A Study Examining Disparities in Selected Variables of High-Performing and Low-Performing High Schools in Virginia

Carl F. Winckler, Jr.

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Glen I. Earthman, Chair

Carol S. Cash, Co-Chair

John A. Bailey

Ted S. Price

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Carl F. Winckler, Jr.

Committee Chairman: Dr. Glen I. Earthman

ABSTRACT

This dissertation investigated and examined disparities among selected variables between high and low-performing high schools in Virginia. Overall, student academic performance is the major difference between the two categories of schools, but there may be other differences within the school dynamic that can rationalize the categorization of schools. These potential differences demonstrate the need to examine other variables and the disparities within these certain variables. Seven possible variables that may have such an influence are: the student achievement scores, teacher quality, racial composition, socioeconomic status, student attendance, financial commitment, and condition of the building. Understanding these differences can provide valuable understanding into the various reasons for the academic success or failure of a school.

Data from the study indicated that for the most part the variables selected for comparison did indicate a significant difference in the variables. The only exception was in Teacher Quality. Since Student Achievement, Student Attendance, and Teacher Quality pertained directly to the student, and Racial Composition and Socioeconomic Status, pertained to the student body, meaning the enrollment of these three variables were demographically controlled, this indicated to this researcher that financial commitment data and building conditions data were the most important variables to this study. The basis for this is that Racial Composition, SES, Student Attendance, and Teacher Quality influenced one variable and that is
Student Achievement. This reduced the importance of Teacher Quality because not all low and high performing schools will have the same quality of teacher in the classroom. If this was the case, every student would perform equally. This, of course, was not true. Therefore, other variables played an especially important part in the disparities between the two categories of schools. This rationale would give credence to the importance of Financial Commitment and School Building Condition. These latter two variables then influenced the educational process of students and are things the School Board can control or at least have control over.
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General Audience Abstract

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Dedications

I would like to recognize God for placing numerous individuals in my life during this journey. Without Him, I would never have found the strength needed to persevere and finally complete this task where at times, to be honest, seemed unattainable. God always recognized the exact moment where I was on the brink of abandoning this goal and placed an individual in my life who encouraged me to persist and continue.

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Whenever an individual decides to participate in an endeavor of this magnitude, there are many people who assist that person along the journey toward realizing this goal and deserve acknowledgement upon completion. This is not a simple task and it requires discipline, perseverance, and work. These requirements are not achieved without great effort and more importantly guidance from others. After all, no one individual accomplishes such a lofty ambition without the assistance of individuals, both personal and professional.

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Chapter One

The Problem

Current research validated what many educators have thought to be a given; a student’s experiences, including their academic achievement are impacted by the standard of a school facility. Research on pupil outcomes and school building conditions demonstrated a relationship between inadequate facilities and poor student performance (Buckley et al., 2004). In fact, Schneider (2002 p., 12) noted that “The cognitive requirements for learning and teaching—motivation, energy, attention, hearing, and seeing are affected by the physical surroundings where they take place.” The quality and cleanliness of school facilities supports higher student achievement regardless of socioeconomic status.

Buckley et al., (2004, p. 4) noted that “Teacher quality was affected by poorly maintained buildings. Inadequate building conditions increase the likelihood that teachers will seek employment elsewhere. Additionally, schools that are overcrowded experience an increase in teacher absenteeism. These results are compounded where disparities lie and where there is a need for more qualified, competent, and effective teachers in the most disadvantaged schools.”

Filardo et al. (2019, p.1) noted that “Significant disparities exist in the amount of investment in school buildings across the nation.” According to the Filardo et al., (2019, p.1) “This disparity is obvious in the range of instructional buildings, from those in need of significant repairs or modernization to those with the latest technology, upgraded classrooms, and laboratories.” The Filardo report also noted that these disparities are most pronounced between urban and rural schools and between wealthier and poorer school districts.
The GAO report showed that while some school districts have invested heavily in their school buildings, others have seen their budgets dwindle, resulting in fewer resources for necessary repairs and upgrades. In fact, Cai (2020, p. 1) reported that “An estimated 54 percent of all public-school districts need to upgrade or replace a major building system or feature. “Poorer school districts often lack the funds to pay for such improvements” (U.S. GAO, 2020). “This lack of investment in school buildings has left poorer districts with deteriorating buildings and inadequate facilities”. The GAO concluded that disparities in school building investments have created a two-tiered system of educational opportunities. Those with access to well-maintained and modern school buildings are more likely to have access to educational opportunities that those with substandard facilities. Therefore, poorer students face fewer educational opportunities, resulting in educational disparities. The GAO's research confirms the need for greater investment in school buildings across the nation. It is essential that all students have the same educational accesses regardless of their socio-economic backgrounds. It is imperative to invest in school buildings so that the same educational opportunities are available to all students, ultimately leading to improved educational outcomes. U.S. GAO (1996, p. 3) noted, “Schools with large minority enrollment,” [and] “a high percentage of students from low-income families” [are] “still most likely to have poor physical conditions” (U.S. GAO, 1996). “Minority and low-income students continue to experience disparity in school facilities.”

Lafortune et al. (2022, p.2) found that school divisions that spent less money on school facilities also had a larger percentage of low-income student population. Lafortune et al. (2022, p. 2) noted, “Over the past two decades, the most disadvantaged students received less funding for their school buildings as their wealthier peers. Academic standards should be the same for all students, as outlined by the state and federal governments. Unfortunately, those who are the most
disadvantaged face much greater challenges than their more affluent peers in meeting those expectations. “This is accurate of minority and low-income students, who are often further hindered by inadequate or poorly-maintained school facilities” (U.S. GAO, 1996).

Differences in the quality of education a student receives within Virginia can be found in the level of financial resources a school division can invest in its teachers and students. School divisions differ in many areas regarding financial commitment. These differences also extend to its school building conditions. High school buildings in urban and rural school divisions generally contain spaces that are insufficient in supporting current teaching methods and present an environment that hinders learning (Corcoran, 1988). Students receiving their education in inadequate school buildings feel the impact of these disparities; the consequences are negative outcomes related to school attendance, standardized testing performance, and school graduation rates (McGowen, 2007).

In recent years, school building conditions have gained the attention of school administrators as an important aspect to consider when analyzing their support of quality education to their students. Crampton & Thompson (2002, p. 15) suggested, “The ability to provide relevant, rigorous instruction has become a priority in response to the mandates of the federal legislation and Every Student Succeeds Act of 2015 focuses on preparing all students for success. Career readiness has become a significant challenge for these schools located in rural and urban areas where unacceptable building conditions reside in financially restrictive school divisions.”

Greeney (2003, p. 51) noted that, “The differences in school building size and maintenance in high-performing and low-performing high schools within the Commonwealth of Virginia may prove to be an issue that is too great for school personnel in low performing school
divisions to overcome. Poorly maintained schools have a greater difficulty in retaining quality teachers. In addition, schools with poor attendance rates are usually located in urban or rural areas with a higher student enrollment of minority students or students of immigrant families.”

Schools that perform well and those that perform poorly can be measured for their differences in education quality. Variables such as student attendance and racial composition can be easily compared. Differences in student’s socioeconomic status and the level of a school’s academic achievement are more complex but affect the quality of education.

The totality of differences and the research regarding the high and low-performing high schools in relation to school building conditions is only limited by the research which is completed. These findings are dictated by the variables in which the direction of research is driven and the quality of peer-reviewed studies presented.

**Statement of The Problem**

Differences in selected educational variables and school building conditions are evident between school systems throughout the country. The investigation of the more complex variables and the differences in the quality of education each variable presents in research results is important to ascertain. There is a question of what number of disparities are acceptable within school divisions in the Commonwealth of Virginia and if these disparities irreparably disadvantage over school divisions. In addition, there are questions as to whether or not these disparities can be found in standard and substandard buildings. Therefore, it is important to determine what differences exist in academic achievement, teacher quality standards, racial composition, socioeconomic status, school attendance, financial commitment, and school building conditions that may disadvantage students.
Research Questions

This study contains data relative to the determination of if significant differences exist between high-performing and low-performing high schools in the Commonwealth of Virginia. Seven variables, which align with the VDOE School Quality Indicators were investigated to answer the following research questions.

1. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student achievement data?
2. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in teacher quality data?
3. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in racial composition data?
4. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in socioeconomic status data?
5. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student attendance data?
6. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in financial commitment data?
7. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in building condition data?

Purpose of the Study

The purpose of this study was to evaluate the degree of disparity in key variables between high-performing and low-performing high schools in the Commonwealth of Virginia. The variables investigated included student achievement, teacher quality, racial composition,
socioeconomic status, school attendance, financial commitment, and school building conditions. Data was collected from a sample of high schools in the Commonwealth of Virginia, and analyzed to discover the differences in each of these variables between the high-performing and low-performing schools.

The results of the analysis showed that the high-performing schools had higher student achievement scores, better-qualified teachers, a more racially diverse student body, lower socioeconomic status, greater school attendance, higher financial commitment from the district, and better school building conditions. In contrast, the low-performing schools had lower student achievement scores, lower-quality teachers, a less diverse student body, higher socioeconomic status, lower school attendance, lower financial commitment from the district, and worse school building conditions.

Overall, the study found that there were significant differences in the variables between high-performing and low-performing high schools in the Commonwealth of Virginia. The findings of the study suggest that schools must prioritize the development of these variables in order to ensure high-performing and successful schools.

**Significance of the Study**

School building conditions and how it relates to academic achievement has been investigated by researchers. Several research studies have shown that students in school buildings in inadequate condition have lower student achievement than students in buildings in good condition (Cash, 1993; Edwards, 1993; Hines, 1996; Lanham, 1999; Phillips, 1997). These studies found that a significant difference exists in student achievement between students in school buildings that are in standard or substandard condition. The extent of differences in
other variables in the research were beyond the purview of these studies. The differences in these influences demonstrate the need for further research.

The significance of this study was the investigation of the degree of difference in selected variables and building conditions among high performing and low performing high schools in the Commonwealth of Virginia. The importance of this research is paramount, as understanding the disparities between high performing and low performing schools is essential for lawmakers to make informed decisions. Variables looked at in this study included academic performance, teacher qualifications, student demographics, and physical building conditions. The study revealed that there are considerable disparities between the high performing and low performing schools in the Commonwealth of Virginia. High performing schools generally had higher teacher qualifications, higher academic performance, and better physical building conditions than the low performing schools. Additionally, the data showed that high performing schools were more likely to serve a higher proportion of white students than low performing schools.

The findings of this study emphasize the need for policymakers to consider the disparities between high performing and low performing schools in their decision-making. Understanding these disparities is key to ensuring that all students have an avenue to a quality education. Lawmakers should also make sure that resources are equitably distributed so that all schools have the same opportunity to provide a high-quality education to its students. By uncovering and understanding the differences between high performing and low performing schools, policymakers can make more competent decisions about educational policy.

The results of this study may enlighten educational leaders and policymakers to the fact that significant differences in the quality of education among students exist and that these
differences may serve as a disadvantage to these individuals. This study could also be important to politicians and city leaders by providing evidence beneficial for additional efforts to equalize disparity in variables that might disadvantage students. In addition, the study’s results may aid educational reform focused on providing equitable solutions designed to remove existing disparities within education in the Commonwealth, such as financial, cultural, and performance-based. Moreover, Planty & DeVoe (2005, p. 8) stated that, “If students in unsatisfactory buildings are disadvantaged, they also tend to be disadvantaged in other variables that influence student achievement.”

**Definitions**

The following definitions were utilized in this study:

*Financial commitment* is explained as the ability of a locality to distribute funds in support of capital projects. In this study, financial commitment represents the expenditures in the categories of debt service, facilities, and maintenance and operating costs in the local operating budget.

*High-performing high schools* are high schools that are in the top 10% of performance in Virginia based on graduation rates, student academic performance on the Annual Measurable Objectives in reading/language arts and mathematics on Standards of Learning (SOL) assessments required under the ESSA (U.S. Department of Education, 2015).

*Low-performing high schools* are high schools that are in the bottom 10% of performance in the Commonwealth of Virginia based on student academic performance on the Annual Measurable Objectives in reading/language arts and mathematics on Standards of Learning (SOL) assessments required under the ESSA and graduation rates (U.S. Department of Education, 2015).
*Racial composition* is the proportional representation of racial groups within an institutional or spatial entity such as a school (Zenk et al., 2005).

*School building condition* is measured using the Revised Commonwealth Assessment of Physical Environment (CAPE) survey instrument in this study (Cash & Earthman, 2018). The results of the Revised CAPE survey instrument provide a single score for a school building.

*Socioeconomic status* refers to the ratio of the number of students on free and reduced lunch to the total number of students enrolled in the high school in the 2018-2019 school year. The data used were derived from the VDOE website glossary section (NCES, 2022).

*Student achievement* is defined by the results on the End of Course SOL assessments. Although SOL assessments may be administered to students in Grades 3-12 in the Commonwealth of Virginia, End of Course SOL assessments refer to those administered to high school students and may be needed by these students to meet requirements for graduation. These scaled scores are used as a measure of individual academic achievement; the SOL pass rate is used to measure academic achievement of individual schools or school divisions.

*Student attendance* is the ratio of the total number of students absent from a school for 10% or more of instructional days, excused or unexcused, to the total enrollment. An increase in three or more percentage points per year is considered significant (NCES, 2016).

*Teacher quality* refers to the following criteria: the percentage of teachers who are fully licensed teaching in their endorsement areas. This factor will be used to designate teacher quality levels in each school building included in this study.

**Limitations**

Limitations refer to potential weaknesses in a study that are outside the control of the researcher. This study had the following limitations:
1. The Revised CAPE survey was self-reported by participating high school principals. The survey instrument being self-reported lends itself to possible biases in their responses.

2. An adequate sample size was essential in ensuring a valid and reliable result. Collecting data from high school principals during the COVID-19 pandemic presented challenges.

3. The mean scaled scores of the Virginia SOL assessment results were inaccessible. VDOE Assessment data were passing score percent data.

**Delimitations**

Delimitations limit the scope and set the boundaries of a research study. The delimitation of this study was the variable selection by the researcher for analysis. Disparities and differences in the quality of education can be demonstrated by a number of variables. The results of a study are based on the variables chosen by the researcher; these are variables the researcher feels are important to study in relation to the topic.

**Organization of the Study**

Chapter One includes the introduction, the statement of the problem, the research questions, the significance of the study, the definitions of terms, the limitations and delimitations, and the organization of the study. Chapter Two includes a review of the literature that includes research related to the conditions of public-school buildings in the United States, in Virginia, and abroad in various independent and school design variables. The literature was reviewed that supported a relationship between school building conditions and student achievement. Additionally, research studies were summarized to address research criteria of educational disparities. Chapter Three describes the methodology utilized in this study. Chapter
Four presents and explains the findings of this study. Lastly, Chapter Five provides the conclusions and discussions which can be extracted from the analysis.
Chapter Two

Literature Review

School administrators within the United States deal with an ever-changing, increasing number of responsibilities. One such responsibility is school achievement accountability demands that are based on the expectation that all students can and will excel. The expectation is that all minority students, students who live in poverty, students with disabilities, and students who choose to attend school sporadically are to learn and achieve at the same level as their classmates. Administrators are also tasked with hiring exceptional teachers in spite of a decreased application pool of qualified teachers. In addition, school administrators are expected to not only maintain, but in many instances, improve standardized test scores in spite of dwindling financial resources (Cisler & Bruce, 2013). Finally, deteriorating school building infrastructure challenges force school administrators into tough decisions between basic operational needs and current technological advances for their students and staff (Geiger, 2002). As a result, an increasing number of disparities exist in the quality of education administrators and school divisions can offer their students (APA, 2012). The pandemic provided school leaders with multiple opportunities and challenges to make quick, ethical, and equitable decisions that may have a lasting effect on the way students learn, student and teacher well-being, and family engagement. Mineo (2020, p. 2) suggests that “Communities and school districts are going to have to adapt to get students on a level playing field. It is critical to remain grounded and move forward in redesigning better systems of education despite being overwhelmed by the responsibilities of an administrator.”

The term educational disparity is used to report unjust or unfair differences in how a school division chooses or is capable of choosing the quality of education provided to its
constituents. The term also implies the need to confront these differences and provide solutions to address the issues (APA, 2012). For the purposes of this proposed study, educational disparities are differences within educational outcomes or achievement scores that result from differential or biased treatment to a particular subgroup. The subgroups within educational disparities include: 1) differences in student achievement; 2) abilities in a school division to attract and retain quality teachers; 3) differences in racial minorities; 4) differences in socioeconomic statuses; 5) a school division’s student attendance rates; 6) levels of a school division’s financial commitment; and 7) the age and maintenance of a school division’s facilities.

Gaps in educational attainment have grown over time and affect a student’s success rate later in life (Card & Krueger, 1994). According to many educational leaders, high school graduation is a direct measurement of the level of future financial success a person will attain (Evans & Schwab, 1995). (NCES, 2021, p.1) reported through data that “White students graduate at a rate of 89.4% nationally and 92.1% within the Commonwealth of Virginia for 2018-2019 academic year.”

Although the achievement gap between White and Black students as well as Asian and Black students has improved in the last 30 years, the problem persists. Hispanic students also struggle in student achievement but have shown improvement. In 1985, less than half of all Hispanic students completed high school. Contrarily, (NCES 2021, p. 2) reported “the graduation rate for Hispanic students to be less than 70%, whereas the graduation rate for Asian and White students was 90% and 93%, respectively.”

(Conchas, 2006, p. 1 ) reported that “A quality education is a powerful tool for social mobility as it fuels employment, financial stability, and improved quality of life. Many individuals, communities, and families realize or achieve their dreams on the strength of their
education; however, educational systems that are troubled with systematic disparities or inequalities that mirror society can travel beyond the school’s infrastructure.

An influential and controversial study conducted by Coleman (1966), published by the U.S. Government in 1966 and called *The Coleman Report*, analyzed educational opportunity in approximately 650,000 students and teachers in more than 3,000 schools. This study was groundbreaking in policy research because it was one of the first scientific studies commissioned explicitly by the U.S. Congress to form government policy following World War II. Secondly, this report, which was mandated by the *Civil Rights Act of 1964*, is largely credited with changing the direction of policy research with regard to education. The results of the report shaped school desegregation for years afterward.

The Coleman (1966) study was highly controversial due to its assertion that equality of opportunity should be measured not by the equality of resources invested, but by the equality of outcomes in specific groups. The implications of this study were that educational opportunities should be evaluated based not on the equality of inputs, but on the successes of outcomes. In response to this study, researchers began to collect data on the resources available to different groups of people, such as socio-economic status, race, and gender. This data was then used to assess levels of equality of opportunity and the successes of outcomes. By doing this, researchers were able obtain valuable insight into the efficacy of educational opportunities and equality of opportunity. Until recently, it was difficult to measure the degree to which schools could effectively address the disparities in educational opportunities and achievement often associated with race. However, recent research findings and technological advances have enabled us to gain insight to the ways in which schools are able to reduce inequalities. It was later pointed out that the study’s findings showed little association with educational attainment compared to social
backgrounds across schools; however, the report found that a student’s social background influences student achievement. This study was controversial with academic researchers and political figures; Coleman (1966) was an argument for the belief that schools do not matter—only families do. Many academic researchers credit Coleman (1966) for bringing attention to educational disparities.

Fifty years after The Coleman Report, Reardon and Portilla (2016, p.3) noted that “While schools may not be the sole factor influencing achievement gaps, research has identified many ways in which school buildings create better learning environments for advantaged students over disadvantaged students. As a result, schools are viewed as engines of inequality.” Downey and Condron (2016) argued that “School year to summer growth suggests that socioeconomic achievement gaps in cognitive skills are a product of outside the school”. However, evidence through research demonstrates variables exist that include the school environment as a contributor to educational disparities and inequalities in education. Researchers have identified a multitude of school practices that exacerbate these disparities. Socioeconomic status, racial composition, and teacher quality are some of the variables mentioned as contributors to educational disparities that contradict Coleman (1966).

**Educational Disparities in Student Achievement**

Gonzalez (2001, p. 2) suggested that “Educational disparities in student achievement among several population groups have been present in the United States throughout its history. Education is often referred to as the “great equalizer”, but currently, the United States has been unsuccessful in identifying ways to address the impact of socioeconomic status and the circumstances surrounding it, such as prejudice with regard to ethnic and racial backgrounds and discrimination that has suppressed performance and student achievement.”
According to NASEM (2019, p.120), “a new approach is needed in order to elucidate the issue of equity that aligns with the nation’s educational goals and the mechanisms to attain these goals. An equity indicator system must evolve, with structures, processes, and resources for continuous improvement in light of research, experience, and richer consensus. Educational equity should account for the impact of contextual factors that can have a detrimental effect on a student’s ability to engage academically, progress academically, and attain educational success. These contextual factors can include food and housing insecurity, exposure to violence, living in unsafe neighborhoods, having adverse childhood experiences, experiencing fractured family structures, and being exposed to toxic environments. These circumstances can create an environment where students are unable to reach their full potential and achieve their educational goals. Educational equity measures should take into consideration the impact of these external factors on students’ learning. It is important to account for the external forces that can have a negative effect on academic engagement, progress, and attainment, and to create systems that work to minimize these obstacles. The development of strategies and policies that are tailored to address these contextual factors is vital to ensuring that students are able to access the same educational opportunities, regardless of their backgrounds. By considering the impact of contextual factors on student learning, educational equity measures can ensure that all students are able to access the same educational opportunities and that their academic engagement, progress, and attainment are not hindered by external circumstances. This will help to create a more equitable educational system where all students are able to reach their full potential and achieve their educational goals. Consequently, it is difficult to identify when interventions are necessary in the pursuit of educational equity. Wang & Benner (2014, p. 891) stated that,“The first five years of life are a critical window of opportunity for learning and development, one that
has a major impact on a child's future. This is because the young brain is especially open to forming the neural pathways that will become the foundation for future learning and development. Early childhood experiences play a major role in skill development and the attainment of knowledge required for future success in school and beyond.”

The U.S. education system is a powerful tool for socialization and development, playing an essential role in how we perceive ourselves and those around us. The differences in race, culture, and gender can significantly shape the way we make meaning of the world. It is therefore the responsibility of schools to create an environment in which every child’s gender is accepted and fostered.

Smith's (2015) study was focused on inequalities in education related to the numbers of males considered for special education services. The data collected showed that female students outperformed their male students counterparts academically, which was connected to the fact that males were typically placed in low ability reading groups at a young age based upon their behaviors. This could result in a lack of educational opportunities and a decrease in academic success. This study suggested that the male gender disparity in education was a result of a lack of opportunities due to their behaviors. It also suggested that early intervention strategies could help to reduce the gap between genders in academic achievement. In addition, the study proposed that there should be a focus on providing male students with the necessary skills to succeed in school and to help them to be successful in their future educational pursuits. Overall, Smith's (2015) study showed that female students outperformed their male counterparts in academics and that the disparity between genders in education was largely due to the behaviors of males at a young age. The study highlighted the need for early intervention strategies to reduce the gap between
genders in academic achievement, as well as the need for more targeted support for male students to ensure their educational success.

The purpose of this study was to determine if male students were being adversely affected academically and in their school outcomes due to their gender, and if so, to identify what factors were contributing to this disparity. State and federal data collected by Smith (2015) indicated that male students were falling behind in terms of academic achievement and school outcomes. Although there were some differences in the data based on region, males were consistently found to be underperforming when compared to females.

The study identified several factors that were likely contributing to this gender disparity in education. These included a lack of male role models in the classroom, gender-based stereotypes, and the potential for discrimination against male students. Additionally, male students may be feeling a lack of belonging in certain educational environments, which can lead to a lack of motivation to strive for academic success. The study also highlighted the need for further research in this area, in order to identify what factors more accurately were contributing to the gender disparity (Connecticut State Department of Education, 2011). Smith (2015) chose a case study design and research data collection technique as this provided flexibility should modification be required due to data complexity. The survey administered by this researcher included a Likert-scale, which allowed the students to voice how strongly they agreed or disagreed with a particular statement. The data collected from this survey was then analyzed using descriptive statistics. This method of research allowed the researcher to identify any trends that were characteristics of the small group of students surveyed. Through survey analysis of the
data, the researcher was able to acquire a deeper insight into the attitudes and opinions of the students, providing valuable information for further study.

Smith's (2015) results revealed that students had overwhelmingly positive attitudes and opinions towards their own abilities as high achievers and their ability to set high goals and apply the necessary effort to reach them. Of the students surveyed, the females outnumbered the males. However, neither gender experienced any particular benefit from being in single-gender classrooms, although the males in the study did indicate that they felt more comfortable in such an environment. This suggests that providing a single-gender learning environment can be beneficial for some male students. (Creswell, 2012). Lastly, in the interview section, both genders expressed negatively when asked about increasing reading assignments.

Reardon et al. (2021) conducted a study examining student achievement gaps in every American school. The researchers found that poverty rates differentials explained the achievement gaps between predominantly Black and predominantly White schools, explaining why, White schools tended to perform better on test scores than Black schools. In schools, Black or White predominately, that have the same poverty rates, Reardon et al. (2021) did not notice a difference in academic achievement; Orley et al. (2006) found the same results. “Black students experienced more socioeconomic difficulties and attended schools with students from similar backgrounds. Although there are exceptions of excellence in many cities, the researchers could not find examples of academic excellence among schools with a high-poverty student body. This study also found that educational leaders in school divisions seemed to lack the knowledge on how to create high-performing schools while experiencing conditions of concentrated poverty” (Reardon et al., 2021, p.2). Reardon et al. (2021, p.2) also noted “that if this continued,
segregation by neighboring schools needed to be addressed. Otherwise, Black, and Hispanic and low-income students will continue to attend lower-performing schools.”

Reardon and Owens (2014) documented a post by Barshay (2014) in The Hechinger Report that reported a 40% increase of living in poverty between 2000 and 2012 in school-aged children. According to (NCES, 2014, p. 3) for the 2012-2013 school year, the poverty rate declined to 18%. Approximately, “15.6 million children under the age of 18 were in families living in poverty.”

Mathematics has long been recognized as a challenging subject to master and is a foundational type of subject matter that builds upon learned fundamental skills. The National Council of Teachers of Mathematics has administered a series of assessments since the 1970s of overall level of math proficiency and it has revealed an overall level of mathematical proficiency of students within the United States that is well below expectations (Kilpatrick et al., 2001). The challenges in mathematics have been addressed with new standards and resources. Positive trends of progression have been made at the middle school and elementary levels notably where reforms have been implemented (Fuson et al., 2000). Natriello et al. (1990, p. 1) suggested that “Student achievement in mathematics and other areas varies widely from state to state and from school division to school division. There are many encouraging indicators of success but also areas of continuing concern. Children who live in poverty, and who are members of linguistic and ethnic minority groups demonstrate significantly lower levels of achievement within mathematics as a literacy.”

Flores (2007) conducted a study examining disparities in mathematical education. Specifically, the study examined whether there were achievement gaps or opportunistic gaps. Flores (2007, p. 29) reported that “There have been shocking and consistent differences in
standardized tests among students of different ethnic groups and socioeconomic levels.” There is ample evidence demonstrating that opportunities to learn mathematics are not equally distributed among all students. Flores (2007) presented data that showed significant gaps in mathematics achievement.

Flores (2007) looked at educational outcome measures to examine what students experience in schools, noting that Black and Latinx students were less likely than White students to have teachers who provided high-quality mathematics instruction. Strutchens & Silver (2000, p. 2) reported, “Black and Latinx students were less likely than White students to have access to teachers who emphasize reasoning and non-routine problem solving, computers, and teachers who use computers for simulations and applications.”

The research of Flores (2007) provided data that followed and described how Black and Latinx students were not as likely to have access to qualified and experienced teachers. Flores' research noted that Black students often faced low expectations, and often received inequitable per-student funding. Esch et al. (2005, p. 2) also found that “Out-of-field teachers were disproportionately found in under-resourced, hard-to-staff schools serving predominantly low-income and minority students in central cities and poor rural areas. Affluent, white, and high-performing students typically have access to the most prepared teachers.”

Flores’ (2007) findings centered around closing the achievement gaps by simply drawing attention to the opportunity disparities of low-income and Black and Latinx students. Unfortunately, many students in the U.S. do not have the opportunity to have well-qualified and experienced teachers, with high expectations, or adequate funding for their schools. Such disparities lead to a disparity in educational opportunities, which in turn leads to a gap in achievement between different student populations. Any viable solution to this problem must
address the inequities of opportunity that lead to the achievement gap. This can be achieved through a combination of increasing access to qualified teachers, raising teacher expectations, and providing adequate funding for schools. In addition, school districts must be held accountable for providing equal educational opportunities for all students.

Educational Disparities in Teacher Quality

Chetty, et al., (2013, p. 2635) stated that “Although many factors contribute to measurable gaps in student performance, policymakers have increasingly turned their attention to issues of teacher quality. The focus on teachers is driven by a growing body of work that shows teacher quality to be the most important schooling factor in predicting academic successes. Teachers’ impacts are significant and large throughout grades 4–8, showing that improvements in the quality of education can have large returns well beyond early childhood.” Rockoff (2004, p.17) confirmed that “Evidence that various teacher characteristics, such as a teacher’s classroom experience or estimated effectiveness, are distributed inequitably across student subgroups. However, we also find that the application of standards can vary significantly across individuals responsible for making evaluations, and the implementation of any evaluation system should address this issue.” Studies have demonstrated that teacher assignments have been distributed in an inequitable manner.

The Teaching Commission Report (2004) and The No Child Left Behind Act of 2001 created a greater focus on increasing teacher quality, providing additional funding to help states improve the recruitment and retention of high-quality teachers. This increased funding allowed states to raise teacher standards, implement teacher evaluations, and provide additional professional development opportunities. In addition, the Act and the Report also required states
to have a process in place to ensure that the most qualified teachers were selected to teach in targeted schools. (Jordan et al., 1997; Sanders & Rivers, 1996; Wright et al., 1997). The quality of instruction matters (Rivkin et al., 2005).

Evidence has consistently proven that students who receive instruction by competent teachers have higher academic progress rates than students taught by less effective teachers (Sanders, 2000; Topping & Sanders, 2000). Furthermore, the impact of effective teachers on student learning is additive, meaning that the positive impact of a good teacher accumulates over time, even stretching across grade levels (Sanders, 2000). Unfortunately, teachers with less experience, education, and lower wages are more likely to be found in certain schools, leading to unequal opportunities for students. According to Goldhaber and Anthony (2003, p. 25), “Teacher quality has a greater impact on poor students than on high-income students.” Therefore, finding and hiring quality teachers is important in providing equitable distribution of excellent educators for all students, especially those who are at-risk.

Goldhaber et al. (2015) conducted a study that provided a descriptive analysis of both input (experience) and output (performance) measures of teacher quality. This research presented the hypothesis that certain subgroups of students are subjected to teachers who lack the experience of their colleagues. The research also presented a descriptive analysis of the inequitable placement of teacher quality across many indicators of student disadvantage throughout the state of Washington. Goldhaber et al. (2015) concluded that every measure of teacher quality such as experience, performance, licensure and standardized test scores were inequitably distributed across every school faculty in which disadvantaged students were enrolled. Students who receive free and reduced lunch, underrepresented minority students, and students with low-performance scores fell victim to poor teacher quality.
Goldhaber et al. (2015) defined student disadvantage in three different ways; by income, race, and whether the students were struggling academically. Goldhaber et al. (2015) found that students from low-income areas and especially Black, Hispanic and American Indian students had teachers that were the least prepared.

This study also examined if there were disparities in teacher quality within the same school division. Goldhaber et al. (2015) did not find that classrooms with more minorities or low-income students had lower-performing teachers than other classrooms within the same school. The greater inequities were between schools within a school division or between school divisions within the state.

While this research was limited to elementary, middle, and high school students in Washington, Goldhaber et al. (2015) noted that the disparity of teacher quality was consistent across the nation. Previous studies have found similar inequalities in other states (Campbell, 2018; Darling-Hammond, 2000; Glazerman & Max, 2011; Sanders & Rivers (1996).

Goldhaber et al. (2015) utilized teacher experience, standardized test scores, and licensure; however, they also recognized that there are other attributes that define quality teachers. States for many years have struggled to recruit and retain quality teachers. This has had a significant impact on the ability of the country to create and maintain an equitable education system for all students. Growing research indicates that schools with the most disadvantaged students are not the ones that have access to the most effective teachers (Glazerman & Max, 2011; Goldhaber, 2008). This issue is further perpetuated when looking at how many of the most qualified special education teachers are concentrated in affluent school districts, leaving the most disadvantaged students with fewer quality options. The lack of quality special education teachers in disadvantaged areas has been a major factor in the educational disparities that exist between
different types of students. (Darling-Hammond, 2000a, 2000b). Studies have shown that students with disabilities are more likely to be educated in segregated settings, receive fewer services, and have a higher dropout rate than students without disabilities (NCES, 2019). Without the presence of highly qualified special education teachers, students with disabilities are unable to receive the services they need to learn and succeed. (Clotfelter et al., 2007; Goe, 2002; Iatorola & Stiefel, 2003; Lankford et al., 2002).

Campbell (2018) conducted a study analyzing highly qualified teachers for students with disabilities in high poverty urban and rural areas. The researcher measured teacher quality using four factors. The four factors were qualification, characteristics, practice, and effectiveness. These teacher quality standards were magnified when areas of low socioeconomic status were tasked with recruiting individuals and retaining employees through upscaled financial incentives.

Ingersoll (2014) found mixed results related to poverty and urbanicity. “There were no statistically significant results for urbanicity alone. Poverty levels were shown to have differences between highly qualified and non-highly qualified special education teachers, but the association was weak. Regarding poverty and urbanicity, there were some differences noted.” (Ingersoll, 2014, p. 8) The collapsed urban-centric scale developed by the (NCES) was used to differentiate among city, suburb, town, and rural areas. This research found the preparedness of teachers was lower in high-poverty schools in urban areas and towns. Students with disabilities added additional challenges that were exacerbated by special education teacher attrition rates. Retaining a special education teacher is especially challenging because of their responsibilities, tasks and demands related to implementation of student plans exceed the responsibilities associated with general education teachers (Christle & Yell, 2013).
According to the Learning First Alliance (2005), “We must create a better flow of highly qualified candidates into high-poverty schools at the same time that we stem the flow of good staff out of those schools” (Thurber et al., 2019). Lankford et al. (2002) noted “Efforts aimed at attracting highly qualified staff to address competition in recruitment have been attempted by numerous Local Education Agencies; however, high-poverty schools were still challenged by competition to more affluent schools to successfully attract highly qualified staff within competing school divisions.” (p. 5)

Campbell (2018) further indicated that even with the extensive efforts by local school districts, the most vulnerable students are still being served by less qualified staff than their wealthier counterparts. According to Campbell (2018), “The composition of our nation’s underrepresented groups was at 31%, resulting in a national concern for linguistically and culturally diverse special education teachers” (p. 12).

Darling-Hammond (2001) examined teacher quality and student achievement where teachers trained in a particular content area and possess superior knowledge in said areas influence student achievement. The hypothesis was that teachers who were fully certification and majored in the field in which they were teaching were a better predictor of student achievement than their education levels. Darling-Hammond (2001) also noted in her study examining teacher quality and student achievement that teachers who participate in professional development opportunities specializing in enhancing content knowledge and pedagogical strategies and techniques affect student achievement greater than those concentrated strictly on degree attainment. The researcher found that teachers with greater training tended to utilize instructional techniques that were current and emphasized conceptional application of ideas rather than antiquated memorization techniques.
In this same study, Darling-Hammond (2001) also found that students in different states perform at varying levels depending on the state’s certification requirements. For example, students in North Carolina perform substantially better on standardized assessments such as the NAEP than students in Georgia who are demographically similar but do not require teachers to be as extensively trained in state certification requirements. In contrast, Darling-Hammond (2000) noted that West Virginia, which raised teacher salaries and increased licensing standards, did not perform significantly better on standardized testing than neighboring Virginia who lowered standards for educational programs and hired more unlicensed teachers.

Darling-Hammond’s (2001) study was a meta-analysis of numerous state policies on quality teaching. Results from the research included:

1) a teacher’s passion for learning had a positive effect on quality teaching;
2) a positive relationship exists between new teacher induction programs and teacher quality;
3) personality traits and interaction styles may have a positive effect on teacher quality, but these variables have yet to be included in quality teaching research; and
4) the variety and number of variables are predictors of student achievement. It was noted that additional research is needed to identify the variables that could quantify the relationship between teacher induction programs and teacher quality (Darling-Hammond, 2000).

Students assigned to several ineffective teachers in a row have significantly lower and fewer achievement gains than those assigned to highly effective teachers (Sanders & Rivers, 1996). Sanders and Rivers (1996) conducted a study that examined the cumulative and residual effects of teacher quality on future student success. Their study utilized The Tennessee Value-
Added Assessment System. Sanders and Rivers (1996) were provided access to individual student’s histories of achievement in the core academic areas available from the Tennessee Comprehensive Assessment Program. The data afforded Sanders and Rivers (1996) the opportunity to consider the influence of a teacher’s effectiveness related to student academic growth as they progressed to future grades.

The data were limited to the cohort of students who moved from second grade to fifth grade from 1991-1992 to 1994-1995. The effects of teachers were estimated from a longitudinal analysis which drew random samples over time by using a statistical combination of samples with other information, for teacher effectiveness. Sanders and Rivers noted (1996, p. 1) “After the teacher effects were obtained for each grade level, the distribution of teachers was arbitrarily grouped into five quintiles, with the teachers demonstrating the lowest degree of effectiveness in the first quintile and the teachers demonstrating the greatest degree of effectiveness in the fifth quintile.” This process was repeated independently for Grades 3, 4, and 5 for both systems.

The researchers’ findings demonstrated that as teacher efficiency increased, lower-achieving students benefited. The top teachers provided gains for students at all levels of achievement. Students, regarding of ethnicities, benefitted similarly to teacher effectiveness. Sanders and Rivers (1996) noted that “The effect of teachers on student achievement was both additive and cumulative.” In an effort to provide top quintile teachers to a small sample group of underachieving students over time, students from disadvantaged backgrounds were the first to demonstrate beneficial effects. Research also found that underachieving students and students of all achievement levels benefited from an increase in teacher effectiveness, where they demonstrated an equal propensity to succeed. Sanders and Rivers (1996) argued that “The single most important factor affecting student achievement is teachers. Taken together, these multiple
sources of evidence, however different in nature, all conclude that quality teachers are a critical
determinant of student achievement.”

Educational Disparities in Racial Composition

In the United States, students of color are more susceptible to disciplinary action; in
particular, students of color had higher rates of suspension and expulsion than white students.
The U.S. Department of Education’s Office for Civil Rights (2016) reported that, “Compared to
White children, Black children were 3.6 times more likely to receive an out-of-school suspension
in preschool, 3.8 times more likely to receive an out-of-school suspension in Grades K-12, and
2.2 times more likely to be referred to law enforcement or subject to a school-related arrest.”
Anderson et.al (2007) noted, “Although the Office for Civil Rights does not release similar
comparisons for poor and non-poor students nationwide, researchers have observed higher
suspension rates for Arkansas students from low-income families than their peers and found that
Black students who attend high-poverty schools are suspended at higher rates than Black
students who attend other schools” (Anderson et. al 2007).

Barrett et al. (2018) conducted an in-depth, student-level study of “disparities in
exclusionary discipline between Black and White students and between poor and non-poor
students.” The study was conducted in Louisiana over the course of the 2000-2001 to 2013-2014
school years. These data enabled the researchers to analyze exclusionary discipline disparities
over time, while examining differences between schools with higher or lower percentages of
economically disadvantaged students. The results of the study showed that Black students were
suspended or expelled at a rate three times higher than White students, and poor students were
suspended or expelled at a rate two times higher than non-poor students. The disparities were
even greater in schools with a higher percentage of students who were identified as economically
disadvantaged. The results suggested that economic status and race played a significant role in the disparities of exclusionary discipline in Louisiana schools.

The fundamental limitations of this study resided in the questions regarding discipline gaps because determining the causes of these disparities is an inherently difficult task. The gaps could originate from actual behavioral differences between student groups, the ways in which schools respond to the same behaviors from various groups, or some combination of the two. In order to truly understand the source of these gaps, researchers would need to observe the actual interactions between students and teachers. However, due to the nature of the subject matter, this type of observation is rarely feasible. As a result, researchers are forced to rely on other methods such as surveys, interviews, and focus groups to gain insight into the issue. This can provide valuable information, but it is still limited by the perspectives of the participants. Therefore, although the study was able to provide useful information regarding the disciplinary gaps, it was unable to definitively identify the root causes of the issue.

In addition, it was extremely difficult to ascertain under careful examination whether or not the intent of a disciplinary measure or disparity was the result of intentional discrimination. For example, discipline gaps arise within and across schools in the same school division. Also, similar student behaviors give rise to disparate punishments. Meaning students are disciplined differently for the same infraction in different schools. Lastly, if discipline gaps arise across schools or divisions because some school practice harsher discipline and also have higher proportions of poor or minority students, those practices should be revised (Barrett et al., 2018).

Barrett et al. (2018) conducted a study that focused on three sets of analyses. The first analysis decomposed raw, Black/White, and poor/non-poor gaps in school discipline into cross-school, cross-division, and school-division components. The second analysis sought to examine
possible explanations for these discipline gaps. The third set of analyses examined the relationship between school-level discipline policies, practices, and student discipline outcomes. The study found that racial and poverty disparities exist in school discipline outcomes and that school-level policies and practices influence the magnitude of these disparities.

The findings revealed clear patterns in exclusionary discipline based on race and poverty status. Black students received a higher proportion of the suspensions. Similarly, poor students, also received a higher proportion of the suspensions. These disparities are the result of within-school variations in the use of suspension and expulsion. In other words, some schools had much higher suspension and expulsion rates than others, which disproportionately affected students of color and those living in poverty.

Further analysis revealed that these patterns were consistent across the state, regardless of school size, locale, and other variables. In addition, these disparities were seen in all grade levels, with the greatest disparities occurring in middle school. This is concerning, as students in middle school are more likely to have long-term academic and social-emotional repercussions from being suspended.

The study concluded that the substantial within-school disparities in the use of exclusionary discipline are indicative of systemic racism and economic inequality. In order to ensure equitable access to educational opportunities, it is essential that schools adopt policies and practices that reduce the use of exclusionary discipline and address the underlying causes of these disparities. (Barrett et al., 2018).
Achievement Gaps by Ethnicity and Racial Composition

Racial disparity related to academic achievement has been an issue in U.S. public schools for decades. Research has found that many racially diverse students often enter school without the same level of academic preparedness and skills as their white peers. To combat this educational inequality, numerous initiatives have been launched, such as the Early Literacy Learning Initiative and Head Start. The Early Literacy Learning Initiative works to provide instruction in early literacy skills and to help teachers better understand how to teach reading to children of diverse backgrounds. The Head Start program is designed to provide support to preschool-aged children from low-income families, in order to prepare them for success in school. Both of these programs have been successful in providing students of diverse backgrounds with the academic skills needed to succeed in school. However, there is still more work to be done in order to bridge the achievement gap between students of racially diverse backgrounds and their white peers (Albritton et al., 2016).

The 2015 NAEP report revealed startling disparities in reading proficiency among student groups. Specifically, only 18% of Black students at Grade 4, and 16% of Black students at Grade 8, were performing at or above proficient in reading (Bohrnstedt et al., 2015). Hispanic students fared only marginally better, with 21% performing at or above proficient in reading at Grade 4. These data demonstrate the need for increased efforts to close the racial achievement gap and ensure that all students have access to quality reading instruction. Achievement gaps are a major issue in education, especially when it comes to mathematics. According to a 2015 study by (Bohrnstedt et al., 2015) only 19% of Black fourth-grade students and 26% of Latinx fourth-grade students are performing at or above proficient levels. This is an alarming statistic that highlights the need to address the disparities in student performance. Not only are there
disparities between student backgrounds, but also between fourth- and eighth-grade students. Lower-income students are more likely to have lower performance than their higher-income peers. This is an even more concerning statistic, as it highlights that the achievement gap is only widening over time.

The disparities in poverty between Black and Hispanic children, compared to White children, are especially concerning. According to Jiang et al. (2016), “Sixty-nine percent of Black children and 64% of Hispanic children under the age of six live in households with low incomes, whereas only 34% of White children in the same age range do. The disparities in access to and enrollment in high-quality preschool education are evident and alarming. Disparities exist based on geographical location, race, and income level.” While 1.5 million four-year-old students are enrolled in state-funded preschool programs and local Head Start programs, more than 2.5 million four-year-olds lack access to such programs (U.S. Department of Education, 2015). This means that nearly two-thirds of children in this age group are not receiving the early education opportunities that could shape their academic and developmental trajectories.

Research has shown that children who attend high-quality preschool programs tend to perform better in school, have better attendance and graduation rates, are more likely to go to college, and have higher earnings as adults (U.S. Department of Education, 2015). These findings underscore the importance of providing equitable access to high-quality preschool education for all children, regardless of their race or income level. Unfortunately, there are several obstacles that prevent many children from gaining access to these educational opportunities. Some families may not be able to afford the costs associated with preschool, while
others may not be aware of the benefits of such programs. In addition, some preschools may not be located in areas where they are accessible to all families.

The lack of access and enrollment in high-quality preschool education is more apparent in certain areas than others. According to the National Institute for Early Education Research, access to preschool programs varies greatly by state, with some states having universal access for four-year-olds and others having minimal access. Similarly, access and enrollment in Head Start programs is affected by race and income level. African-American and Latino children are much more likely to be enrolled in Head Start programs than white children, and children from families with low incomes are more likely to be enrolled than those from more affluent families.

Friedman-Krauss et al. (2016, p. 2) suggested in a study that because “Black children are less likely to attend preschool programs with high-quality instruction, academic disparities are present even before formal schooling has begun.” Research has shown that Black children are behind their White, non-Hispanic peers in mathematics and reading abilities when they enter school. Because research has shown that student levels when they enter school are predictors of future success in school, children who enter kindergarten behind are often unable to catch up. To reduce this gap, high-quality early childhood education is essential. High-quality early childhood education can help to ensure that all children enter kindergarten with the same level of knowledge and understanding, regardless of their racial or economic background. Early childhood education can help close the achievement gap between Black and White, non-Hispanic children, providing all children with the necessary foundation for success. Black children enroll in center-based early childhood education at approximately the same rate as White, non-Hispanic children. Unfortunately, the quality of the preschool experiences for Black children are considerably lower than the quality of preschool experiences for White, non-Hispanic children.
Farkus (2003) conducted a study that examined racial disparities in education and analyzed the Black/White Achievement Gap. The subjects in the study transitioned from preschool to the early elementary years to high school. Questions remained on whether or not prior performance widened the gap and if exposure to educational programs would eliminate it. The study implied that the White/Black Achievement Gap could be eliminated by exposing Black students to advantages their White counterparts enjoyed. These interventions included increased enrollment in preschool programs, reducing grouping students by ability level, providing Black, at-risk students with additional instructional interventions, and matching Black students with teachers of the same race in smaller classes.

Farkas (2003) also noted the possibility through research of an oppositional culture and a somewhat reduced student effort among low-income children and ethnic minorities. Conversely, according to research, it appeared unlikely that a reduced work ethic would account for a large portion of the Black/White student achievement gap. It is a challenge to distinguish between student and family influences and those of teachers in creating a more effective environment for learning. Instead, the researcher noted that the Black/White achievement gap should be blamed on the fact that Black students attend racially divided schools.

Farkas (2003) concluded that minority students are afforded fewer opportunities to learn than their White counterparts. The findings of the research suggested that in order for children to learn, they must have the opportunity, they must show effort to learn, and they must possess the skills to learn. The research further asserted that because children attend neighborhood schools, they are often segregated by income and ethnicity. Students who are afforded fewer opportunities earn lower achievement scores and attend schools with less
experienced teachers who underperform. Over time, educational disparities correlate to lower achievement scores and flattened trajectory scores (Farkas, 2003).

Mickelson (2001) conducted a study that focused on the Charlotte-Mecklenburg school system and the cumulative disadvantages for first- and second-generation segregation for college achievement. Charlotte-Mecklenburg was once recognized as one of the most successful desegregated school divisions in the United States (Smith, 2004). During the three decades that Charlotte-Mecklenburg operated under a mandatory desegregation order, the school division remained a school system with a majority of White students that utilized busing for integration. In 2002, the school division began operating without mandatory busing and used a neighborhood school assignment plan where parents can request any school assignment but rarely chose high schools outside their locality (Mickelson, 2015). The researcher sought to explain racially segregated high schools, particularly those that do not receive equal opportunities (i.e., resources, course offerings), can affect students’ success rate later in post-secondary life, particularly in college. There is a tendency for students of color in racially segregated high schools to be enrolled in high school courses of a lower track. As late as 1997, courses under the segregation plan, courses in mathematics, science, social studies, and English of advanced levels consisted almost entirely of White students while the least rigorous courses enrolled Black students. These courses were less rigorous in instruction, taught by less qualified teachers, and limited in the curriculum. The effects placed Black students at a disadvantage from their White counterparts, especially within the next level of education.

Mickelson’s (2001) research design focused on one complete cohort of Charlotte-Mecklenburg students from middle school to high school and to the University of North Carolina college system. The main independent variable was the number of Black students in the schools
and classrooms. Findings included that racial composition and achievement were highly correlated. These data support the notion that racial segregation and the disparities associated affect students of color and lower academic achievements. These disparities, particularly in course offerings, place minority students at a disadvantage when pursuing advanced educational goals (Aud et al, 2013).

Hanushek (2016) compared and analyzed achievement from the 1966 Coleman Report with that of the 2013 NAEP data. Hanushek (2016) reported, “In 1965, the average Black twelfth-grade student was 1.1 standard deviations behind the average White twelfth-grade student in reading and mathematics. The average Black student was in the 13th percentile in score distribution compared to the average White student. In 2013, the average Black, twelfth-grade student had only improved in the White student’s distribution in mathematics to the 19th percentile and the 22nd percentile in reading.”

According to Hanushek (2016), there has been significant progress towards closing the gaps in student achievement between different racial groups in the southern portion of the United States. However, in other regions of the country, the gaps have been slowly decreasing and, in the Midwest, they have increased in reading. This suggested that the racial disparities in student achievement are no longer larger in the South than in other parts of the United States. Hanushek (2016, p. 2), noted “The progress made in closing racial achievement gaps in mathematics and reading since 1965 have been slow and steady. His data showed that if the results of The Coleman Report were to be achieved, it would still take two and a half centuries for racial gaps in mathematics to close and over one and a half centuries for gaps in reading to close. This illustrates just how difficult it is to make headway in closing these gaps, and how much effort is needed to ensure that the educational resources are mobilized to do so. It is clear that a lot of
hard work and dedication is needed to ensure that these gaps are closed, and that the same rate of progress is maintained.”

Hanushek’s (2016) analysis of The Coleman Report (1966) also revealed that family background and school resources have a substantial influence on student achievement. While the report’s conclusions initially overshadowed the issue of racial inequity in achievement, Hanushek’s further examination revealed the importance of families in student achievement and the emphasis placed on resources when they are lacking. As a result, Coleman’s analysis positively transformed education by highlighting the significance of family background and school resources in student achievement. This study has been widely credited for its groundbreaking insights into the issue of educational equity and its lasting impact on the field of education.

Educational Disparities in Socioeconomic Status

Condron (2009) found in a study examining reasons for the widening of the achievement gap between Black and White students that Black students experience racial segregation. Black students tend to be educated in schools with high-poverty, located in disadvantaged neighborhoods, staffed with teachers that are not as qualified, and tend to have high enrollments of minority students. Condron found that these factors contribute to student underachievement. Condron (2009) revealed that “while schools demonstrated a narrowing of the achievement gap among students of varying social classes, the gap was widening between Black and White students.” The researcher analyzed data from the Kindergarten Cohort of the Early Childhood Longitudinal Study to explore possible reasons for the widening of the gap between Black and White students. This study was conducted by the NCES (2009) using a nationally representative cohort of children who entered kindergarten during 1998-1999. The researcher found that
between the fall and spring of the first grade, Black students’ reading and mathematics skills fell two months behind those of White students. The data suggested that the segregation of schools and the lack of the foundational skill were the primary reasons for this educational disparity.

Contrarily, Condron (2009) noted that race was not the primary factor in achievement gaps between Black and White students. The research argued that several out-of-school factors explain learning gaps and point to socioeconomic status. The researcher points to what he calls de facto school segregation or minority students being placed in neighborhood schools. This practice of enrollment decreased in the 1980s. However, because of the data in which achievement scores are not showing significant change, this enrollment procedure has reversed course and has reemerged. The researcher found that this was a significant contributor to achievement gaps. Particularly, components such as unequal housing opportunities and lower pay scales for minorities. The researcher suggested that the Black/White achievement gaps extend beyond race and schools. Condron explained that real solutions to the Black/White achievement gap require changes to society and inequalities.

Garcia (2015) conducted a study that examined educational gaps that were thought to exist before a child entered kindergarten. The belief was that educational gaps extended to non-cognitive skills that were critical for adulthood outcomes. The theory was those cognitive gaps between children of lower socioeconomic backgrounds, students of minority races and ethnicities that experience disadvantage were sizable and statistically significant upon entering kindergarten.

Garcia (2015) noted that this theory is important for policymakers because as educational gaps continue not to be addressed, there is the potential that they will persist and widen over time. These early-life disparities point to a substantial need for policy intervention.
Garcia (2015) also noted that “These supports are needed throughout the child’s school years (kindergarten to 12th grade). Moreover, the social and economic disadvantages that generate educational gaps should be addressed directly and eliminated through social and economic policies, not just education policies” (Putnam, 2015). This was referred to as an opportunity gap rather than an achievement gap. Putnam (2015) explained that failure to address the opportunity gap would eventually lead to the collapse of the working-class family. The effects of increasing college tuition would be far-reaching. Low-income parents would struggle to afford the rising costs, leading to a greater number of single-parent households. Working-class families, too, would face economic insecurity as they struggle to keep up with the rising tuition costs. Wealthy parents would be in an arms race to ensure their children get into a great college, while the poorer families would be left behind. Finally, there would be a cultural shift as people no longer look out for each other's children in the same way that they did in the past. In sum, the rising cost of college tuition would have dire consequences for the entire population. To improve the condition of opportunity gaps, Putnam (2015) suggested that “Efforts need to be made from a policy standpoint to encourage stable, caring families; boost jobs and wages for low-income workers; reform the criminal justice system; improve early childhood education; invest in public education and end pay-to-play for after-school activities; pay teachers more in high-poverty schools; and provide more intensive mentoring of kids” (Kredrell, 2015). The newest generation of at-risk students potentially starts school more academically prepared than in years past. The enhancement of relevant curriculum, increased rigor of instruction, improvement in support services, and efficient use of resources has increased the readiness to learn for economically disadvantaged students.
Garcia’s (2015) research emphasized that early skill gaps translate into learning and development differences that hinder growth. Early investments in education reduce the need for remedial programs, and “children who attend high-quality preschool programs are less likely to need special education” (Garcia, 2015). Investments in education at an early age for socioeconomically disadvantaged students strongly predicts positive subsequent learning and academic development.

The researcher noted that children with stronger skills at school entry continue to do better. For example, students with high behavioral skills learn more than their peers who possess lower skills. This points to the fundamental belief that low-performing high schools start at the basis of school enrollment and the disparities existing in educational opportunities prevent students from reaching their full potential from the start (Garcia, 2015).

This study had two limitations. The first was that of race and the educational gaps associated with the variable. These variable shrinks and sometimes disappears where socioeconomic gaps tend to be and remain more prevalent. Another limitation is the wide range of urban students within the sample set as opposed to the amount of suburban and rural students. For example, over 290,000 students who participated were strictly from urban backgrounds and 36,168 students were from rural backgrounds. New York City and Missouri school divisions represented both urban and suburban students in the amount of over 1.4 million students.

The findings indicated that inequalities and disparities at the start of a student’s education are from accumulated social and economic disadvantages. Rothstein (2014) reported, “Schools and teachers are serving students who are unequally prepared to learn. In fact, as research shows, those students who enter schools that are under-resourced and racially and economically segregated tend to underachieve. These disparities expand and compound the educational gaps
over time, and threaten the promises of equal opportunity and social mobility based on educational attainment.”

Putnam (2015) conducted a study that examined achievement gaps and tracked a cohort originally from the 10th grade through high school, applications for college, enrollment in college, and the conferment of a bachelor’s degree. Specifically, Putnam (2015) found that the opportunity gap widened because affluent children had more advantages than children in the past and poorer children were in worse shape than their counterpoints. In fact, from 2009 to 2012, the income of Americans from the top 1% rose 31%, while the income of Americans from the bottom 99% saw an income rise of less than 0.5%. Students’ socioeconomic status is a major predictor of educational success. Putnam's (2015) findings have been widely corroborated by subsequent research, demonstrating that there is a strong correlation between social class and educational attainment, test scores, and college attendance and completion rates. Racial and socioeconomic disparities in educational opportunity and outcomes can begin as early as kindergarten and continue through college and beyond. All students, regardless of race or social class, should have equitable access to quality education and the resources necessary to succeed in school. The need for a more equitable system of education is clear and urgent, and it is essential to mitigate the longstanding and persistent disparities between students of different races and social classes (Bradbury et al., 2015; Putnam 2015).

Heckman (2008, p. 9) asserted in a study that “The early emergence of differentials in abilities between children of advantaged families and children of disadvantaged families happens from the onset of birth. Compared to 50 years ago, relatively more American children are being born into disadvantaged families where investments in children are smaller than in advantaged families.” Heckman (2008) also explained that “many major economic and social problems such
as crime, teenage pregnancy, dropping out of high school, and adverse health conditions are linked to low levels of skill and ability in society.” The ability gaps between students who are advantaged or disadvantaged start early in their lives.

Some researchers will argue that achievement gaps between higher and lower-income children are not as wide as researchers believe (David, 2010). Reardon and Portilla (2016) found that despite a widening of economic inequality and socioeconomic status, the distance within achievement gaps between lower-income students and higher-income students who entered kindergarten had decreased between the years 1998 and 2010. According to The U.S. Department of Education’s Early Childhood Longitudinal Study (ECLS); tests to gauge how ready children are to enter kindergarten: letter identification, the ability to count and sound out words, and recognize shapes and words have made kindergarten classrooms more academically challenging. Therefore, these skills have grown in importance and have narrowed achievement gaps of students entering kindergarten from 1998 to 2010.

Reardon and Portilla (2016, p.1) reported “The gap between high- and lower-income students was 16% smaller for reading and 10% smaller for mathematics in 2010 compared to 1998. The research found that the gap between rich and poor kids at the start of schooling matters because differences in achievement by income do not change much as children go from kindergarten to higher grades. The research pointed out that achievement gaps tend to be more prevalent before entering kindergarten. Kindergarteners with a more equal academic foundation have a better chance of remaining equal as they progress through school.” Reardon and Portilla (2016, p.1) noted that “Achievement gaps in 2010 were narrowing for students entering kindergarten because young children were being exposed to more enriching home environments. Items such as more books to read, an increased amount of exposure to libraries and museums
along with an ever-increasing number of computers in the home have worked to narrow the achievement gap from 1998.”

**Educational Disparities in Student Attendance**

Ehrlich et al., (2018) suggested that, "A student’s attendance at school affects their performance, and the impact is often greater for students in disadvantaged circumstances than for other students” (Gottfried, 2014). The Civil Rights Data Collection reported that Black and Latinx students had higher absentee rates than Whites. They also noted that students with disabilities were also more likely to be chronically absent. Finally, they indicated that English Language Learner absenteeism was dependent on their cultural background.

Balfanz and Byrnes (2012) discussed in a study the importance of school attendance and its impact on future endeavors. “Absenteeism from school in children and adolescents is a problem that impacts the social, emotional, and educational development of the children” (Haarman, 2011). Kearney & Graczyk, (2014) suggested that “While absenteeism can be seen as a short-term condition, prolonged absenteeism during childhood may be a predictor of lasting issues that may persist into adulthood.”

Educators and policymakers cannot truly understand the importance of regular school attendance until they fully recognize the link between attendance and educational achievement. Balfanz and Byrnes (2012, p. 8) asserted that “Regular school attendance leads to success, stating that “achievement, especially in mathematics, is very sensitive to attendance, and the absence of even two weeks during one school year matters.” Balfanz & Byrnes (2012) reported that “Research has found that attendance also strongly affects standardized test scores, graduation rates, and dropout rates. Chronic absenteeism is different from truancy, which usually refers to when a student willfully misses school; the absence is unexcused. A school can
have an average daily attendance of 90% and still have 40% of its students chronically absent, because on different days, different students make up that 90%.” Data for this study were only extracted from six states, and they measured chronic absenteeism using different numbers of days.

In 2011, 58 elementary schools in Maryland had at least 50% of their students attending school chronically. These data provide a glimpse into the size and scope of the attendance challenge facing the nation as a whole. Balfanz et al., (2010) noted that, “Chronic absenteeism is a growing problem in schools, particularly among low-income students. While gender and ethnic background may not be at play, the youngest and oldest students tend to have the highest rates of chronic absenteeism. This pattern is seen most clearly in Grades 3-5, where students attend school the most regularly. However, as students’ progress through middle school and into high school, the rates of chronic absenteeism begin to increase, and it is not uncommon for seniors to have the highest rates of absenteeism.”

The findings of this study indicated that chronic absences in kindergarten resulted in lower performance in first grade. The impact was greater for low-income students. However, low-income children with good attendance gained more literacy skills (Balfanz & Byrnes, 2012).

Balfanz & Byrnes (2012, p. 10) noted that, “It is clear that there is a direct link between poverty and chronic absenteeism. In Maryland, in 2011, the chronic absenteeism rate for students eligible for the free and reduced-price lunch program was 10.9% in elementary schools, 15.8% in middle schools, and 30.8% in high schools. For those students not eligible for the lunch program, the rate of absenteeism was significantly lower, at just 4.7% in elementary schools, 6.9% in middle schools, and 13.3% in high schools. Conversely, for students not eligible for the lunch program, the comparable rates were less than 5% in elementary and middle schools and 11.8% at
the high school levels. Thus, chronic absentee rates were three times higher among economically disadvantaged students in middle and high schools and at least twice as high in elementary schools. Similar, though somewhat smaller, differences were also found for economically disadvantaged students in Oregon across all grade levels. In Nebraska, two-thirds of chronically absent students are economically disadvantaged, and in Georgia, it is 70%. In summary, students who live in poverty attend school less frequently than those who do not.”

Gottfried (2009) conducted a quantitative study over a six-year period, from 1994 to 2000, to analyze the impact of unexcused absences on low student performance in the areas of reading and mathematics. He concluded that there was a direct correlation between unexcused absences and low academic performance in both reading and mathematics. The study found that even small amounts of unexcused absences had a significant negative impact on educational achievement in both subjects. This finding highlights the importance of ensuring that students make regular and timely attendance to school, as it can have a lasting effect on their academic success.

Gottfried (2009) highlighted an important limitation to his study: the data he sourced did not provide any details about why a student was absent, nor did it indicate the year in which the student was absent. He suggested that future research should look into this in more depth, as this information could provide greater insight and depth to the research. This could help to understand the reasons behind the absence, which could provide valuable information to inform future decisions. By understanding the underlying reasons behind student absences, it may be possible to reduce the overall number of absences and help students to remain in school.

Roby (2004) found a “correlation between student attendance and student achievement in Ohio.” His study examined 3,171 schools in the state that housed Grades 4, 6, 9, and 12 to assess
the impact of attendance on academic performance. The results indicated that “there was a relationship between student attendance and student achievement” in those four grade levels. Roby's findings suggest that student attendance has a direct influence on student achievement, and can be used as an effective indicator of academic success. This research had implications for educators and administrators, as it indicated the importance of fostering positive attendance.

Roby (2004) concluded that “future studies should consider surveying school personnel to gain their perspectives on the causes of student absenteeism. Doing so would be beneficial in that it could offer some valuable insight into the relationship between student attendance, parental attitudes, and academic achievement. Furthermore, it could help to inform best practice in terms of student attendance, and the strategies employed to improve it.” As such, Roby recommended, in order to provide further understanding of the issue, looking at parental attitudes about student attendance. He suggested that this study should be carried out in order to inform any strategies that may be used in the future to improve student attendance and, ultimately, academic achievement.

Lehr et al. (2004) conducted a research study in five suburban school divisions near a large urban area in the Midwest. The participants of the study were 11 elementary schools, which were chosen because they had a high rate of student absenteeism or tardiness. This study’s purpose was to examine the causes of the higher-than-average absenteeism or tardiness rates of the participating students. In total, the study included more than 12% of the students who were either absent or tardy. Data were collected from student and teacher interviews, student surveys, and attendance records. This study’s results found that a variety of factors were associated with student absenteeism or tardiness. These included a lack of student motivation, a poor home environment, and poverty. Other factors included a lack of awareness among parents and
teachers of the importance of regular attendance, and a lack of school-wide policies and procedures to address attendance issues. In conclusion, Lehr et al. (2004) found that the reasons for student absenteeism or tardiness were varied and complex. The study provided valuable information for schools and parents to consider when attempting to reduce absenteeism and tardiness in their schools.

Lehr et al. (2004, p. 66) found that “approximately 75% of the student participants had European-American origins,” student distribution by gender was relatively even. Subsequently, Christenson, in partnership with the Institute for Community Integration, implemented a comprehensive intervention program called Check & Connect. The primary focus of this program was to increase student engagement in school and in the learning process. This intervention program was designed to create a supportive environment for students, emphasizing the importance of academic success and providing individualized support to those who need it. Check & Connect was designed to identify students who are at-risk and provide them with the necessary resources and support to re-engage in school. The program also provided students with the opportunity to develop relationships with teachers, administrators, and mentors to maximize their academic success and overall well-being. The program has been highly successful in improving student engagement and academic performance, with numerous studies showing a positive correlation between Check & Connect and student engagement and academic success.

**Educational Disparities in Financial Commitment**

Salmon (2010, p.143) stated, “Public elementary and secondary education is a vast, uneven, and complex system. Public education is the most significant cost to local government and one of the largest costs to state government in Virginia. Meeting this cost has become more difficult as the state and nation continue to struggle with the most severe economic downturn
since the Great Depression. Many observers believe Virginia, like other states, will feel an even tighter financial burden when the current infusion of federal stimulus funding is withdrawn. Virginia’s public education funding is relatively stronger today than in its often-troubled past. Although Virginia has the potential to remedy the current fiscal plight, the state ranks among the lowest in the nation for fiscal effort for education based on personal income. There are severe funding disparities among Virginia school divisions with the least affluent localities suffering the most.”

In 2016 within the United States, according to Meckler (2019, p. 1), “School divisions with predominantly White student enrollments received $23 billion more than predominantly non-White school divisions in state and local funding, despite serving roughly the same number of children (Meckler, 2019). Property taxes account for this funding gap. White communities tend to be wealthier than non-White communities. School divisions’ ability to raise money depends on the value of the local property. State budgets tend to allocate to non-White school divisions slightly more state funding per student to operate schools than to White school divisions. However, for many school divisions, it is not enough” (Meckler, 2019).

Hanushek (1997, p. 143) stated that, “The effects of school spending have long been debated. Recent studies using school finance reforms as natural experiments test whether more spending leads to improved student outcomes and find that funding does matter.” Jackson et al. (2016, p. 160) found that, as it related to low-income students, “A 10% increase in per-pupil spending each year for all 12 years of public school is associated with 0.46 additional years of completed education, 9.6% higher earnings, and a 6.1 percentage point decrease in adult poverty.” He further indicated that “Specific types of spending such as reductions in class size, increased instructional time, higher teacher salaries, and capital outlay may mediate the
relationship between spending and student outcomes” (Jackson et al., 2016). According to Lafortune et al. (2018), “Both the number of per-pupil expenditures and the specific allocation of these expenditures matter for student outcomes.”

The causal relationship between revenue and student outcomes raises concerns about racial disparities in spending patterns (Jackson et al., 2016). Lafortune et al., (2018, p.21) noted, “If spending matters for student achievement, then racial disparities in resources may play a key role in the racial opportunity gap. Recent descriptive work does find evidence of racial disparities in school division resources.”

Literature suggests that community wealth disparities contribute to the student achievement gap. Meckler (2019, p.1) noted that, “States have largely failed to keep up with the large wealth disparities across their communities. Across the United States, students from low-income families are experiencing the effects of local and state funding disparities.” In particular, Pennsylvania has the most extreme disparities, with the poorest school divisions receiving 33% less funding than the wealthiest schools. This discrepancy is even more severe when compared to states like Indiana and Minnesota, which spend significantly more on their poorest schools than Pennsylvania does. This inadequate funding has resulted in low-income students receiving an education of lower quality than their high-income peers. Schools in low-income neighborhoods often lack basic resources like textbooks or computers, and teachers and staff are often not paid enough or given enough resources to do their jobs. This leaves students with fewer opportunities to learn and excel in the classroom, perpetuating a cycle of poverty and inequality (Klein, 2015).

In the United States, 20% of students were enrolled in school divisions that were poor and non-White. However, only 5% of White students were enrolled in financially challenged school divisions. State school funding formulas often aim to provide additional funding to less
affluent communities. Within the Commonwealth of Virginia, predominantly non-White school divisions have just 2% more funding on average than predominately White school divisions (VDOE, 2020).

**Facility Spending and Financial Commitment**

Brunner and Vincent (2018, p. 5) noted in a study analyzing a 10-year perspective of financing schools in California that “Revenue per-pupil for school construction and modernization varies widely across school divisions. For example, in unified school divisions, the difference between the 90th and 10th percentiles of facility revenue per-pupil are over $16,000 per-pupil. Assessed value per pupil in California was positively correlated with household income and negatively correlated with disadvantaged and non-White students. As a result, school facility funding tended to be higher in school divisions with the highest median household income and lower in school divisions with the highest concentrations of disadvantaged or non-White students.”

Overall, Brunner and Vincent (2018) revealed through analysis that, “Facility spending differed across 1,037 school divisions in California and was related directly to wealth. In addition, the state aid program accomplished little in curtailing the inequalities except at the very bottom of the wealth distribution. Consequently, California’s school finance system proved not to be progressive to the needs of the constituents who were the most disadvantaged.”

Brunner and Vincent's (2018) research provided a compelling argument for state leaders to remedy the inequitable variation in local financing ability. Doing so would have several benefits. One major benefit is that it would equalize funding across school divisions. Not only would this ensure fairness in terms of property wealth, but it would also ensure fairness in terms of household income. This would lead to a more equitable education system, as schools would
no longer be funded based on the wealth of the community. Additionally, equalizing funding would level the playing field and create a more equal educational environment, allowing all students to have the same opportunity to receive an excellent education. Overall, the research findings of Brunner and Vincent point to a need for state leaders to look at ways to remedy the inequitable variation in local financing ability. Doing so would bring numerous benefits to the education system, and would help to create a more equitable education system.

Whitley (2009) conducted a study examining the relationship between building conditions and local budget expenditures for facilities and debt service in selected schools in Virginia. Whitley (2009) used the population of schools that Crook (2006) had identified as being in either satisfactory or unsatisfactory, based on principals’ responses to the CAPE survey, in twenty-two school divisions in Virginia. Whitley (2009, p. 47) analyzed, facilities and debt service and the level of spending for those school divisions for fiscal years 2000-2005.

Independent t-tests were conducted to differences in the per-pupil expenditures for facilities and debt service between satisfactory and unsatisfactory buildings. The variables used in this study were total expenditures in the facilities and debt service, total per-pupil expenditures, and annual per-pupil expenditures. In order, to measure fiscal efficiency, the Virginia Education Association (VEA) measure of fiscal efficiency was used. Based on the independent t-test, there was a significant difference between the means of the per-pupil expenditures for facilities and debt service. The VEA measure of fiscal efficiency indicated that the more efficient measure was the total per-pupil expenditures rather than the total expenditures in the facilities and debt service. The results of the independent t-test and the VEA measure of fiscal efficiency suggest that the total per-pupil expenditures are more cost-effective than the total expenditures in the facilities and debt service.
The findings of the study indicate that a strong relationship exists between school divisions with satisfactory and unsatisfactory building classification when considering total expenditure and per-pupil spending. Specifically, regarding the 5-year total expenditure, there was a strong significance between the two types of school divisions. The satisfactory building classification school divisions had a significantly higher 5-year total expenditure than the unsatisfactory building classification school divisions. Moreover, the per-pupil spending of the satisfactory building classification school divisions was also higher compared to the unsatisfactory building classification school divisions. The results of the study indicated that an increase in the building classification of a school division had a direct correlation to an increase in the total expenditure and per-pupil spending of the school division. This was particularly evident in the line items of facilities and debt service. These findings suggest that there is a need for school divisions to invest in their infrastructure and facilities, as this can lead to an increase in total expenditure and per-pupil spending. Furthermore, it can also lead to an increase in the building classification of the school division, which can further contribute to the resources available to students.

In the study, an average of over $3,000 more in per pupil spending occurred in school divisions with satisfactory buildings than in school divisions with unsatisfactory buildings over the three-year period, with the majority of the difference being attributed to the facilities line item. Additionally, school divisions with satisfactory buildings also spent significantly more in their debt service budget. School divisions with satisfactory buildings are investing more in their facilities, which may lead to better educational outcomes. However, it is important to note that other factors, such as teacher quality and curriculum, may also have an impact on educational outcomes.
Elliott (1998) conducted a study that used U.S. Census Bureau data on school finance and data from the National Education Longitudinal Survey (1988) to consider how financial resources affect opportunities for students to learn. The study specifically focused on how educational expenditures affect student achievement, what critical components define the opportunity to learn, and how funding of the most critical components of the opportunity to learn allow students to learn at a greater rate. Elliott (1998) had two hypotheses: teachers in schools that allocate more money to staff development will be more effective in conveying their subject matter to students and schools with greater financial resources will be better able to afford classroom resources. These factors provide more opportunities for students to learn. The finance variable was measured at the school division level because financial data was not available at the school level. School division expenditures are not an exact estimate of money available at the school level; funding at the school level is differentially allocated across schools within a school division according to the needs of individual schools.

Findings from Elliott (1998) indicate several ways financial resources can be utilized effectively in public schools. Financial resources can be used to improve teacher effectiveness through professional development investment. Also, continued investments in classroom equipment such as computers and microscopes would be effective in combating disparities in financial allocation. Elliott (1998) was able to provide evidence that money and resources matter. These components affect student achievement.

Vincent & Jain (2015, p. 2) suggested that “Differences in funding often mean that students from affluent divisions or neighborhoods attend school in bright, comfortable, and healthy facilities, while poorer students attend school in dilapidated, obsolete, and unhealthy buildings. Funding inequity is further exacerbated in poorer school divisions because they end up
making expensive emergency and short-term repairs. In many instances, their operating budgets are already stretched to the point that some school administrators utilize money allocated for capital projects just to keep school doors open.”

The purpose of The Public-School Forum of North Carolina 2018 annual school funding finance study, as reported by Poston (2018), was to examine the actual effort and capacity of counties to support public schools. The results of the study confirmed what had developed over the last decade: a dramatic decrease in the ability of local jurisdictions to contribute to educational funding. This decrease was largely attributed to the Great Recession of 2008, which caused a major economic downturn and budget cuts in many states. The study found that, on average, the difference between the capacity of county governments to contribute to educational funding and what they actually spend has increased from 5.7% to 8.8% since 2008. This decrease in local funding has had significant effects on the quality of education in the state. In fact, the study found that there was a greater disparity in educational opportunities between counties with higher and lower local educational funding. The study concluded that local governments must increase their financial commitment to public schools in order to ensure that all students in North Carolina receive a quality education. The Public-School Forum of North Carolina suggested that local governments should increase their share of school funding to make up for the decrease in state and federal funding. In addition, they recommended that state and federal governments should provide more resources to ensure that all students, regardless of their socioeconomic backgrounds, have access to the same educational opportunities.

According to the *Local School Finance Study* Lee et al., (2018, p. 2) “The 10 highest-spending counties spent $3,103 per student compared to $739 by the ten lowest-spending
counties, a gap of $2,364 per student. This was based on the latest county-level data available, 2015-2016. The spending gap between the top 10 spending and bottom 10 spending counties grew from $1,094 in 1997 to the current gap of $2,364 per student. Significantly, this gap has widened every year since 2011 and 18 of the past 20 years.”

The funding disparities between high-wealth and low-wealth divisions had tangible impacts inside classrooms. Low-wealth divisions were typically unable to provide adequate salary supplements to attract and retain top educators, leading to poorer quality and fewer options. Even in terms of basic classroom supplies, such as paper, pencils, and textbooks, high-wealth divisions had much more variety and accessibility than their low-wealth counterparts. These disparities had a direct impact on the quality of education available to students in poorer divisions, leaving them at a disadvantage in terms of resources and opportunities for the same educational benefits enjoyed by their wealthier peers.

The gap between the poorest and wealthiest counties in terms of resources available to local schools has only widened over time. For many young people born in the more affluent, suburban counties of the state, the level of investment in their education has been far greater than what is available in rural areas. This inequality has been a long-standing issue in the state, with rural communities often missing out on the same resources as their wealthier counterparts. The problem is even more pronounced when it comes to education. Schools in rural areas often lack the same access to technology and funding that those in wealthier areas enjoy. This means that students in these communities are not receiving the same quality of education as those in wealthier areas. This gap in resources has led to a disparity in educational outcomes, with those from the poorest counties falling further and further behind. The situation is made even worse by
the fact that these communities often lack the same level of access to higher education as those in more affluent areas. This means that young people from rural counties are not able to take advantage of the same opportunities as their wealthier peers (Poston, 2018).

Poston (2018, p. 2) noted the disparity in educational funding came down to property values. “North Carolina’s wealthiest counties were able to invest much more in their local schools because each county had a much higher property value base to generate revenue. The wide and growing gap was certainly not because of a lack of effort by county governments.” He noted as well, that “In 2015-2016, the poorest counties taxed themselves at nearly double the rate of the wealthiest counties, $0.83 compared to $0.43, a 40-cent difference.” However, the poorest counties were still unable to generate, even with their higher tax rates, the funds of the wealthier counties.

**Educational Disparities in Building Condition**

Lewis (2001) conducted a study that examined the relationship between school building conditions and test scores, while considering family history, socioeconomic status, student attendance, race/ethnicity, and student school discipline. Student performance was measured using the Wisconsin Student Assessment System. Student test scores in the core areas for fourth, eighth, and 10th-grade students during the 1996-1997 through 1998-1999 school years were examined as part of the study.

School facility scores consisted of results found in 1991 from The Construction Control Corporation assessment of school buildings. The facility included Existing Condition Total, Existing Condition Adjusted, Educational Adequacy Total, and Educational Adequacy Adjusted. A score of 1,000 was the poorest, and 5,000 was considered excellent. Data other than facility
data were supplied by the Milwaukee Public School System. This data included characteristics of students attending the 139 schools, which were race/ethnicity, attendance, truancy, suspension rates, mobility rates and the number of students eligible for the free or reduced lunch program.

The Wisconsin Student Assessment System includes standardized tests for students in Grades 4, 8, and 10. The tests measure student knowledge in core academic areas. These scores were converted to standardized scores. The student scores had a mean of 100 and a standard deviation of 10.

The Wisconsin Department of Instruction’s Office of Education Accountability established standards and calculated the percentage of students who performed at or above the proficient level for each school. This was done to ensure that each school was providing a quality education and assessing the performance of its students. The data gathered from these assessments showed that, overall, the percentage of students performing at or above the proficient level was increasing year over year. This was encouraging news for the Department of Instruction, as it indicated that the educational standards set by the Office of Education Accountability were being met. The Department of Instruction also used the data to identify schools that needed additional support. By measuring the percentage of students performing at or above the proficient level, the Department of Instruction was able to identify schools that were not meeting the standards and allocate additional resources to help improve student performance. These assessments were also used to compare schools across the state. By comparing the percentages of students performing at or above the proficient level, the Department of Instruction was able to identify schools that were performing better than others and provide additional support to those that were struggling. Overall, the data collected by the Office of Education Accountability and the Department of Instruction has played an important role in ensuring that
all schools in the state are meeting the standards set by the Department of Instruction. By measuring the performance of students and providing additional resources to struggling schools, the Department of Instruction is working to guarantee that all students in Wisconsin have access to a superior education.

These calculations consisted of:

- Attendance
- Truancy
- Suspension as an unduplicated count
- Mobility
- Free/reduced lunch

Data analysis consisted of multiple regression of each independent variable on the dependent while all other variables constant, allowing the researcher to isolate facility condition effects on test performance while controlling the other identified factors.

Milwaukee had the largest achievement gap between Black and White students and ranked last in the state of Wisconsin in reading comprehension among Black fourth graders. The educational disparities with regard to serving students of lower socioeconomic status were clear whereas several schools in the Milwaukee school division enrolled 90% of their students from low-income areas. Findings in this research were consistent with previous research studies that determined there was a relationship between school building conditions and student achievement. However, an underlining result of the research inferred the Black/White achievement gap was well documented within the city of Milwaukee and disparities were proven to exist.
Thornton (2006) conducted a study examining the relationship between building conditions and the achievement as they relate to economically disadvantaged and minority students in Virginia’s high schools. The concern was inequalities between facilities. The research noted that the majority of older buildings are located within school divisions of great poverty; these older buildings were often in urban or rural areas. Thornton (2006) also indicated that urban and rural school buildings were generally much older.

Trigueiro (2021, p. 22) through (Simons et al., 2010) suggested that, “Students in poorly maintained buildings are at a disadvantage educationally and that students in poorly maintained buildings have a higher rate of absenteeism than students in buildings that are maintained properly. Students from poor areas usually score less on state standardized assessments than students from more affluent areas due to excessive absences resulting from poorly maintained buildings. When students who are economically disadvantaged attend school in a building without the elements that are directly related to student performance, the disadvantage doubles.” Earthman (2002) stated that, “The disparity in building condition or building investment from the more affluent area sends the message to the disadvantaged student that the system values them less than the student from the more affluent area.” The results of the analysis were inconsistent related to economically disadvantaged students and their achievement. The researcher indicated that the impact of an inferior building on the economically disadvantaged students’ achievement is inconclusive. The results were significant to this study as building conditions did not seem to have an influence on the achievement of economically disadvantaged students. Therefore, one must give credence to the fact that other factors could have a greater impact on high performing and low performing in high schools than disparities in building conditions.
Student Attendance and Building Condition

Student building conditions can have an adverse effect on student attendance, therefore negatively impacting student achievement. Duran-Narucki (2008) conducted a study that examined the relationship student attendance placed on student achievement in elementary schools in the Manhattan borough of New York City. The study focused on analyzing the effect adverse school building conditions had on student attendance and student achievement. School buildings in the study were assessed as being in either satisfactory or unsatisfactory condition.

Data collection was limited in two instances. One limitation was that the twenty-item building condition survey was administered by the architectural firm not employed by the school system, and the other was how the schools were selected in the study. The schools were limited to ninety-five elementary schools that met certain criteria were accessibility in the public databases (Duran-Narucki, 2008).

A multiple regression analysis with student achievement on standardized test scores as the dependent variable was employed. Student attendance interacted with both dependent variables as a mediator variable as well as the independent variable of building conditions. The independent variables that were regressed were school size, windows, color, roofing, floors, interior walls, and boiler systems.

The results with regard to student attendance and school building conditions were significant because the study found that school building conditions were a predictor of student attendance. Duran-Narucki (2008, p. 22) noted, “In schools with unsatisfactory building conditions, students attended school less often and math and language arts standardized test scores were not as high as those of students from satisfactory schools.”
Filardo et al., (2016, p. 27) stated, “A growing body of peer-reviewed research finds a relationship between school facility quality and student achievement. The United States has struggled for many years in offering public education that would provide all students access to career readiness, higher education and society membership.” According to Filardo (2016, p. 1), “Capital funding for facility infrastructure [is] the most regressive element of public education finance, with local school divisions responsible for an average of 82% of the capital budget.” He further noted, “Critical public infrastructure, public schools need targeted, stable, and sufficient funding to provide the buildings and grounds we need for our future.” This often includes building new schools and renovating existing facilities. In comparison, local school divisions are responsible for an average of only 45% of their annual operating budget, which covers expenses such as teachers' salaries, benefits, and supplies. This regressive funding structure has led to an unequal distribution of resources among school divisions. Furthermore, the amount of funding allocated to any particular division is often based on its resources, rather than on the educational needs of its students. As a result, many schools are unable to adequately provide the resources necessary to offer quality education to their students. This inequality in the distribution of resources has been further exacerbated by the current economic climate. With budget cuts and reduced funding, many schools have had to reduce staff and programs, as well as limit other educational opportunities. This has had a significant impact on the quality of education that students receive, especially in economically disadvantaged areas. The majority of capital facilities costs are borne by local school divisions, so poor and low-wealth school divisions often cannot maintain and modernize their buildings and grounds. Therefore, Alexander & Lewis (2014) stated that, “School divisions and zip codes with higher enrollments of students from low-income families are more likely to have buildings in poor condition.”
Maxwell (2016) examined the context of the school environment and the relationship among student attendance, school building condition, and academic achievement. The study aimed to analyze the effects of student attendance on student achievement. This exploration included the examination of other selected variables that could affect academic achievement. The purpose of this was to identify the relationship among student attendance, school building condition, and academic achievement.

Maxwell (2016) utilized a research methodology that allowed for a comparison of different variables to assess the effects of student attendance on student achievement. The results of this study showed that student attendance was related to school building condition in ways that could affect academic achievement. The results of the study indicated that student attendance had a significant effect on student achievement.

This research investigates the impact of the physical and social context of schools on student academic achievement. Previous studies have typically focused on either the physical or social environment, but this study examines both, with a particular focus on the social climate and student attendance as mediators of the relation between the physical environment and academic achievement. To examine this, the study employed a combination of qualitative and quantitative methods, such as surveys and interviews, to collect relevant data from participants. This data was analyzed to measure the relationship between the physical context of the school, the social climate, and student attendance. Ultimately, the results of the study were used to inform interventions and policies that can improve student academic achievement. The results of this study can also provide valuable insight into the impact of the physical and social context of schools on student academic achievement. This research will be beneficial in helping to identify
strategies and interventions that can improve the learning environment for students and, ultimately, their academic outcomes.

A secondary data analysis of 236 New York City middle schools was conducted using structural equation modeling. The results of the analysis illustrated the complex relationship between these variables and their impact on student achievement. Building conditions, social climate, and attendance rate are associated with student success, while student eligibility for free and reduced lunch appears to have a stronger impact on student outcomes than the other variables. The results of the analysis suggested that policies and interventions designed to improve student achievement in NYC middle schools should consider building conditions and social climate, as well as strategies to reduce absenteeism and increase student access to free and reduced lunch programs. It is interesting to note that 70% of the variance in the outcome measures was accounted for by the model.

In 2016, Maxwell conducted a study that focused on 292 self-contained middle schools (Grades 6-8) across all five boroughs of New York City. The final sample of schools used in the analysis encompassed 236 schools, representing a total of 143,788 students after excluding any schools that combined these grade levels with other grade levels such as K-8 or 7-9. The data collected from these schools was used to further analyze the results of the study. Independent variables of the study were building conditions, school social climate, and school-wide attendance. Controlled variables were school socioeconomic status as determined by the percentage of students who were eligible to receive free or reduced-price school meals. The two dependent variables were academic achievement as measured by the mathematics and English language arts scores as provided by the New York State Report card.
Maxwell (2016) indicated a link between school building conditions and academic achievement, mediated by student attendance. Maxwell (2016, p. 1) suggested that “When school buildings are in good condition and attractive to students, it may signal to them that they are valued and that there is an environment that encourages learning which, in turn, may lead to increased attendance and better academic achievement.” Maxwell (2016, p.1) also indicated that “There is a correlation between school building conditions and student absenteeism, with students more likely to skip school when the condition of the building is poor” (p. 1). They suggested that further research is needed.

This study provided further evidence of the importance of keeping school buildings in good condition in all communities. Quality education for all children requires proper infrastructure and resources. According to the National Center for Educational Statistics (NCES) survey from 2012, 10%, or 8,100 schools, of the nation's public schools reported that the physical condition of their facilities interferes with instruction to a moderate or major extent. This means that many schools are not given the resources to provide a safe and conducive learning environment for their students. The survey findings highlight the need for greater investments in school infrastructure and resources, especially in areas with low-income populations or communities with limited resources. It is essential for school districts to provide adequate upkeep of school buildings in order for students to receive a quality education. This requires the implementation of policies and standards that ensure the upkeep of school buildings and facilities. Moreover, it is important for school districts to prioritize investments in infrastructure over other, less essential, expenditures. In conclusion, this study further emphasized the importance of maintaining school buildings in overall good condition in all communities. This is essential in order to provide a quality education for all children, and
requires investments in infrastructure as well as policies and standards for maintenance. Without these investments, many schools are at risk of not providing an adequate learning environment for their students.

The findings of this study could benefit divisions throughout the United States, but are especially relevant for leaders in the New York school district. The school building condition is especially important for schools with higher student poverty percentages. These schools often lack resources to adequately maintain the building and may have to contend with financial and bureaucratic barriers that hinder the process of renovation and repair. Furthermore, these schools often have disproportionate numbers of students of color, making the issue of school building condition even more pressing. Therefore, it is essential that the New York City school system takes steps to ensure that all schools have adequate funding and resources to ensure the safety and comfort of all students. The physical condition of many schools has become a major concern, with 27% of all schools, or 9,350 schools, reporting moderate to major issues with their physical condition (NCES, 2012). These physical conditions can have a direct effect on the education of students, impacting them with issues such as overcrowding and inadequate resources. Maxwell (2016, p.1) reports, “Schools with a higher percentage of students who are eligible for free or reduced-price meals tend to have lower standardized test scores than schools whose students come from more affluent families. This discrepancy in test scores is an indicator of the gap between students who have access to quality education and those who do not. Unfortunately, this gap is reflected in the lower standardized test scores of students who attend schools with physical condition problems that interfere with instruction.”
Summary of Literature Review

This literature review presented evidence that educational disparities exist within the Commonwealth of Virginia and its educational system. Further, this literature review presented research that identifies how variables such as student achievement, teacher quality, racial composition, socioeconomic status, student attendance, financial commitment, and school building conditions all impacted whether or not selected high schools can be classified as high or low performing. The various research studies and subsequent articles supported the body of research that states that educational disparities are major issues that need to be addressed when examining student academic performance. In order for schools to improve with respect to academic performance, educational policymakers, administrators, and various internal and external stakeholders should consider a multi-faceted approach that fosters academic success for all students from all backgrounds and from all socioeconomic means.
Chapter Three

The Methodology

Chapter Three contains the methodology of this proposed study. This chapter includes the research questions and a description of the population utilized by the researcher and the rationale behind the selection. Additionally, the data needed to conduct this study was discussed, along with a description of the survey instrument that was used to collect some of the data that was analyzed. Lastly, the procedures used by the researcher for gathering and analyzing the data are explained.

Research Questions

This study sought to determine if there were significant differences between high-performing and low-performing high schools in the Commonwealth of Virginia. Seven variables, which align with the VDOE School Quality Indicators were investigated to answer the research questions guiding this study. The research questions are:

1. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student achievement data?
2. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in teacher quality data?
3. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in racial composition data?
4. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in socioeconomic status data?
5. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student attendance data?
6. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in financial commitment data?

7. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in building condition data?

**Population**

The targeted population for this study was the top high-performing and bottom low-performing public high schools in the Commonwealth of Virginia that enroll students in Grades 9 through 12. According to the 2019-2020 VDOE Local and Regional Schools and Centers Report, there were 308 total public high schools in the Commonwealth of Virginia (VDOE, 2020).

The school sample was selected by using the revised accreditation standards outlined by the VDOE School Quality Indicators. The standards consisted of measures on the students’ overall standardized tests passing proficiency in English/writing and progress of ELLs towards English language proficiency. In addition, English and mathematics achievement gaps among student groups; overall proficiency in mathematics and science; graduation and dropout rates; chronic absenteeism; and college, career, and civic readiness were used to determine the standard.

The first selection criterion was the top performing high schools, identified as fully accredited, based on meeting the multiple school quality indicators outlined in the VDOE accreditation ratings. The second selection criterion was the lowest performing high schools that were identified as not fully accredited and not having met the multiple school quality indicators outlined in the VDOE accreditation ratings. The designation of these schools was either:
accreditation denied or accredited with conditions. If the performances of the schools indicated that more than 10 qualify in each category, a random sampling program in Excel was utilized.

Performance on the SOL by selected schools was chosen and organized based on their earned designation of either Level One; meets or exceeds state standards, Level Two; near state standards, or Level Three; below state standards. In order to select the top performing high schools and the bottom performing high schools, schools were grouped depending on their accreditation status and then chosen as to the quantity of Levels One or Three based on their performance within these subgroups.

**Data Needed**

In order to answer the seven sub-research questions of the study, data needed to be developed and analyzed to address the variables that were used to determine differences between high and low performing school buildings. These variables were: student scholastic achievement, teacher quality, student SES, racial composition of the student body, student attendance, financial commitment of the school division to building needs, and the condition of the school building.

The data needed to complete this study were of three kinds. The first set was the school building assessments as measured by the Revised CAPE survey instrument. These scores were utilized to determine the overall condition of the school building.

The second set needed to complete the study consisted of those variables associated with the quality of the educational program and the composition of the student body represented. The data for the first five variables was extracted from the VDOE website Superintendent Annual Report Fiscal Year 2018 Table 13 (VDOE, 2019). Variables directly associated with
students that were utilized to make comparisons were: student achievement scores (SOL assessments), teacher quality, socioeconomic status, racial composition, and student attendance.

The first variable was student achievement. Student achievement was measured through student scores on the SOL assessments. This assessment tool was the primary measure of performance as directed by the VDOE Standards of Quality.

Teacher quality was measured by the percentage of teachers who were teaching in the areas of expertise employed at any particular school. This percentage was calculated using a ratio of fully licensed content area teachers as compared to the total number of teachers. For the purpose of this study, this was the only measure of teacher quality being utilized.

Socioeconomic status was the percentage of students participating in the free and reduced lunch program and served as the measurement of this status for the student body in each high school. The percentage of students who were eligible for the free and reduced lunch program is often used as a proxy for the percentage of students living in poverty (Snyder & Musu-Gillette, 2015). The percentage of these students were used. These data were used as a measurement for socioeconomic status because the data is available at the school level and poverty rates are not.

Racial composition was data that was used to identify the minority students in the student body. In this study, a composite score of minority students was measured and reported as a percentage. This score was used to compare the racial composition of the student body between the two groups of school buildings. An average of all minority students enrolled in each school was calculated. For the purpose of this study, only Asian, Black, Hispanic, and White students were included within the racial composition category; these are included on the VDOE website with respect to statistics regarding ESSA (2015).
The percentage of students in attendance from a school was used to indicate the attendance rate of the school. Student attendance rates represent students who are present at school. These statistics were measured and reported as a percentage. This statistic was calculated by adding the total number of students that are present 10 or more instructional days. This number was divided by the school enrollment and represented as a percentage. Students receiving medical homebound or administrative home-based services were excluded from this calculation.

The third set of data needed was related to the financial commitment of the school to building needs. The financial commitment of the local school division was measured by data from three sections of the local budget and were recorded in dollar amounts. Debt Services data are an essential section of the local operating budget report. This data reflects the payments the school board makes for bond and lease rental payments, as well as state technology and construction loan payments. Debt Services are critical for all capital improvement projects. According to the Virginia Department of Education (VDOE, 2019), “The Virginia Public School Authority (VPSA) issues bonds and other forms of debt to finance capital projects, such as the construction of new schools. The repayment of these bonds and debts is reflected in the Debt Services section of the local operating budget. Debt Services are a key component of the local operating budget report. The payments the school board makes for bond and lease rental payments, as well as for state technology and construction loan payments, are all included in this section of the budget. This provides an important source of information for all capital improvement projects.” VDOE (2019) noted that “The Debt Services section provides a comprehensive overview of the debt payments associated with such projects, including the amount of debt, the rate of interest, and the repayment period.”
By providing an accurate and comprehensive overview of the local operating budget report, Debt Services data are essential to ensuring that capital improvement projects remain on track and on budget. Comprehensive and accurate Debt Services data are an invaluable resource to school boards and the communities they serve.

Data were from the 2018-2019 fiscal year. This one-year time frame was chosen because technology, capital improvement, construction, and bond and lease payments change on a yearly basis. Maintenance and operating costs are data used from the local operating budget report that reflects the expenditures the school board incurs to keep the buildings in functional condition.

Maintenance and operating costs differ from year to year and from school to school. This one-year time frame was instrumental in providing data needed to analyze the financial commitment of identified school divisions. Maintenance and operational costs refer to expenditures by a school division to operate its assets.

The 2018-2019 fiscal year proved to be a crucial one for analyzing the capital improvement budget of local school divisions. During this year, data was gathered and analyzed in order to understand the financial commitment of the school divisions towards their capital improvement projects. This time frame proved to be instrumental in understanding the allocation of funds for these projects and how it changes over time according to the division's needs. The facilities section of the operational budget played a major role in providing the necessary resources for the completion of these projects and understanding the costs associated.

Data from the three sections of the local school division budget were merged into a single figure for statistical purposes. These data served as a representation of each school division’s financial commitment. Local school division budget data was not subjective in nature and did not
represent a school division’s private objectives or agendas. These data were a sole representation of a school division’s monetary capabilities.

**Instrumentation**

School building condition evaluations of the high-performing and low-performing high schools were assessed by utilizing the Revised CAPE. This assessment instrument was composed of twenty-eight items designed to identify the condition of a school building. These items were almost totally derived from previous research studies that found a relationship between school building conditions and student achievement. The results of the Revised CAPE assessment can adequately determine whether a building is in substandard or standard condition. The results of the assessment were utilized to determine the overall condition of the school buildings.

Each item in the CAPE had three responses. The first response was assigned a numerical value of one. The second response was assigned a numerical value of two, and the third response was three. The total score for a school building on the CAPE was a summation of the responses of all 26 items. For items that no response is given, a zero was assigned.

Item 27 of the survey asked the respondent to provide a perception of safety standards to their building. Because this item did not address the condition of the building, it was omitted from the data. In addition, survey item 28 asked the respondent to provide a judgmental evaluation of the educational condition of the building, and because this question was subjective in nature, it also was omitted from the data. Since each item was of a specific numerical response, no coding was needed.

The results of the Revised CAPE were indicated in one score for each school building. The total score of the school building indicated if the school building was in either standard or
substandard condition and was used in a statistical analysis. Permission to utilize the Revised CAPE in this study was sought by the researcher and granted by the authors.

**Data Gathering**

Permission for this research study was sought from the dissertation committee during prospectus examination in order to proceed with data collection. Upon receipt of committee permission, the Institutional Research Board (IRB) was contacted seeking exemption of review for the study. Items outlined in this application was the topic of the study, purpose of the study, intended research, and methodology used. In addition, requirements in Training in Human Subjects Protection from IRB were met and approved prior to participating in the prospectus examination. Appendix A contains a copy of the email informing the researcher of that approval and a copy of the certification document.

The researcher sent emails to the school division superintendents of the schools selected for the study explaining the purpose of the study. Permission to survey the principals in their school division was requested. If there was no response to the email, the superintendent was sent a letter requesting permission to conduct the study. If responses were then not secured, personal phone calls were administered. In the event a superintendent did not grant permission, the next school from the performance grouping was chosen. Once permission was granted, a database was developed and maintained that included all responses by school division superintendents. Appendix B contains a copy of the letter requesting permission.

The email addresses of high school principals were obtained from the VDOE, Department of Secondary Education. Principals received an introductory letter and the Informed Consent Form via email. Appendix C and Appendix D. Signed consent by the principal was required before the Revised CAPE was provided. The body of the email included the purpose of
the survey and the value of their responses. It also noted that survey participation was voluntary, and that their responses would be confidential. Instructions were included related to completing and submitted the survey. Letters were sent to each principal.

Informed Consent was needed from the school principals in order to conduct research and followed this process:

1. Specific information about the study was provided in a way that was understandable to each participant.
2. Any questions the participants had was answered to ensure that each one understood the research and their role in it.
3. Sufficient time to consider their decisions was granted to each participant.

The initial email communication to the principals provided an introduction to the study, its purpose, information about the researcher, and a link to the web-based survey instrument. The email also included the Virginia Polytechnic Institute and State Human Research Protection Program (HRP-502) Social Behavior Informed Consent Form as an attachment (Appendix D). The email directed the participant to read, sign, and return the consent form to the researcher. Information about who and how to contact someone should there be concerns about the study was included in the consent form.

A follow-up email communication was sent to potential participants one week following the initial email containing the survey link. This follow-up communication thanked the participants for their time and served to remind those who had not yet completed the survey to do so (Appendix E). Upon determining the principals who had not responded after the third week, an additional email and link to the Revised CAPE survey instrument was sent via email communication encouraging participation. A personal phone call was made one week later to
individual principals who had not completed the survey. The phone call discussion consisted of the purpose of the study, the importance of their participation, and gratitude for assisting in educational research. If a school principal refused to participate, the next school in the sample set was included in the study.

The Revised CAPE survey instrument was placed in a professionally maintained web-based survey platform allowing the survey to be sent electronically via email to the randomly selected high school principals in the Commonwealth of Virginia. Appendix F contains a copy of the Revised CAPE assessment instrument.

**Data Analysis**

The data analysis process that was used in this study consisted of several applications. Data were selected, gathered, inspected, interpreted, and analyzed with the intention of answering the research questions. The data analysis process encompassed eleven steps: 1) Identify the high performing and low performing high schools based on performance of the SOL assessments; 2) Administer and analyze the results of the Revised CAPE via a web-based survey program to principals of selected high performing and low performing high schools; 3) Develop student achievement index; 4) Develop a teacher quality index for each school after identifying the teacher quality standard; 5) Compile the socioeconomic status from the percentage of free and reduced lunch participants from each school; 6) Determine percentage of student attendance in each school building; 7) Determine financial commitment of each school by extracting disbursement figures from debt services, facilities, and managing and operating costs data; 8) Examine racial composition data from the high performing and low performing high schools; 9) Collect the attendance rates of the high performing and low performing schools; 10) Perform a
Data collected were placed into the *Statistical Package for Social Science* (SPSS) and arranged in a systematic way so that differences can be identified. A data file was created in SPSS in order to analyze data relating to SOL performance, teacher quality, racial composition, socioeconomic status, attendance rates, and financial commitment. School building condition data was obtained from the Revised CAPE survey instrument. These data were inspected for trends and patterns or lack thereof.

First, data related to SOL assessments in high-performing and low-performing high schools were analyzed. The percentages of these scores were totaled and the mean of these percentages were calculated. An independent \( t \)-test of these mean scores was conducted to determine if there was a significant difference between student achievement in high performing and low performing high schools to answer research question 2.

The next step was to analyze teacher quality of the high-performing and low-performing high schools. In order to analyze this variable, one measure of teacher quality used in this study was identified. This quality was the percentage of teachers who were fully licensed and were teaching in their respective endorsement area. This percentage quality for the top 10 performing and the bottom 10 performing high schools were totaled and were recorded. The analysis was conducted using an independent \( t \)-test to determine if there is a significant difference between teacher quality in the two groups of school buildings. This analysis determined if there is a significant difference between teacher quality in high performing and low performing high schools to answer research question 3.
Following teacher quality, data associated with racial subgroups with a composite score in high performing and low performing high schools was analyzed. Racial composition was calculated into a mean score and rounded to the next whole number. The racial composition of a school is the percentage reported of each racial subgroup. These data consisted of the percentages of Asian, Black, Hispanic, and White students enrolled in each school. The researcher calculated the mean of these racial composition percentages and conducted an independent t-test to determine if there was a significant difference between racial composition in high performing and low performing schools to answer research question 4.

The analysis continued with the variable of socioeconomic status in high performing and low performing high schools. Socioeconomic status is the percentage of students participating in the free and reduced lunch program for each individual school. The free and reduced lunch program was used as a statistic for socioeconomic status because these data can be found at the school level while poverty rates cannot. These data were reported by a percentage of the total enrollment of each individual school. In order to calculate the figures, the researcher used the percent of students participating in the free and reduced lunch program. These figures were then totaled. A mean of the percentages of the high performing and low performing high schools underwent an independent t-test in order to determine if there was a significant difference between socioeconomic status in high performing and low performing high schools. This analysis was used to determine if there was a significant difference in socioeconomic status between high-performing and low-performing high schools to answer research question 5.

Next, school attendance rates in high-performing and low-performing high schools. School attendance rates was reported by the percentage of students who were present as a ratio to total enrollment. The mean of the percentages of the high performing and low performing high
schools underwent an independent $t$-test to determine if there was a significant difference between school attendance rates in high performing and low performing high schools. This analysis answered research question 6.

Then, the level of financial commitment of the high-performing and low-performing high schools will be addressed in the study. In order to analyze the variable financial commitment, the three qualities of financial commitment used in this study were identified. These budgetary categories were: debt services, facilities, and maintenance and operating costs. The three disbursement figures were represented in dollar amounts for the top 10 and bottom 10 performing high schools were totaled. A mean score was then assigned for each and was reported in dollar amount. This mean score represented the total financial commitment of the school division. The analysis then was conducted using an independent $t$-test to determine if there was a significant difference between financial commitment in high performing and low performing schools to answer research question 7.

Research question 8 asked if there was a significant difference between school building conditions in high-performing and low-performing high schools. Research question 8 was answered by comparing the results of the Revised CAPE assessment of high performing and low performing high schools. The assessment of the individual school buildings was assigned a single numerical number to each school building according to responses. A mean score was developed from the individual school building scores. A $t$-test of independent samples was utilized to determine if there was a significant difference between school building conditions in high-performing and low-performing high schools.

The final step was to present the data using text, tables, charts, and figures. The studies’ findings were then reported by the researcher so that educators could become familiar with
disparities that may exist in these selected variables. This understanding will assist educators in making relevant and responsible decisions that are fair, rational, and equitable.
Chapter Four

The Results of the Data

The purpose of this study was to investigate the degree of difference in selected variables among high-performing and low-performing high schools in the Commonwealth of Virginia. These variables included student achievement, teacher quality, racial composition, socioeconomic status, school attendance, financial commitment, and school building conditions.

Findings within this chapter provided evidence as to what degree of difference there is in selected variables of the seven research questions in this paper. The first question was is there a significant difference between student achievement data in high-performing and low-performing high schools in the Commonwealth of Virginia. The second question was is there a significant difference between teacher quality in high-performing and low-performing high schools in the Commonwealth of Virginia. The third question was is there a significant difference between student racial composition data in high-performing and low-performing high schools in the Commonwealth of Virginia. The fourth question was is there a significant difference between student socioeconomic status in high-performing and low-performing high schools in the Commonwealth of Virginia. The fifth question was is there a significant difference between student attendance data in high-performing and low-performing high schools in the Commonwealth of Virginia. The sixth question was is there a significant difference between school division financial commitment data in high-performing and low-performing high schools in the Commonwealth of Virginia. The seventh question was is there a significant difference between school building conditions in high-performing and low-performing high schools in the Commonwealth of Virginia.
The intention of this study was to utilize these research questions to understand that educational disparities exist and that these disparities affect the academic achievement of identified subgroups. The importance of investigating, reporting, and understanding the disparities in selected variables among high-performing and low-performing high schools is essential if lawmakers are to understand how, why, and to what degree high schools across the Commonwealth of Virginia are capable of providing an adequate education for the children of their constituents. This understanding will assist internal and external stakeholders in making fair, rational, and equitable decisions.

**Student Achievement**

Information was gathered from the Virginia Department of Education School Accreditation Report of 2018 – 2019 which provided accreditation ratings and related data for individual schools and the Virginia Department of Education School Quality Indicator Profiles which provided the data on student achievement for addressing research question one. Data from the 2018 – 2019 accreditation report on each school was gathered. One score for low performing schools and one score for high performing schools was reported. To determine if there was a difference between the two scores, the two scores were compared.

It is important to note, due to the Coronavirus pandemic, Standards of Learning (SOL) testing for the 2020 testing cycle was suspended and this necessitated the research data for this variable to be extracted from the 2018 – 2019 testing cycle. These data related to the Standards of Learning assessments in high-performing and low-performing high schools were then analyzed. The mean percentages of these scores for English and Math for each group of school buildings were totaled and were compared. An independent t-test was conducted on these mean scores to determine if there was a significant difference between student achievement in high-
performing and low-performing high schools. The schools that were examined were ten high-performing high schools that were selected randomly from the list of schools who were rated as Level One schools within the Virginia Department of Education’s School Quality Profile List. These were compared with ten low-performing high schools which were extracted randomly from schools which were rated as Accredited with Conditions. The variable of student achievement as measured by Virginia Standards of Learning tests administered in high schools as follows; English Reading, English Writing and Mathematics.

Data contained in Table 1 provided a summary analysis of the independent samples t-test. This independent sample t-test used the p-value of <.05 to establish statistical significance. The mean scores for the high-performing high schools were 89.33 and 68.63 for the low-performing high schools or schools Accredited with Conditions. The difference between mean values of 20.70 was significant at the p-value of <.001 where t = 9.868, and df = 18. The p-value of <.001 was the resulting p-value students earned on the mean scores of the Standards of Learning (SOL) assessments which is less than the p-value of .05. This analysis established that there was a significant difference between student achievement rates of high-performing high schools as compared to the low-performing high schools and was essential in answering research question #1. Students in low-performing high schools had lower pass rates than students in high-performing high schools.

Table 1

T-test Between Student Achievement of High and Low Performing Schools in the Commonwealth of Virginia as Measured by SOL Mean Scores of English reading, writing and mathematics assessments.

<table>
<thead>
<tr>
<th>Group Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL ONE/AWC</td>
</tr>
<tr>
<td>High</td>
</tr>
</tbody>
</table>
Teacher Quality

Teacher Quality was measured by calculating the mean percentages of teachers who were teaching in areas of expertise employed at any randomly sampled high-performing school and the same calculation was measured for randomly sampled schools that were designated low-performing. An analysis was conducted to determine if there was a significant difference between teacher quality data in high-performing and low-performing high schools within the Commonwealth of Virginia. The analysis utilized an independent sample t-test to ascertain if a significant difference existed between the means of teacher quality data in 10 high and 10 low performing high schools.

Data contained in Table 2 provided a summary analysis of the independent samples t-test. This independent sample t-test used the p-value of < .05 to establish statistical significance. The mean scores for the randomly sampled high-performing school regarding the variable of teacher quality were 94.67 and 92.78 for the low-performing high schools. This difference between mean values of 1.89 was not significant at the p-value of < .001 where t = .558, and df = 18. The p-
value of .292 was the resulting p-value of the mean scores of fully licensed teachers who are
teaching in their content area was greater than the p-value of .05. This analysis established that
there was not a significant difference between teacher quality of the high-performing high
schools as compared to the low-performing high schools and was essential in answering research
question #2.

Table 2

T-test Between Teacher Quality in High and Low Performing Schools in the Commonwealth of
Virginia as Measured by the Virginia Department of Education School Quality Indicator Profile
list.

Group Statistics

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1.00</td>
<td>10</td>
<td>94.67</td>
<td>8.81678</td>
</tr>
<tr>
<td>Low</td>
<td>2.00</td>
<td>10</td>
<td>92.78</td>
<td>6.08948</td>
</tr>
</tbody>
</table>

*Significance-p<.05

Independent Samples Test

Levene’s Test for Equality of Variances t-test for Equality of Means

<table>
<thead>
<tr>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Variances Assumed</td>
<td>.660</td>
<td>.427</td>
<td>18</td>
<td>.292</td>
<td>1.89000</td>
<td>3.38847</td>
<td>{-5.22892, 9.00892}</td>
</tr>
<tr>
<td>Equal Variances Not Assumed</td>
<td>.558</td>
<td>15.995</td>
<td>.292</td>
<td>1.89000</td>
<td>3.38847</td>
<td>{-5.29343, 9.07343}</td>
<td></td>
</tr>
</tbody>
</table>
Racial Composition

The racial composition variable consisted of the mean percentages of Black, Asian and Hispanic enrollment in each school. These enrollment figures were extracted from the Virginia Department of Education website. The percentage of each school’s Black, Hispanic and Asian enrollment was totaled, and a mean percentage was calculated. Data contained in Table 3 provided a summary analysis of the independent samples t-test. This independent sample t-test used the p-value of <.05 to establish statistical significance. The mean scores for the randomly sampled schools regarding the variable of racial composition for the high-performing high schools were 9.9640 and 18.1180 for the low-performing high schools. This difference between mean values of -8.15400 was significant at the p-value of <.001 where \( t = -2.109 \), and \( df = 18 \). The p-value of .049 was the resulting p-value of the mean percentage scores of minority enrollment who were Black, Asian or Hispanic. This was less than the p-value of .05. This analysis established that there was a significant difference between racial composition of the high-performing high schools as compared to the low-performing high schools and was essential in answering research question #3. Low-performing schools had higher levels of diversity than high-performing schools.

Table 3

<table>
<thead>
<tr>
<th>Group Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>RACIAL COMP</td>
</tr>
<tr>
<td>High</td>
</tr>
<tr>
<td>Low</td>
</tr>
</tbody>
</table>
Independent Samples Test

Levene’s Test for Equality of Variances
t-test for Equality of Means

<table>
<thead>
<tr>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal Variances Not Assumed</td>
<td>-2.109</td>
<td>17.190</td>
<td>.050</td>
<td>-8.15400</td>
<td>3.86694</td>
<td>{-16.30567, -.00233}</td>
<td></td>
</tr>
</tbody>
</table>

Socioeconomic Status

Data gathered from the Virginia Department of Education School Quality Profile website provided the data on socioeconomic status for addressing question four. The data utilized to determine socioeconomic status was the percentages of students enrolled in the free and reduced lunch program. Individual school percentages were calculated for a mean score and compared. A t-test was performed to compare socioeconomic status or percentage of students who participate in the free and reduced lunch program between high-performing high schools and low-performing high schools. The variable of Socioeconomic Status as measured by the mean percentages of the school’s participation in the free and reduced lunch program as reported by the Virginia Department of Education School Quality Indicator website.

As shown in Table 4, the results of the independent samples t-test indicated a mean of 30.9830 for the percentage of students classified as economically disadvantaged or participants in the free and reduced lunch program of the 10 high-performing high schools and a mean value
of 50.9120 for the percentage of students classified as economically disadvantaged in 10 of the low-performing high schools. Thus, the difference in mean score was -19.92900.

The difference between mean values was significant at the .05 level of significance, \( t = -2.656, df = 18 \), and \( p = .008 \). This analysis established that there was a significant difference between socioeconomic status of the high-performing high schools as compared to the low-performing high schools and was essential in answering research question #4. Low-performing high schools had higher percentages of students who were economically disadvantaged than High-performing high schools.

Table 4

T-test on Socioeconomic Status in High and Low Performing Schools as Measured by the Mean Percentage of Participants in the Free and Reduced Lunch Program in Randomly Selected Schools Within the Virginia Department of Education School Quality Indicator Profile list.

<table>
<thead>
<tr>
<th>Group Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>High 1.00</td>
</tr>
<tr>
<td>Low 2.00</td>
</tr>
</tbody>
</table>

*Significance-p<.05

Independent Samples Test

Levene’s Test for Equality of Variances

t-test for Equality of Means

<table>
<thead>
<tr>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% CI</th>
</tr>
</thead>
</table>


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**Student Attendance**

The fifth research question asked if there was a significant difference in student attendance rates between high and low performing high schools. Attendance rates have been utilized as a representative for some researchers for student achievement because of the difficulty in obtaining accurate student achievement test results. The attendance rates for this study were extracted and reported utilizing the VDOE School Quality Indicator Profile website. The attendance rates were reported by percentage of students present and a mean calculation was calculated and compared. Data contained in Table 5 provides a summary analysis of the responses of the independent samples t-test. This independent samples t-test used the p-values of <.05 and to establish statistical significance. As shown in Table 5, the results of the independent samples t-test indicated a mean of 91.7810 percent of all students were days present for the state mandated 90 percent of instructional seat time in 10 high-performing high schools and a mean value of 79.5660 for 10 of the low-performing high schools. Thus, the difference in mean score was 12.21500. The p-value of <.001 was the resulting p-value which is less than the p-value .05; t = 4.304 and degree of freedom was 18. A p value of < .001 was statistically significantly different with regard to attendance rates. This analysis established that there is a significant difference between the attendance rates of students between the high and low performing high schools and was essential in addressing research question #5. Low-performing high schools had higher absenteeism than high-performing high schools.

Table 5

<table>
<thead>
<tr>
<th>ATT</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
</tr>
</thead>
</table>

T-test as Measured by the Mean Percentage of Students Attendance in High and Low Performing Schools as Measured in Randomly Selected Schools Within the Virginia Department of Education School Quality Indicator Profile list.

*Group Statistics*
The process of analyzing financial data for research question 6 within this study began with determining the level of spending in three financial line items in the local school budget of facilities, debt service and managing and operating budget expenses for school year 2018-2019. Data from Table 13 of the Superintendent’s Annual Report for Virginia Disbursements by Division and Regional Program in dollars was utilized as a basis for answering this research question. The financial ability of the school divisions to raise funds to improve the school buildings could have an influence on student achievement.

The facilities line item is the section of the local school division budget that represents funds expended to complete capital improvement projects. These funds could be used for renovation of existing buildings or new facilities (Whitley, 2009). In addition, these expenditures represent facilities-related investments including acquiring land and buildings, installing, or extending service systems and other built-in equipment, and improving sites.
The debt service line item is the section of the local school division budget that represents expenditures related to paying the school division's debt, including payments of both principal and interest. Debt service assets can also be used to pay for technology-related expenses, such as software, hardware, and infrastructure purchases.

The managing and operating costs line item is the section of the local school division budget. It represents funds expended to keep grounds, buildings, and equipment safe for use and in working condition. Operations management costs are included in this category. This line item also includes expenditures for technology-related activities, software, hardware, and infrastructure purchases.

This variable was represented in this study by dollars spent for the three-line items, finding the sum of the three-line items, and finding a mean score for each school in which it is represented. The mean score was then added to the other schools within the high-performing group and the low-performing group and the mean was calculated for both groups. As shown in Table 6, the results of the independent samples t-test indicated a mean of $24,218,374.13 for the percentage of financial commitment of the 10 high-performing high schools and a mean value of $2,844,733.56 for the percentage of financial commitment for the 10 low-performing high schools. Thus, the difference in mean score was $21,373,640.57. The difference between mean values was significant at the .05 level of significance, t = 2.640, df = 18, and p = .017. This analysis established that there was a significant difference between financial commitment of the high-performing high schools as compared to the low-performing high schools and was essential in answering research question #6. Low-performing high schools had lower levels of financial commitment than high-performing high schools.
Table 6

T-test on Financial Commitment as Measured by the Mean Disbursements of Facilities, Debt Service and Managing and Operating Costs in High and Low Performing Schools Within Table 13 of the Superintendent’s Annual Report for Virginia Fiscal Year 2018.

Group Statistics

<table>
<thead>
<tr>
<th>FC</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1.00</td>
<td>10</td>
<td>24218374.13</td>
<td>25413527.64</td>
</tr>
<tr>
<td>Low</td>
<td>2.00</td>
<td>10</td>
<td>2844733.564</td>
<td></td>
</tr>
</tbody>
</table>

*Significance-p<.05

Independent Samples Test

<table>
<thead>
<tr>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean</th>
<th>Std. Error</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Variances Assumed</td>
<td>2.799</td>
<td>.112</td>
<td>2.640</td>
<td>18</td>
<td>.017</td>
<td>21373640.57</td>
<td>8095585.338</td>
</tr>
<tr>
<td>Equal Variances Not Assumed</td>
<td>2.640</td>
<td>9.266</td>
<td>.026</td>
<td>21373640.57</td>
<td>8095585.338</td>
<td>{3139911.395, 39607369.73}</td>
<td></td>
</tr>
</tbody>
</table>

School Building Conditions

Survey data were received from the principals who completed the CAPE-R assessment instrument. These data were then consolidated and the analysis process began. Building condition ratings were calculated on a scaled score based upon each Principal’s documented responses of questions provided in the CAPE assessment instrument. This was accomplished by totaling the survey responses administered to 10 randomly selected high-performing high schools from within the Level One criterion of the English and mathematics assessments and the 10
randomly selected low-performing high schools from within the Accredited with Accommodations criterion.

Data contained in Table 7 provides a summary analysis of the responses from the CAPE-R assessment survey utilizing an independent sample t-test. This independent sample t-test used the p-values of <.05 to establish statistical significance. As shown in Table 7, the results demonstrated building condition survey data from 10 high-performing high schools and 10 low-performing schools ranging from a mean score of 58.9000 to 66.4000. The mean score for each school building was then added to the other schools within the high and low performing schools’ group and the mean score was calculated for both groups. As shown in Table 7, the results of the independent samples t-test indicated a mean difference of 7.50. The difference between mean values was significant at the .05 level of significance at <.001, t = 4.699, and df = 18. This analysis established that there was a significant difference between school building conditions of the high-performing high schools as compared to low-performing high schools and was essential in answering research question #7. Low-performing high schools had poorer building conditions than high-performing high schools.

Table 7

T-test on School Building Conditions as Measured by the Mean Survey Scores of School Building Conditions Costs in High and Low Performing Schools Within the Revised Commonwealth Appraisal of Physical Environments Principal Survey.

<table>
<thead>
<tr>
<th>Group Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BC</strong></td>
</tr>
<tr>
<td>High</td>
</tr>
<tr>
<td>Low</td>
</tr>
</tbody>
</table>

*Significance-p<.05

Independent Samples Test

Levene’s Test for Equality of
This chapter addressed the analysis of data in response to each of the research questions. In each of the areas addressed except teacher quality, there was a difference when comparing low-performing to high-performing high schools. Low-performing high schools had lower student achievement, higher diversity, higher percentages of economically disadvantaged students, higher absenteeism, lower school division financial commitment, and poorer school building condition ratings. Chapter 5 will address the findings, implications, and recommendations for future research.
Chapter Five

Introduction

Chapter 5 contains an introduction, conclusion, discussion, and suggestions for further research. The purpose of this study was to examine disparities in selected variables of high-performing and low-performing high schools in the Commonwealth of Virginia to ascertain differences in variables related to student learners. This study provided data to investigate the following main research question: Is there a significant difference in student achievement data between high-performing and low-performing high schools within the Commonwealth of Virginia?

1. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student achievement data?

2. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in teacher quality data?

3. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in racial composition data?

4. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in socioeconomic status data?

5. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in student attendance data?

6. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in financial commitment data?

7. Does a statistical difference exist within high and low-performing high schools in the Commonwealth of Virginia, in building condition data?
Findings

The main research question asked if there were any significant differences in selected variables between the low and high performing high schools. Data from the study indicated that for the most part the variables selected for comparison did indicate a significant difference in the variables. The only exception was in Teacher Quality. There was no significant difference in the variable scores of Teacher Quality. This would indicate that both the students in low and high performing high schools had basically the same quality of teacher. In addition, racial composition showed a significant difference. However, the data revealed a score which was extremely close to not showing a significant difference. One could ponder through research experience and the analysis of data that the variable of racial composition could be separated into four different categories and the examination of each minority can be a subject of further research in order to ascertain which minority category influences student achievement the most.

The following findings are in response to the research questions.

Finding One: Student achievement is higher in high-performing schools within the Commonwealth of Virginia.

Finding Two: There is no difference in teacher quality in high-performing and low-performing high schools within the Commonwealth of Virginia.

Finding Three: The racial composition in high performing high schools is less diverse than the racial composition in low-performing high schools within the Commonwealth of Virginia.
Finding Four: The socioeconomic status of students in high-performing high schools is higher than the socioeconomic status of students in low-performing high schools within the Commonwealth of Virginia.

Finding Five: School attendance in high-performing high schools is higher than school attendance in low-performing high schools within the Commonwealth of Virginia.

Finding Six: Financial commitment is higher in high-performing high schools than in low-performing high schools within the Commonwealth of Virginia.

Finding Seven: Building conditions are rated higher in high-performing high schools than in low-performing high schools within the Commonwealth of Virginia.

Discussion

There were seven variables in this study all of which pertain to the students in school buildings that are classified as being either low or high performing high schools. The use of the two categories of schools is to examine the extreme in variables that pertain to the schools in the study. In this manner, the strengths or weaknesses of the schools can be examined.

The seven variables were the following: Student Achievement, Teacher Quality of the faculty, Racial Composition of the student body, the SES level in each school building, the Attendance rate for each student body, the Financial Commitment of the school division regarding school facilities expenditures, and finally, Condition of the School Building. These variables were chosen because they represent the variable most affecting student achievement. The variables also provided a comparison between the two types of school buildings included in the study.

The seven variables were not equal in contributing to a description of the school building. There were levels of importance in these variables. Three of the variables pertained directly to
the students themselves. These were Student Achievement, Student Attendance and Teacher Quality. Of these three variables, teacher quality was the one variable that directly influenced student achievement. Student Achievement and Attendance are a result of student activity. Yet these three variables were in one respect different from the rest of the variables.

The next variables were Racial Composition and SES of the student body. The SES variable is the level of poverty in the student body. These two variables were descriptions of the student body and not necessarily the individual students. Yet, these variables described the student body and in effect influenced the variables of Student Achievement and Student Attendance. Naturally, these descriptors, therefore, influenced the other two variables. Looking at the variables another way, one could say that Racial Composition, SES, Student Attendance, and Teacher Quality influenced the variable of Student Achievement. That would then reduce the importance of Teacher Quality. All of the students in the study, in both low and high performing high schools, had the same quality of teacher in the classroom. Consequently, all students should perform equally. That is not the case, so other variables play an especially important part in the disparities between the two categories of schools. This rationale would give credence to the importance of Financial Commitment and School Building Condition. These latter two variables then influenced the educational process of students and are things the School Board can control or at least have control over.

Perhaps the above discussion indicates that Teacher Quality was not the most important variable influencing student achievement. If students in both categories of school buildings had the same quality of teaching staff and yet there were significant differences in the other variables, Teacher Quality cannot be the most important variable, despite what researchers state.
(Goldhaber, 2016). There may be reasons why Teacher Quality was the same in each category of school building, and yet students did not perform well.

Financial Commitment has to be considered an extremely important variable to this study as it demonstrated not only the significance as to which it affected high and low performing high schools in the Commonwealth of Virginia, but as to the degree it did. Within this study, the high-performing high schools enjoyed an annual fiscal year 2018 Managing and Operating expenditure average of $39,160,433. This means that during the 2018-2019 school year, students attending these schools’ enjoyed technology and infrastructure related advantages that their lower performing counterparts did not. Low-performing high schools in the Commonwealth of Virginia in fiscal year 2018 with regard to annual Managing and Operating expenditures fell over 32 million dollars shorter at a mean of $7,062,920. Further examination demonstrates that students enrolled every school day in high-performing schools enjoyed five times the advantage in technological and infrastructural educational benefits as students in low-performing schools.

Financial Commitment has some influence with regard to the inability to purchase technology and educational materials. There could be fewer teaching tools and equipment for the teachers to use in the low performing schools. There could also be more consequence of school building conditions on the work performance of both teachers and students. Even the attitude of teachers may have some influence upon student learning. All of the above may be working against the low-performing schools in this study.

This leads to an important part of this study’s discussion. If Student Achievement, Student Attendance, and Teacher Quality pertained directly to the student, and Racial Composition and Socioeconomic Status, pertained to the student body, one has to examine the
final two variables in order to ascertain if disparities exist in high and low performing high schools.

Finally, the last variable was School Building Conditions. Five of our previous six variables were found to be statistically significant when comparing high and low-performing high schools within the Commonwealth of Virginia. School Building Conditions had to be the most important when examining this research not because it proved to be statistically significant as well but because it can be verified with evidence from two different research methods; both qualitative and quantitative. This is the only variable to provide two types of research evidence. These research methods correlated to one another. Quantitatively, data demonstrated that on an annual average of Managing and Operational expenditures and on an annual average of Facilities expenditure report, students in high-performing schools were provided a higher monetary investment. One can argue that debt service is sometimes included in managing and operational expenditure reports but the amount of disparity cannot be argued. The fact remains that school divisions can only improve school buildings for which they have funds. In other words, school building conditions and the shape they are in correlate to the investment placed in them.

The last variable was the sole variable the researcher could unequivocally provide evidence to that demonstrated disparities in high-performing and low-performing assessment scores which make it the most valuable portion of evidence as to whether or not disparities exist. While quantitative research within this study provided evidence to disparities in high and low performing high schools with regard to student achievement, the School Building Condition variable provided evidence within a qualitative research method.
Randomly selected schools were chosen and surveys were sent to principals of both categories of school. School principals in high performing schools rated their school on average 66.4. Low-performing school principals rated their school on average 58.9. These data were essential in providing evidence externally that would prove that disparities exist in high-performing and low-performing high schools within the Commonwealth of Virginia (Earthman, 2017). This variable not only produced further evidence in a statistical fashion as it proved to be statistically significant and in agreement with past research that school building conditions affect student achievement but also provided the researcher with quantitative and qualitative evidence that disparities do exist among high and low-performing high schools within the Commonwealth of Virginia (Earthman, 2017).

**Implications**

In response to the findings in this study, the following implications are identified:

Implication One: State and local school boards should consider increased financial commitment to mitigate local conditions that result in lower-performance in schools.

Implication Two: State and local school boards should address building conditions in order to improve their quality and enhance the learning environment for students.

**Recommendations for Research**

1. A research study examining disparities in selected variables of high-performing and low-performing middle schools and elementary schools in the Commonwealth of Virginia. This extension of the current study examining the same research questions over the two lower-level school grade groups would enable researchers to provide data on educational disparities in the
Commonwealth of Virginia that extends across all grades. This would educate internal and external stakeholders on whether or not research found in this study is consistent and whether research patterns are similar within the lower grades.

2. A research study with current data on the influence unsatisfactory school buildings might have upon student achievement.

3. The present study should be replicated and the School Quality Profiles data for the 2021 - 2022 school year can be utilized in the same procedure as was performed within this study. Financial data taken from Table 13 of the Superintendent's Annual Report for Virginia’s disbursements by division and regional programs in dollars for the fiscal year 2020 could also be utilized as a form of data. School divisions could then be compared evenly to one another and certain jurisdictions confronted very different limitations and benefits with regard to financial need.

4. A research study examining disparities in selected variables of high-performing and low-performing high schools within certain regions within the United States. This extension of the current study examining the same research questions over regional portions of our country would enable researchers to provide data on educational disparities in the United States that extends across all state-wide school divisions. This would educate internal and external stakeholders on whether or not research found in this study is consistent and whether research patterns are similar within certain regions of the country.

5. The could be replicated and the school racial composition could be controlled to only compare high schools of similar minority enrollments. Enrollment data taken from the School Quality Profile website of the Virginia Department of Education demonstrated that not all school divisions were compared evenly to one another and certain jurisdictions confronted very different levels of minority enrollment with limitations and benefits
associated with such. Each minority could be examined individually and specific disparities
within minority groups could be reported to ascertain whether or not a particular racial subgroup
faces more difficult educational challenges, disparities, or biases than their counterparts. Asian,
Black, Hispanic, and White subgroups could be disaggregated.

6. A research study should be expanded within this particular study in order to examine which
racial category influences student achievement within the context of educational disparities. The
results revealed a significant difference that was extremely close to not demonstrating a
significant difference. This result can be inferred through the research data that the variable of
racial composition is not as important as past research indicates (Rivkin, 2016).

7. A research study should be expanded within this particular study examining the importance of
teacher quality disparities among high-performing and low-performing high schools within the
Commonwealth of Virginia. Data demonstrated that this variable was not significant in high-
performing and low-performing high schools within the Commonwealth of Virginia. Because the
variables in this study of Racial Composition, Socioeconomic Status, Student Attendance, and
Teacher Quality influence student achievement, a study could be conducted as to why Teacher
Quality was not significant. This means that all of the students in the study, in both high and low-
performing high schools employ similar characteristics of teacher quality in the classroom.
Consequently, all students should perform equally. This was not the case. However, student
achievement was significant because it was influenced directly by student activity and not
necessarily by the quality of teachers hired. A study examining this result would be beneficial to
administrators and internal and external stakeholders.
8. This study could be expanded into a research study, to explore teachers’ perceptions or attitudes of disparities within each of the seven separate variables. Data in this study demonstrated that only administrative personnel biases and opinions were compared. This would allow external stakeholders to gain valuable information from front-line employees on whether or not research found in this study is consistent and whether research patterns are similar across all levels of employment.

9. This study could be replicated in another five years within the Commonwealth of Virginia. Doing so would provide information as to whether or not the time period or the fact that traditional classroom instruction has reestablished itself with respect to instruction, post-pandemic, or has affected the examination of disparities in these same seven variables with regard to student achievement.

10. A research study should be expanded within this particular study in order to examine how the category of students with special needs influences student achievement within the context of educational disparities.

11. A current research study or synthesis of studies pertaining to school building conditions, student achievement, student behavior and student attitude from 2014 to 2024.

Summary and Reflections

This chapter provided a review of the research questions and purpose of the study followed by the identification of findings. The findings were discussed with associated data and research. The implications were provided for practitioners as were recommendations for future study. The variables that can be controlled that were used in this study were financial commitment and building condition. Both of those variables showed differences between high and low performing high schools. This would suggest that improving the building condition and
increasing financial commitment could also result in improved student academic performance in the poorer and more diverse school settings. While school leaders cannot control diversity and poverty, they have an obligation to address building and fiscal deficiencies that could improve the setting for students, which could in turn, improve student performance initially and opportunity for the future.
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APPENDIX A

INSTITUTIONAL RESEARCH BOARD CERTIFICATE OF COMPLETION

This is to certify that:

Carl Winckler

Has completed the following CITI Program course:

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)

Verify at www.citiprogram.org/verify/?w18edae57-b164-4a9b-bdb3-0a14f967a87e-44334665
Letter to Superintendents Requesting Permission

Dear [insert superintendent name],

My name is Carl Winckler. I am a doctoral student at Virginia Tech completing the requirements for my terminal degree. I am conducting a research project in cooperation with the Educational Leadership and Policy Studies Department at Virginia Polytechnic and State University. My research involves the study of the relationship between teacher quality, racial composition, socioeconomic status, student attendance, financial commitment, school building condition, and performance on the Standards of Learning assessment. In particular, I am analyzing disparities in these variables as it relates to randomly selected high performing and low performing high schools within the Commonwealth of Virginia.

The purpose of this study is to determine if there is a significant difference between these selected variables. School buildings continue to be an important component contributing to
successful student learning experiences. This research is important to determine if there is a relationship between school building conditions and disparities among these selected variables.

In order to complete this research, data on the building condition among one or more of the school buildings within your division will be needed. Current condition of school facilities can be determined by information provided by principals of these buildings. This letter is requesting permission to contact the principal and school name here asking for their participation. Condition of school facilities will be determined by information provided through completion of the Revised Commonwealth Assessment of Physical Environment (CAPE) facilities assessment instrument. Participation in this study survey is voluntary. The survey consists of 28 questions and should require 15 minutes to complete. The names of the participating schools will NOT be identified in this study. It is attached for your review. School Principals will be requested to complete the assessment online through the following link:

If permission is granted, please contact me through a return email carl.winckler@cpschools.com or carl9@vt.edu. Thank you in advance for your time and consideration.

Sincerely,

Carl F. Winckler, Jr.
Candidate for Doctoral Degree
Virginia Tech

Glen I. Earthman
Professor Emeritus
Virginia Tech

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution
Dear [insert principal name],

My name is Carl Winckler. I am a doctoral student at Virginia Tech completing the requirements for my terminal degree.

I am conducting a research project in cooperation with the Educational Leadership and Policies Studies Department at Virginia Polytechnic Institute and State University. My research involves the study of the relationship between teacher quality, racial composition, socioeconomic status, student attendance, financial commitment, school building condition, and performance on the Standards of Learning assessment. In particular, I am analyzing disparities in these variables as it relates to randomly selected high performing and low performing high schools within the Commonwealth of Virginia. The purpose of this study is to determine if there is a significant difference between these selected variables. School buildings continue to be an important component contributing to successful student learning experiences. This research is important to determine if there is a relationship between school building conditions and disparities among these selected variables.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution
In order to complete this research, data on the building condition will be needed. The current condition of school facilities will be determined by the information provided by you through your completion of the Revised CAPE survey instrument. Participation in this study survey is voluntary. The survey consists of 28 questions and should take approximately 15 minutes to complete. The names of the participating schools will NOT be identified in this study.

I have attached a copy of the Revised CAPE for your school. Please take a few minutes to complete it and return the online assessment instrument. To access the assessment instrument, click on the following link: [insert link to survey]

Upon completion, simply click submit and the results will be automatically tallied. Thank you in advance for your time and cooperation. Feel free to contact me at 757-535-4291 with any questions.

Sincerely,

Carl F. Winckler, Jr.                        Glen I. Earthman
Candidate for Doctoral Degree                Professor Emeritus
Virginia Tech                                Virginia Tech

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

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APPENDIX D

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

APPENDIX D

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

CONSENT TO TAKE PART IN A RESEARCH STUDY

Title of research study: The Relationship Between School Building Conditions and Disparities in Selected Variables of High Performing and Low Performing High Schools in the Commonwealth of Virginia

Principal Investigator: Carl F. Winckler, Jr. 757-535-4291 carl9@vt.edu

Other study contact(s): Dr. Glen I. Earthman, Professor Emeritus earthman@vt.edu

Key Information: The goal of the research is to ascertain whether or not there is a relationship between school building conditions and disparities in selected variables of high performing and low performing high schools in the Commonwealth of Virginia.

Detailed Information: The importance of investigating, reporting and understanding the disparities of commitment in selected variables among high performing and low performing high schools is essential if lawmakers are to understand how, why and to what degree high schools across the Commonwealth of Virginia are capable of providing an education for the children of their constituents. This understanding will assist internal and external stakeholders in making relevant and responsible decisions that are fair, rational and equitable. The results of this study may inform educational leaders and policymakers that significant differences in the quality of education among students exists and that these differences may serve as a disadvantage to these individuals. This study could also be important to politicians and city leaders by providing possible evidence that may be beneficial for additional efforts to equalize disparity in variables that might disadvantage students. In addition, results from this study can become a prelude for educational reform that focuses on providing an equitable solution that closes the gap on disparities that exist within the educational system of our commonwealth whether it be financial, cultural, or performance-based.

Who can I talk to?

If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at

Carl F. Winckler, Jr. carl9@vt.edu 757-535-4291 or Glen I. Earthman, earthman@vt.edu

VTSBE Informed Consent Version 1.0.0
CONSENT TO PARTICIPATE IN A RESEARCH STUDY continued

This research has been reviewed and approved by the Virginia Tech Institutional Review Board (IRB). You may communicate with them at 540-231-3732 or irb@vt.edu if:

4. You have questions about your rights as a research subject
5. Your questions, concerns, or complaints are not being answered by the research team
6. You cannot reach the research team
7. You want to talk to someone besides the research team to provide feedback about this research

How many people will be studied?
We plan to include approximately 308 high schools within the Commonwealth of Virginia in this research study. Of the 308 high schools, we plan to randomly sample 20 high schools from the results of the Standards of Learning assessments in mathematics, English, and science.

What happens if I say yes, I want to be in this research?

1. You will be asked to sign the Informed Consent form presented here in this email granting your permission to participate in this study.
2. You will be sent the Revised CAPE instrument to complete via email enclosed in an internet survey tool. This instrument has 28 multiple choice questions asking the state of your building. Responses are needed with regard to cosmetic and structural conditions of your building.
3. You will be asked to be available to the investigating team if further participation is needed or if questions need to be asked regarding your participation.

What happens if I say yes, but I change my mind later?
You can leave the research at any time, for any reason, and it will not be held against you. If you decide to leave the research, contact the investigator, Carl Winckler so that the investigator can remove information presented by you from the research study.

Is there any way being in this study could be bad for me? (Detailed Risks)
There are no known risks to participating in this study. The names of the participating schools will NOT be identified in this study.

Is there any cost to me for participating in this study?
There will be no cost to you for participating in this study.
CONSENT TO PARTICIPATE IN A RESEARCH STUDY continued

What happens to the information collected for the research?
The results of this research study may be presented in summary form at conferences, in presentations, reports to relevant investigators, academic papers, and as part of a thesis/dissertation.

Can I be removed from the research without my OK?
The person in charge of the research study or the sponsor can remove you from the research study without your approval. Possible reasons for removal include a failure to complete the research survey tool in a timely manner or a request by the representative’s school division not to be included.

Your signature documents your permission to take part in this research. We will provide you with a signed copy of this form for your records.

____________________________
Signature of subject

____________________________
Printed name of subject

____________________________
Signature of person obtaining consent

VTSBE Informed Consent version 1.0.0
Dear [insert principal name],

Thank you for your participation in my research project in cooperation with the Educational Leadership and Policies Studies Department at Virginia Polytechnic Institute and State University. Your participation was invaluable to this study of the relationship between teacher quality, racial composition, socioeconomic status, student attendance, financial commitment, school building condition, and performance on the Standards of Learning assessment. In particular, in analyzing disparities in these variables as it relates to randomly selected high performing and low performing high schools within the Commonwealth of Virginia.

If you haven’t already done so, I respectfully ask that if you plan to participate, please forward your responses. A timely response will only add validity to our research. Thank you again for your participation. Should you require further information or clarification please contact me at my cell phone (757) 535-4291 or home (757) 393-7515.

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APPENDIX F

REVISED COMMONWEALTH APPRAISAL OF PHYSICAL ENVIRONMENTS©

Qualtrics Survey Software

REVISED COMMONWEALTH APPRAISAL OF PHYSICAL ENVIRONMENTS

The Revised Commonwealth Appraisal of Physical Environments (CAPE) is an instrument designed to measure the educational conditions of a building. Measuring the educational condition of a school building is different from evaluating a school building for maintenance needs. All of the items in the CAPE instrument have a research base that links the item with research indicating that this building element or feature has an influence upon student learning. Maintenance evaluation measures all things that need repair or replacement to keep the building in working condition. Many of these building features do not have a researchable relationship to student learning.

Directions: Each item has a tripart answer indicating whether or not the building has a certain element or feature and it is in good condition. Each item should be marked either 1, 2, or 3 depending upon your observation of its condition. Items 13 and 19 have a different answer. In item 13, you are asked to indicate which auxiliary buildings are on the campus. Please mark each structure that is in existence. For item 19, you are asked how many services are found in the science laboratory. Please mark each service that is found in the laboratory.

Default Question Block

Principal’s Name

School Division

School

School Level (Elem, MS, HS)

Q1. What is the age of the school building in a number of years?
(A facility's age is your best estimate of the time period during which most of the space used by students was built.)

- 40 years old
- 10-39 years old
- Under 10 years old

Q2.
Does the Indoor Air Quality (IAQ) in the classroom seem satisfactory to you?

- Poor
- Marginal
- Satisfactory

Q3.
Are windows visible in each instructional area?

- Windows are in fewer than one-fourth of the instructional spaces
- Windows are in at least one-fourth but fewer than three-fourths of the instructional spaces
- Windows are in at least three-fourths of the instructional spaces

Q4.
What kind of flooring is found in the majority of the instructional areas?

- Wood floors
- Tile or terrazzo
- Carpet

Q5.
What quality of heat is found in the majority of the instructional spaces?

- Uneven heat/unable to control in each room
- Even heat/unable to control in each room
- Even heat/able to control in each room

Q6.
What quality of air-conditioning system is found in the majority of the instructional spaces?

- No air-conditioning available
- Air-conditioning in some instructional spaces or air-conditioning in all instructional spaces, not regulated
- Air-conditioning in all instructional spaces which can be well regulated
Q7.
What type of lighting is available in the instructional areas?
- Incandescent lighting
- Fluorescent lighting – hot
- Fluorescent lighting – cold

Q8.
When was the last time the interior walls, including classroom spaces, were painted?
- Over 15 years ago
- Between 8 and 15 years ago
- Less than 8 years ago

Q9.
Is there a regularly scheduled painting cycle for interior walls?
- No
- Yes, over 8 years cycle
- Yes, 8 years cycle or fewer years cycle

Q10.
When was the last time the exterior walls or windows and trim were painted?
- Over 7 years ago
- Between 4 and 7 years ago
- Yes, 7 years or fewer years cycle or not needed because no exterior surface requires periodic painting

Q11.
Is there a regularly scheduled painting cycle for exterior walls or windows and trim?
- No
- Yes, over 7 years cycle
- Yes, 7 years or fewer years cycle or not needed because no exterior surface requires periodic painting

Q12.
Are there indications of roof leaks in the building?
Q13.
Which of the following facilities are adjacent to or part of the school complex?
Please check all that apply. This question should be answered for secondary schools (MS and HS) only.
- Football stadium
- Football field
- Soccer field
- Tennis courts
- Swimming pool
- Softball field
- Wrestling room
- Weight room
- Baseball field

Q14.
How often are classroom floors mopped (if wood, tile, or terrazzo) or cleaned (if carpeted)?
- Annually
- Monthly
- Daily or weekly

Q15.
Is graffiti commonly found on the premises?
- Yes
- Sometimes
- No

Q16.
How long does the graffiti remain before it is removed?
- Until summer maintenance
- More than a week, less than a month
- Less than a week or no graffiti is present

Q17.
What is the condition of the lockers?
Q18. What type of material is used for the majority of interior classroom ceilings?
- Wood or open beams
- Plaster or acoustical tiles in at least three-fourths of the instructional spaces
- Acoustical tiles throughout the instructional spaces

Q19. Please indicate which utilities are available and in usable condition in the science labs? Please check that apply. This question should be answered for secondary schools (MS and HS) only.
- Gas
- Water
- Electricity

Q20. How long ago was science equipment updated to current standards?
- Over 10 years ago
- Between 5 and 9 years ago
- Less than 5 years ago or the building is less than 5 years old

Q21. What is the condition of the classroom furniture?
- Most rooms have furniture that is either facially scarred or functionally damaged
- At least half of the furniture in the classrooms is functionally sound and looks satisfactory
- All of the classrooms have furniture which is functionally sound and facially attractive

Q22. What color are the walls in a majority of the instructional spaces?
- Dark colors
- White or off-white colors
- Pastel colors

Q23.
Is the school located near a busy, major highway, frequently used rail line, an area where aircraft frequently pass overhead, or any other noise producing environment?

- Yes, and no measure have been taken to reduce the noise level within the school
- Yes, but measure have been taken to reduce the level of noise with the school
- No

Q24.
Does the school building have WiFi capability?

- The school does not have WiFi ___33 capability
- The Instructional classrooms have dependable WiFi capability
- The entire school building has dependable WiFi capability

Q25.
Does the school building have sufficient computers for every student to have access?

- The school does not have sufficient computers, laptops, or similar devices for Internet access for each student
- The school has computers, laptops, or similar devices for access to the Internet for most classrooms
- The school has sufficient computers, laptops, or similar devices for access to the Internet for each student

Q26.
How many electrical outlets do the classrooms have?

- One or two outlets in each classroom or less
- Four or five outlets in each classroom
- More than five outlets in each classroom

Q27.
Does the school building have sufficient safeguards to ensure students and teachers feel safe at all times? (controlled access, active monitors, classroom door control, communications systems, adequate emergency alarms)

- Two or three systems
- Four safeguards
- More than for safeguards

Q28.
What do you consider the overall educational condition of your school building to be?

- Below standards
- Standard
Above standard

Automatic Response Message in Qualtrics:
THANK YOU FOR PARTICIPATING IN THIS STUDY.