3. I am proud to be a student at this school.	0%	4%	51%	44%
4. I feel like I belong at this school.	0%	10%	50%	40%

B. ACADEMIC ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
5. I usually work hard on my schoolwork.	1%	7%	48%	44%
6. I want to learn as much as I can at school.	2%	7%	42%	49%
7. I learn about important things at school.	0%	8%	49%	43%

C. BEHAVIORAL ENGAGEMENT

How strongly do you agree or disagree with the following statements? *Mark one answer per line.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
8. It is important that I come to school every day.	1%	14%	50%	35%
9. I help my class make decisions at school.	1%	22%	62%	15%
10. I get to do interesting activities at school.	1%	14%	38%	46%

2019 Virginia School Climate Survey: Students Grades 4-5

2. RELATIONSHIPS**A. RELATIONSHIPS AMONG STUDENTS****How strongly do you agree or disagree with the following statements? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
11. I care about other students at this school.	0%	3%	39%	58%
12. I get along well with other students at this school.	1%	7%	57%	34%
13. Other students at this school care about me.	7%	11%	57%	25%
14. Other students at this school get along well with me.	2%	12%	56%	30%
15. [Validity Screening Item] I am telling the truth on this survey.	0%	0%	20%	80%

B. ADULT RESPECT FOR STUDENTS**How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
16. Teachers and other adults at this school care about me.	1%	2%	45%	52%
17. Teachers and other adults at this school want me to succeed.	0%	3%	31%	66%
18. Teachers and other adults at this school listen to what I have to say.	1%	10%	49%	39%
19. Teachers and other adults at this school treat me with respect.	1%	5%	51%	43%

C. STUDENT WILLINGNESS TO SEEK HELP**How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
20. There are teachers or other adults at this school I could talk with if I needed help with something.	1%	4%	40%	55%
21. I am comfortable asking teachers or other adults at this school for help with my schoolwork.	2%	13%	41%	43%
22. I am comfortable asking teachers or other adults at this school for help to solve a problem I am having with another student.	5%	19%	49%	28%
23. Teachers and other adults at this school will help me if I have a problem.	1%	1%	49%	49%

2019 Virginia School Climate Survey: Students Grades 4-5

D. SOCIAL-EMOTIONAL LEARNING**How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
24. I stop and think before doing anything when I get angry.	1%	19%	52%	28%
25. I work out disagreements with other students by talking with them.	0%	14%	60%	25%
26. I know how to disagree without starting an argument or a fight.	2%	16%	52%	29%
27. I know how to decide right from wrong.	0%	6%	53%	41%
28. I can control myself when I am upset.	0%	12%	51%	37%

3. EXPECTATIONS**A. ACADEMIC EXPECTATIONS****How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
29. Teachers and other adults at this school expect me to succeed.	0%	6%	49%	46%
30. Teachers and other adults at this school provide me the support I need to succeed.	1%	7%	50%	42%
31. Teachers and other adults at this school challenge me academically.	3%	14%	50%	33%

B. INSTRUCTIONAL PRACTICES**How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.**

	Strongly Disagree	Disagree	Agree	Strongly Agree
32. Teachers and other adults at this school expect me to explain my answer to a question.	1%	4%	54%	40%
33. Teachers and other adults at this school ask me to think about different ways to solve problems.	1%	10%	54%	34%
34. I work on projects with other students in my class.	1%	7%	50%	42%
35. Teachers and other adults at this school ask me to talk about what I am learning.	2%	27%	46%	25%
36. Teachers and other adults at this school often connect what I am learning to life outside the classroom.	7%	28%	48%	17%

2019 Virginia School Climate Survey: Students Grades 4-5

C. SCHOOL DISCIPLINE STRUCTURE

How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.

	Strongly Disagree	Disagree	Agree	Strongly Agree
37. I know the difference between good and bad behavior.	1%	1%	34%	64%
38. I know what will happen if I break a school rule.	1%	3%	34%	62%
39. The school rules are fair.	4%	11%	43%	42%
40. I am recognized for my positive behavior.	4%	18%	51%	28%

4. SAFETY**A. CONCERNS ABOUT SAFETY**

How strongly do you agree or disagree with the following statements? Mark one answer per line.

	Strongly Disagree	Disagree	Agree	Strongly Agree
41. I feel safe at this school.	2%	8%	37%	52%
42. I feel safe traveling between my home and this school.	1%	3%	38%	57%

B. PREVALENCE OF BULLYING

What is bullying? Bullying is when someone is being hurt either by words or actions on purpose. The bully hurts the other person over and over. The other person feels that he or she can do nothing to stop it. Teasing and horseplay are not bullying. Bullying can happen anywhere. It can happen while going to school, at school, or while on-line.

How strongly do you agree or disagree with the following statements about this school? Mark one answer per line.

	Strongly Disagree	Disagree	Agree	Strongly Agree
43. Bullying is a problem at this school.	34%	43%	11%	13%
44. Students at this school are bullied about their clothing or how they look.	50%	36%	7%	7%
45. Students at this school are bullied about their race.	69%	22%	4%	4%
46. Students at this school are bullied about their disability.	51%	31%	11%	6%

2019 Virginia School Climate Survey: Students Grades 4-5

C. BULLYING VICTIMIZATION**How often have the following occurred? Mark one answer per line.**

	Never	Once or Twice	About Once per Week	More than Once per Week
47. Have you been bullied by a student at school in the past month?	67%	23%	3%	7%
48. Have you bullied someone at school in the past month?	98%	0%	1%	1%
49. Have you been bullied by an adult at this school this year?	93%	5%	1%	1%

[If answered positively to any question above (Q47-Q49)] You have just answered some questions about being bullied in some way.

	Yes	No
50. Did you tell a teacher or another adult at school what happened?	64%	36%

Have any of the following happened to you personally at school this year? This includes school events like field trips, school dances, and sports events. Mark one answer per line.

	No	One Time	A Couple of Times	Many Times
51. A student pushed or hit you when you were not playing around.	72%	16%	8%	4%
52. A student told a mean rumor or a lie about me.	54%	20%	18%	7%

5. DEMOGRAPHICS53. Are you a boy or a girl? *Mark one.*

48% Boy 52% Girl

54. What is the best description of your race? *If you are more than one race, mark all that apply.*

3% American Indian or Alaska Native

10% Asian

12% Black or African American

1% Native Hawaiian or Pacific Islander

66% White

39% Other Race

2019 Virginia School Climate Survey: Students Grades 4-5

55. Are you Hispanic or Latino? *Mark one.*

14% Yes 86% No

56. How many parents live with you? Include biological, step, adoptive, and foster parents. *Mark one.*

1% None

10% One

80% Two

8% More than two

57. How far did your mother go in school? *Mark one.*

0% Did not graduate from high school

6% Graduated from high school

4% Graduated from a two-year college or technical school

11% Graduated from a four-year college

58% Completed post-graduate studies (such as a master's degree or doctoral degree) after graduating from a four-year college

0% I do not know

58. Does your family speak a language other than English at home? *Mark one.*

34% Yes 66% No

59. How many of the questions on this survey did you answer truthfully? *Mark one.*

78% All of them

12% All but 1 or 2 of them

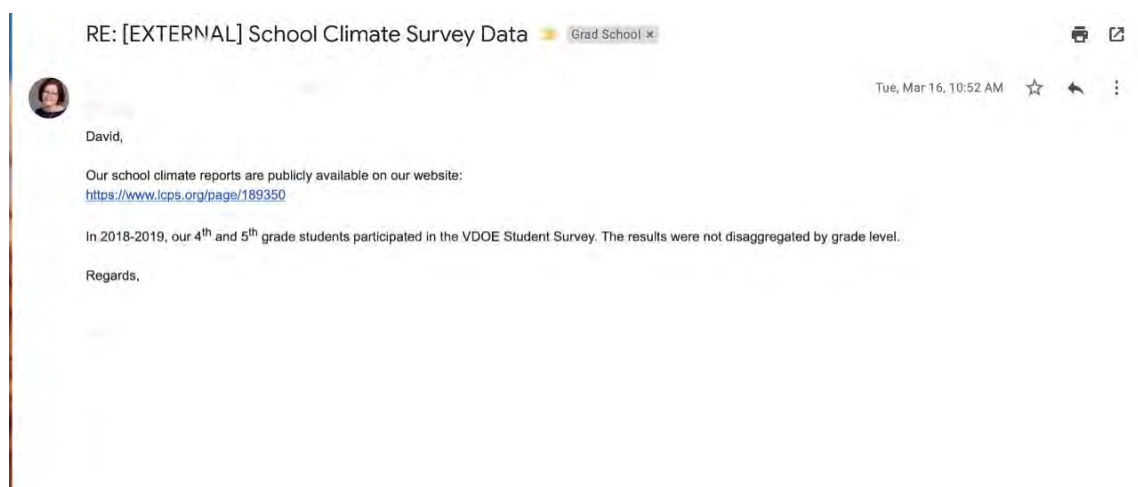
7% Most of them

1% Some of them

1% Only a few or none of them

Appendix D

Permission to use Northern VA School Climate Data



Appendix E

Permission to use Central VA School Climate Data

Good morning,

I have received permission from the three elementary directors to have access to the 2018-2019 school climate survey data. Please see below.

Thank you!

David,

Good morning – yes, this was discussed and we are comfortable with you have district-level climate survey data for the purposes of your study.

Thanks —
Scott

Good morning Scott,

Thank you for meeting with me last week, I really appreciate it. I wanted to follow up on our conversation. Is the elementary school directors still okay with giving me permission to the 2018-2019 elementary school climate survey data? I hope you have a great day!

Thank you!

Appendix F

Permission to use Dissertation Outline



David Belton <belton369@gmail.com>

Tue, Nov 5, 2019, 8:40 AM



to nicholstm

Good afternoon,

My name is David Belton and I am a first year doctoral student at Virginia Tech (Richmond campus). For my dissertation topic, I am interested in School Climate and the correlation it has on student achievement at the elementary school level. I wanted to get your permission for me to use the framework and some of the articles you used in your dissertation. I look forward to hearing from you.

Kind regards,

David A. Belton

"The best way to find yourself is to lose yourself in the service of others"

-Mahatma Gandhi



Thomas Nichols <nicholstm@staffordschools.net>

Tue, Nov 12, 2019, 5:02 AM



to me

David,

Thank you for reaching out to me. You have my permission to use the framework for examining school climate and its impact it on student academic achievement and the articles within. It is a great topic which I thoroughly enjoyed. I wish you the best along your educational journey as a doctoral student. If I can be of any further assistance please let me know.

Be Great!

Tom Nichols

Thomas M. Nichols, Ed.D.
Chief Academic Officer for High Schools and Student Safety
Stafford County Public Schools
31 Stafford Avenue
Stafford, VA 22554