

The Status of Student Academic Performance Based on the Demographic
Representation of Public Middle School Teachers and Students in the
Commonwealth of Virginia

Brittany Amanda Lopes

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Ted S. Price Committee Chair

Carol S. Cash

Carol A. Mullen

R. Dionne Ward

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ABSTRACT

The ethnic demographic composition of the United States is changing (NCES, 2014). The increase in diversity in the country, has changed the ethnic demographic composition in public schools. In the 1980s the United States saw an increase in minority educators in public schools (Ingersoll & May, 2016) that continued to rise over the next two decades. Currently, the percentage of minority students in public schools exceeds the percentage of White students. Specifically, in the Commonwealth of Virginia 49% of public school students are ethnic minorities (TDVEP, 2017). The increase in diversity in both students and teachers did not create proportional representation between the two groups. The hypothesis that a school division with a proportionate ethnic demographic representation of teachers and students will increase student academic performance can be measured by determining whether a disparity between licensed minority teachers and minority students exist. This study investigated the status of student academic performance based on the ethnic demographic representation of public middle school teachers and students in the Commonwealth of Virginia. The ethnicities of teachers and students in all comprehensive middle school students were collected and reported by the Virginia Department of Education (VDOE). The Reading and Mathematics Standards of Learning Pass rates data were also collected and reported by the VDOE. There were seven key findings collected from this study. The first finding was when reviewing for disproportionality of targeted subgroups, the teacher student ratio indicated an overrepresentation of White teachers to White students. The second finding was five of the eight middle schools with the highest Hispanic disproportionality rates when considering the ratio of Hispanic teachers to Hispanic students were in the Commonwealth of Virginia's, Superintendent's Region 4. Finding three indicates that Asian students, even in schools with high disproportionality rates, exceeded state benchmarks for SOL pass rates in Reading and Mathematics. Finding 4 revealed seven of the eight middle schools (88%) with the highest disproportionality rates for Black students had reading SOL pass rates below the state benchmark. Finding 5 indicates that when reviewing the

number of schools with disproportionate representation for any of the subgroups, disproportional representation of Hispanic teachers to students was the most frequently identified. The sixth finding was When reviewing the number of schools with disproportionate representation for any of the subgroups, disproportional representation of Black teachers to students was the second most frequently identified. Finally, finding seven displays Hispanic students in all eight schools with the highest disproportionality rates of Hispanic teachers to Hispanic students fell below the state benchmarks in SOL pass rates.

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GENERAL AUDIENCE ABSTRACT

For the first time in decades, the percentage of minority students in public education has exceeded the percentage of White students in the United States public schools. The increase in the number of minority students in public schools changes the demographic makeup of schools across the country. While research has cited an increase in minority teachers in public schools, there has also been research to show the disparity between student and teacher demographics. Specifically, in the Commonwealth of Virginia, there is a greater disparity between teacher and student ethnic representation than its regional counterparts. The demographic gap between teachers and students in public schools has been connected to the achievement gap between minority students and White students. It is argued that schools that have a teaching staff whose ethnic demographics match the ethnicities of their student population show positive trends in student academic performance. This argument can only be measured by finding whether a disparity between licensed minority teachers and students exists. This study investigated the status of student academic performance based on the ethnic demographic representation of public middle school teachers and students in the Commonwealth of Virginia. The ethnicities of the teachers and students in Grades 6-8 each in each comprehensive middle school were gathered by the Virginia Department of Education (VDOE). The Reading and Mathematics Standards of Learning Assessment data were also gathered by the VDOE. This study found that there is an overrepresentation of White teachers and students. The most frequently identified disproportional representation teachers to student was Hispanic, followed by Black.

Dedication

This dissertation is dedicated to my support system. To my grandparents, my in-laws (Mommy, Pops, & Pop), my family, and “family” that pushed me to maximize my potential and remember that my ambition is infinite. Your supportive phone calls, quick texts, and positive affirmations helped in more ways than you’ll ever know.

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Chapter One

Introduction

According to the Digest of Education Statistics (NCES) (2014), for the first time in decades the percentage of minority students in public education exceeded the percentage of White students in public schools in the United States. Similarly, the diversity amongst the student population in the Commonwealth of Virginia continues to increase (Task Force on Diversifying Virginia's Educator Pipeline [TDVEP], 2017). The TDVEP noted that non-White students made up 49% of the Commonwealth of Virginia's student population, which was a 39% increase from the 2003-2004 school year. The TDVEP also stated that Hispanic student enrollment almost doubled from 8% in the 2006-2007 school year to 15% in the 2016-2017 school year (TDVEP, 2017). Researchers Ingersoll and May (2011) looked to examine the number of minority teachers in the education field in the United States. The TDVEP (2017) along with researchers Egalite and Kisida (2017a) believe that school divisions with a proportionate number of minority teachers that reflects the student population will positively impact student academic performance. This argument can only be proven by first determining at what school level these differences between teacher demographics and student demographics exist.

Statement of the Problem

In 2014, the National Education Association (NEA) released a report on the need to revisit diversity in education (Dilworth & Coleman). The NEA report explained that the state level programs that were once in place 20 years ago, which were aimed toward diversifying teaching staffs, were less noticeable in recent years. President of the NEA, Dennis Van Roekel, argued that "in order to meet the needs of our diverse learners, lawmakers, and educators needed to continue to address the teacher diversity issue" (Dilworth & Coleman, 2014).

In 2016, minority students made up 49% of the student population public schools in Commonwealth of Virginia, but only 21.4% of educators were minorities (TDVEP, 2017). The Virginia Department of Education (VDOE) and the office of the Secretary of Education received a grant to address the shortage of minority teachers in the field of education in the Commonwealth of Virginia. The grant highlighted five priority suggestions to aide in solving the problem more efficiently (TDVEP, 2017). These priorities included changing requirements for

undergraduate education majors, offering dual enrollment opportunities in high school to lead to educational pathways, and providing model teacher induction and mentorship programs to recruit and retain quality minority teachers.

The research of Egalite and Kisida (2015) showed that schools hiring and retaining minority teachers indicate improvement in the academic performance of their minority students. Findings in the research revealed that Asian, Black, and White students demonstrated improved academic performance when matched with a minority teacher (Egalite & Kisida, 2015). Additionally, Pitts (2007) found that while ethnic matching was not a requirement for positive academic performance, the balance of teacher and student ethnicities were. The research showed that when the ethnicity of the teachers employed at a school was proportionate to the ethnicity of the student population, there was an improvement in student academic performance and attendance (Pitts, 2007). According to Rhue (2017), the demographic differences between teachers and students was disproportionate at the high school level across the Commonwealth of Virginia.

According to the Teacher Diversity Index, the Commonwealth of Virginia has a greater disproportion between teacher and student ethnic representation than its regional counterparts (TDVEP, 2017). The Teacher Diversity Index is a national tool that ranks states by demographic differences between teacher and student populations. Using this tool, Virginia ranked 31st in the United States, which puts the Commonwealth at a 31-percentage point difference between minority teachers and minority students (TDVEP, 2017). Additionally, while there are data indicating the disparity on average in the Commonwealth of Virginia, there are no found data on this topic at the middle school level in the Commonwealth of Virginia—and more specifically in Region 1 (one of the eight Superintendent’s Regions in Virginia). The eight Superintendent’s Regions are each comprised of about 15 to 20 school divisions with a total of 132 school divisions for the Commonwealth (www.doe.virginia.gov).

Overview of the Study

This study identified the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and provided a profile of the student academic performance for the most and least representative schools for each ethnicity. The information used in this study was collected from the VDOE website (www.doe.virginia.gov). The VDOE website provided information in the form of School Quality Profiles that indicate the

ethnic/racial demographic information of all students attending public middle schools across the Commonwealth of Virginia. The School Quality Profiles also provide student academic performance data for each school. This information is available by region, school division, and individual school. In order to obtain the teacher ethnic demographic information, a request was made to the VDOE. The information from the VDOE, either collected from their website or obtained in response to the researchers request for data, was used to determine whether the levels of representation of ethnicities of middle school students across the Commonwealth were directly proportionate to the ethnic representation of middle school teachers employed during the 2018-2019 school year. The levels of ethnic representation for this study were calculated using a risk ratio formula developed by the VDOE to determine the levels of representation of special education students (VDOE, 2020). This risk ratio formula was also used by Rhue (2017) to investigate the levels of representation of high school teachers in comparison to high school students based on ethnicity in the Commonwealth of Virginia. The formula divides the number of students in an identified ethnic group by the total number of students minus the identified ethnic group being calculated. Finally, the student academic performance data were collected from the VDOE website (www.doe.virginia.gov).

Purpose of the Study

The purpose of this study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. The relationship between the ethnic representation of middle school students and licensed middle school teachers may provide researchers with more understanding of ethnic representation between teachers and students. The results of this study may provide researchers and educational practitioners with a profile of student academic performance on SOL assessments. The results may also provide a better understanding of the number of ethnic middle school teachers and how it compares to the number of ethnic middle school students in public comprehensive middle schools in the Commonwealth of Virginia.

Justification/Significance of the Study

The results of a study conducted by Ramirez (2009) showed that many teacher preparation programs lacked minority representation. A lack in minority representation in public

schools was also seen by researchers Brown and Boser (2017). Their study found a demographic divide between the ethnic representation of students and teachers in the United States. The TDVEP (2017) found that the Commonwealth of Virginia higher education system had three major barriers, which prevented minority candidates from becoming teachers in the Commonwealth of Virginia (TDVEP, 2017). One of these barriers included limited exposure to the profession during their time as a student. Overall, the lack of minority representation in schools needs to be addressed. This can be supported by the work of Cheng (2017); this research found a positive impact on suspension rates of minority students in schools with minority teachers.

This study identified the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia and provided a profile of the student academic performance for the most and least representative schools for each ethnicity. The findings of this study could be used by future researchers to study the academic performance of students or student behavior trends in middle schools where the levels of representation of teacher and student based on ethnicity is either proportionate or disproportionate.

Research Questions

The following research questions were used in this study to collect information about the ethnicities of licensed middle school teachers and middle school students along with the status of middle school student performance on Standards of Learning (SOL) assessments in the Commonwealth of Virginia in the Commonwealth of Virginia and the status of middle school academic performance on the Virginia Standards of Learning (SOL) assessments:

1. What is the ethnic demographic representation of the licensed middle school teachers at each comprehensive middle school in the Commonwealth of Virginia?
2. What is the ethnic demographic representation of middle school students at each comprehensive middle school in the Commonwealth of Virginia?
3. How does the ethnic demographics of licensed middle school teachers reflect the ethnic demographics of middle school students in each comprehensive middle school in the Commonwealth of Virginia?
4. In which school divisions is representation of teachers and students by ethnic group disproportional based on the Standard 10 definition of representation determined by the VDOE?

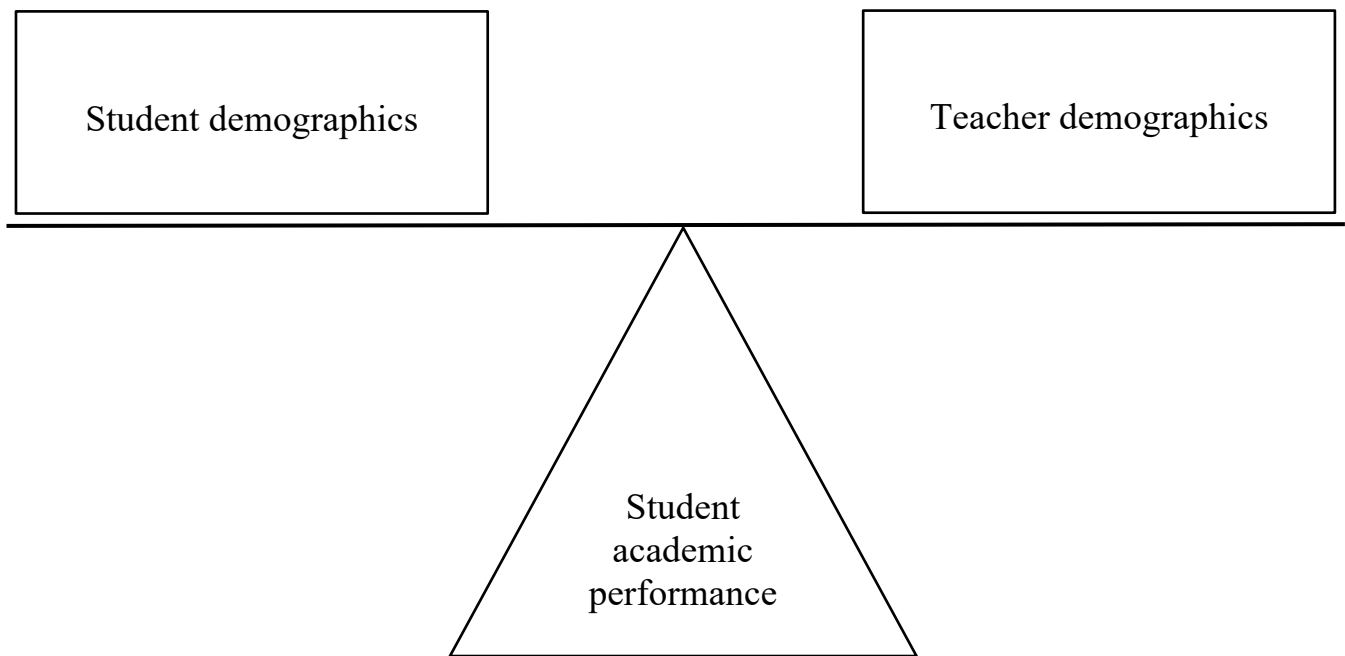
5. What is the status of student academic performance on the Reading and Mathematics SOL at the eight most and the eight least representative comprehensive middle schools in the Commonwealth of Virginia for each ethnicity?

Conceptual Framework

The review of literature for this study demonstrated that both student and teacher demographics have an impact on student academic performance. The literature suggests that a balance between student and teacher demographics is a factor in student academic performance. Figure 1 illustrates the conceptual framework of the literature reviewed for this study.

Figure 1

Conceptual Framework Illustration



Definition of Terms

Key vocabulary terms were used throughout this study. To facilitate understanding, these terms are defined for the purpose of this study.

- *Achievement*: the act of achieving something; a result gained by effort (Merriam-Webster, 2020)

- *American Indian*: a member of any of the indigenous peoples of the Western hemisphere, except often those distinguished as Eskimos or Inuits (Merriam-Webster, 2020).
- *Asian-American*: an American of Asian descent (Merriam-Webster, 2020).
- *Black*: (often capitalized) of or relating to any of various population groups of having dark pigmentation of the skin; of or relating to African American people or their culture (Merriam-Webster, 2020).
- *White*: of, constituting, or characteristic of a race of humankind native to Europe, North Africa, and southwest Asia, and classified according to physical features—used especially in referring to persons of European descent having usually light skin pigmentation (Merriam-Webster, 2020).
- *Comprehensive*: covering completely or broadly; inclusive (Merriam-Webster, 2020).
- *Demographics*: the statistical characteristics of human populations, used especially to identify markets (Merriam-Webster, 2020).
- *Ethnic*: of or relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural origin or background; being a member of a specified ethnic group; of, relating to, or characteristic of a minority ethnic group (Merriam-Webster, 2020).
- *Hispanic*: of, relating to, or being a person of Latin American descent and especially of Cuban, Mexican, or Puerto Rican origin living in the United States; of or relating to the people, speech, or culture of Spain (Merriam-Webster, 2020).
- *Middle School*: a school usually including Grades 6-8 (Merriam-Webster, 2020).
- *Minority*: a part of a population differing from others in some characteristics and often subjected to differential treatment (Merriam-Webster, 2020).
- *Native Hawaiian*: an ethnic designation for a native person of Polynesian descent (Merriam-Webster, 2020).
- *Population*: the total of individuals occupying an area or making up a whole (Merriam-Webster, 2020).
- *Teacher*: someone whose job is to teach in a school or college (Cambridge Dictionary, 2020)

- *Two or More Races*: refers to people who chose more than one of the six race categories. These individuals are referred to as the Two or More Races population, or as the population that reported more than one race (Jones & Smith, 2001).

Limitations

The limitations of this study are factors beyond the researcher's control that may have affected the accuracy of this study. The limitations of this study include the following:

- A teacher may not have reported their ethnicity on their license.
- An ethnic group may not have enough students or teachers for reporting.
- A middle school may not have Grades 6-8.
- The information is only accurate for the time it is provided.
- Student enrollment can change daily.
- The COVID-19 pandemic may impact staffing.
- The SOL assessments were not administered to students for the 2019-2020 school year due to the COVID-19 pandemic.

Delimitations

The delimitations of this study are factors that are controlled by the researcher that may have affected the accuracy of this study. The delimitations of this study include the following:

- The selection of teachers includes only licensed faculty.
- Teachers are limited to only those employed in middle schools.
- Students' ethnicities only reflect those in Grades 6-8 enrolled in comprehensive public middle schools in the Commonwealth of Virginia as reported by the VDOE.

Organization of the Study

The study is organized into five chapters. Chapter One introduces the context of the study by discussing the historical representation of minorities in public education and the current representation of minorities in public education. Along with an overview of the study, Chapter One also includes the following sections: statement of the problem, purpose of the study, justification/significance of the study, research questions, conceptual framework, definitions of terms, limitations, and delimitations. Chapter Two contains a review of pertinent literature that

provides context on the historical, current, and future perceptions of minority educators and minority students in public education. Chapter Three discusses the methodology used to conduct this study. The methodology includes the research design, design justification, research questions, sample selection, data collection procedures, instrument design, data treatment and management, data analysis techniques, and a summary. Chapter Four outlines the findings, explains the data, and identifies similarities in neighboring school divisions as well as school divisions across the Commonwealth of Virginia. The final portion of Chapter Four summarizes the data by linking the findings to the research questions. Chapter Five provides the reader with a summary and discussion of the findings and provides a conclusion on the findings. The final portion discusses suggestions for future studies.

Chapter Two

Literature Review

Introduction

The purpose of this study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. The research literature describes the impact ethnic representation of teachers may have on minority students. The literature review begins with a background of the literature. The first section focuses on the theoretical framework. The second section discusses diversity in the teaching force and how minority teachers are recruited and retained. The third section discusses the effects ethnic representation may have on minority student academic performance and minority student behavior. Finally, a summary of the overall findings from the literature review is presented.

Historical Background

According to the Digest for Education Statistics (2014), the percentage of minority students (51 %) enrolled in public schools in the United States, exceed the percentage of White students (48.9 %) in the United States' public schools, while the percentage of White teachers still exceeds the percentage of teachers of color. Research conducted by Holt and Gershenson (2015) indicated that student academic performance increased when a student was matched with a minority teacher. "Student-teacher demographic congruence has resulted in gains in student achievement, reductions in student absences and suspensions and lowered the probability of students dropping out of high school" (Gershenson et al., 2016).

These findings have supported the theory that the teacher diversity gap negatively contributes to the behavior and academic performance of minority students (Boser, 2011). Boser (2011) proposed theories about the social-emotional impacts of teacher demographic matching on student achievement and behavior. Students with same-race teachers viewed their teachers as role models, which has led to positive impacts on student behavior (Boser, 2011). Egalite et al. (2015) found in a study done in Florida public schools, "significant positive effects when Black and White students were assigned to race-congruent teachers in reading." The Black and White students increased their reading assessment scores (Egalite et al., 2015). The purpose of this

literature review is to review research on the effects ethnic representation of teachers may have on minority students.

Theoretical Framework

This section of the literature review addresses the theoretical framework surrounding the impact of minority teachers on the academic, social, and emotional performance of minority students. Three theories were reviewed, which discussed the benefits of diversifying the teacher workforce for minority students. The three theories reviewed are the role-model theory, the theory that minority teachers have higher expectations for minority students than non-minority teachers, and the theory that minority teachers have a better cultural understanding of their minority students.

The first theory discussed in the literature was the role-model theory. According to the research conducted by Goldhaber et al. (2015), the role-model theory suggested that minority students benefited from “seeing adults with similar racial or ethnic backgrounds in positions of power or authority.” The researchers argued that seeing adults with similar racial or ethnic backgrounds limited the feeling of minority student’s need to act differently in order to fit in with their White peers. Goldhaber et al. (2015) argued minority students in low socioeconomic schools and neighborhoods, who have never been exposed to minorities in authority roles, have difficulty imagining being in a position of power.

Similarly, Egalite and Kisida (2017) conducted a study, using the Measures of Effective Teaching (MET) database. The researchers surveyed 80,000 students from grades 4 through 8, across 6 states. The researchers asked the students to assess how well their teachers led their classrooms. The researchers focused their study specifically on how the Black, White, and Hispanic students rated their teachers (Egalite & Kisida, 2017). Their findings showed that “when students had teachers of the same race as them, they reported feeling more cared for, more interested in their schoolwork, and more confident in their teachers’ abilities to communicate with them” (Egalite & Kisida, 2017). The results of the study showed that the minority students felt they were more likely to be understood by a teacher that was of similar racial and ethnic background as them (Egalite and Kisida, 2017). Minority students taught by minority teachers reported they felt more cared for by their teachers and were more interested in their schoolwork (Egalite and Kisida, 2017). While the researchers focused primarily on the minority students in the classrooms, a similar trend was found with the White students. According to the data

presented, there were positive results for White students placed with a White teacher. The findings of Goldhaber et al. (2015) and Egalite and Kisida (2017) support the need for a purposeful focus on diversifying the teacher pool because of the growing gaps in minority student achievement, although the data showed a positive trend for White students.

The second theory discussed in the literature, by Egalite and Kisida (2017), stated “minority teachers had higher expectations for their minority students than their White colleagues.” The authors stated these expectations arose from the minority teacher’s perception of the student’s ability, behavior, and overall effort (Egalite & Kisida, 2017). McKown and Weinstein (2002) argued the importance of holding Black students to high standards, because Black students are often expected to perform at a lower standard than their White peers. Black students are also noted to be more sensitive, than their White peers, to the opinions and perceptions of their teacher (McKown & Weinstein, 2002). McKown and Weinstein (2002) stated that low expectations for minority students perpetuated the negative stereotype that minority students are less than their White peers. This theory suggested that if minority teachers hold their minority students to high expectations, it would positively influence their motivation and increase their work ethic (Egalite & Kisida, 2017).

The third theory discussed in the literature, by Goldhaber et al. (2015) suggested that minority teachers have a better cultural understanding of their minority students. This theory supports the need to implement professional development on cultural competence and culturally relevant teaching practices. The authors stated that minority teachers are more sensitive to their students’ cultures and backgrounds and may be less likely to engage in bias or subscribe to racial/ethnic stereotypes (Goldhaber et al., 2015). It has become the expectation of teachers across the United States, to engage their students in culturally relevant lessons and activities. (Dilworth & Coleman, 2014).

While professional development has been provided to teachers on cultural competence, the researchers stated this style of teaching comes inherently to minority teachers. The researchers suggested that minority teachers engaged their minority students with culturally relevant and diverse lessons, because the lessons offered a relatable perspective (Goldhaber et al., 2015). According to the literature, minority teachers were able to connect the academic content with their students, because they explained the material in a culturally relevant way (Goldhaber et al., 2015). The authors stated the teachers used examples that aligned with student

interests and experiences and provided feedback in a timely manner. These practices encouraged a connection between the student and the academic content (Goldhaber et al., 2015). In addition to the previously reviewed research, this theory included the perception that teachers of color had a more in depth understanding of their minority students (Goldhaber et al., 2015).

The researchers explained that minority teachers were more supportive of their minority students in the academic setting. In the study findings, students reported they felt cared for and more engaged in their minority teacher's classroom than in some of their other classes (Goldhaber et al., 2015). Students reported they felt happy when they found out they were assigned to a teacher that looked like them (Goldhaber et al., 2015).

Recruitment of Minorities into the Teaching Profession

Half of the students in U.S. public schools are not White (Lindsay et al., 2017). Conversely, less than a quarter of teachers in the U.S. are teachers of color (Lindsay et al., 2017). Due to the increase in student diversity, research has been conducted on how to recruit minorities into the teaching profession (Brown & Boser, 2017). The findings of the study conducted by Brown and Boser (2017) stated "there is one Hispanic teacher to every 52 Hispanic students, and one Black teacher for every 22 Black students." Conversely, according to the findings of this study, "there is one White teacher to every three White students" (Brown & Boser, 2017). During the last six years the Center for American Progress has reported a demographic divide between the ethnic representation of teachers and students (Brown & Boser, 2017). In 2017, the Center for American Progress conducted a survey of 19 states with recent ethnic representation data. The survey results displayed an increase in nonwhite student populations. The proportion of minority students surpassed the proportion of White students in U.S. public schools (Brown & Boser, 2017). While these school divisions saw an increase in the diversity of their student populations, they reported decreases or no changes in the percentages of their nonwhite teachers (Brown & Boser, 2017). In this survey, almost half of the school districts surveyed stated that minority teachers are "very difficult" to hire (Brown & Boser, 2017). Carver-Thomas (2017) argued that diversifying the teacher workforce is necessary for the achievement of all students, regardless of race.

In the research done by Brown and Boser (2017) the researchers argued that school divisions sought to rethink their recruitment process and took steps to build a diverse teacher workforce. The Center for American Progress followed the efforts of TeachStrong, a coalition

committed to reforming and elevating the teaching profession. TeachStrong's first goal was to recruit a more diverse group of high-achieving teacher candidates. In May of 2016, TeachStrong released a set of nine policy proposals with the objective of identifying, recruiting, and developing teachers of color (Brown & Boser, 2017). TeachStrong coalition's policy proposal claimed that the key to strengthening the teaching profession is through solid recruitment (TeachStrong, 2016). According to the TeachStrong Coalition's proposal, teacher preparation program enrollment is down by 30 % since 2008 (TeachStrong, 2016). Millennials are steering away from the teaching profession and are moving into fields they find more appealing (TeachStrong, 2016). The proposal suggested that school divisions and educational institutions needed to work together to develop a solid recruitment process. In an effort to address recruitment efforts in the Commonwealth of Virginia, Fairfax County extended their teacher recruitment efforts to Historically Black Colleges and Universities (HBCUs) and Puerto Rico, and states with higher Hispanic populations (Truong, 2019). Fairfax County is the largest county in the Commonwealth of Virginia and has started the last three years with a shortage of teachers (Truong, 2019).

In the article "Ethnic Minorities and Teaching," Ramirez (2009) investigated several teacher preparation programs that assisted with the recruitment of minorities into educational careers. He began the study upon noticing that one of the programs with a large Hispanic population did not have a significant minority population in the program (Ramirez, 2009). Ramirez (2009) discovered there were a substantial number of teacher recruitment programs that encouraged ethnic minority students to become teachers, but there was a disconnect between the programs and actual results. His research led him to examine programs outside of California in hopes of imitating programs that worked in other areas (Ramirez, 2009). Ramirez (2009) found that the teacher preparation program at Texas A&M-Corpus Christi experienced success in recruiting minorities into the education field by partnering with local high schools. This partnership brought faculty members and preservice teachers from the university into the high schools to give presentations and speak on different careers within the field of education (Ramirez, 2009). Many of the preservice teachers were minorities, which modeled the program's mission and vision to recruit more minorities into teaching. The faculty members watched the presentations and interactions between the preservice teachers and high school students, and they observed that there was a significant number of interested students at the high schools (Ramirez,

2009). The interest in education provided a reason to begin a future teacher's program within the high school. The course gave the high school students the opportunity to help in elementary and middle school classrooms, while still completing courses of their own (Ramirez, 2009). The high school students in the program were paid minimum wage and the preservice teachers continued speaking at other high schools to persuade more students to enter the field of education (Ramirez, 2009).

Ramirez (2009) found that a similar program to recruit minorities was established at Indiana University-Bloomington, which is a predominately White institution (PWI). They developed a program called Project Transformative Education Achievement Model (TEAM). The objective of this program was to strengthen social justice through education, by meeting with minority students to discuss topics centered around social justice, education, and leadership (Ramirez, 2009). Project TEAM members hosted an overnight visit for ethnic minority students in Grades 6-8 (Ramirez, 2009). The program focused on students in Grades 6-8, with the objective of encouraging them to become college tracked and comfortable at a predominately White institution. Project TEAM's research discovered that these forums were successful and the students who enjoyed the program became teachers upon completion of college (Ramirez, 2009). These students felt that the sense of community, strong sense of ethnic identity, and working for social justice led them to want to pursue a career in education (Ramirez, 2009).

Similarly, The University of Wisconsin-Parkside and Carthage College partnered to develop a plan on how colleges and universities in the same neighborhoods could increase community involvement and recruit ethnic minorities into teaching (Ramirez, 2009). This partnership led to the creation of the program entitled Elementary Certification for Ethnic Colleagues for the Elementary School (Ramirez, 2009). The program consisted of three major objectives:

- "Recruit and prepare the brightest males, particularly of color, to work with youth at their crucial developmental levels;"
- "Recruit and prepare the brightest females of color for the elementary school staff;"
- "Design a program that could be used as a model for reforming the teacher education programs at the two institutions of higher learning (pg. 2)"

The program consisted of students who were once in the business industry that returned to obtain teaching credentials (Ramirez, 2009). These preservice teachers were interested and excited

about working with the youth in their hometown (Ramirez, 2009). The results of this program stated that the students graduated with their teaching certification and were placed in schools in their locality. Administrators from the schools where the new teachers were placed felt this program prepared a quality group of minority educators (Ramirez, 2009).

In 2014, the NEA released a report on the need to revisit diversity in education. The NEA (2014) report explained that previously, state level programs that supported and addressed the need for ethnically diverse and culturally competent teaching staffs were prevalent in education twenty years. The NEA (2014) argued these programs have become less noticeable in the current years (Dilworth & Coleman, 2014). Dennis Van Roekel, President and John C. Stocks, Executive Director of the NEA (2014) argued that in order to meet the needs of our diverse learners, it is imperative that educators and policy makers continue the discussion on the importance of addressing teacher diversity. In order for the field of education to diversify, the NEA outlined the following things:

- “Examine the compelling need to recruit and retain teachers of color;
- Analyze recommendations and best practices in the recruitment and retention of minority teachers that support high student achievement;”
- “Explore how NEA members and affiliates can take a more central leadership role in collaborating with other stakeholders to recruit and retain a diverse teacher workforce;”
- “Advocate for state and federal policies that first recruit then retain teachers who are diverse and highly qualified (Dilworth & Coleman, 2014)”

According to the NEA (2014) report, “a moral and ethical commitment to a quality education is an integral part of global interdependence and economic participation.” The number of international groups and organizations in education suggested that student achievement is a high priority across the globe. Reports from organizations such as the Organization for Economic Cooperation Development’s (OECD) Program for International Student Assessment (PISA), Trends for International Mathematics and Science Study (TIMSS), and Progress in International Reading Literacy Study (PIRLS) receive significant attention worldwide (Dilworth & Coleman, 2014). These reports outlined the impact of poverty and diversity on the ability nations “have to contribute to a rapidly changing world economy and global knowledge enterprise” (Dilworth & Coleman, 2014). The United States is considered to be declining as a powerful influence in the

world economy, and Dilworth and Coleman (2014) explained one primary reason is the deficiencies of the education system in the United States. Dilworth and Coleman (2014) argued in order for the United States to change this status, schools need ethnically diverse teaching staffs and culturally relevant instruction.

Authors Ingersoll and May (2011) argued that the minority teacher shortage is a civil rights issue, because prior research supported the claim that the disparity of minority teachers is a major reason for the minority achievement gap (Ingersoll & May, 2011). Ingersoll and May (2011) identified the largest problem many organizations and institutions had was solid recruitment. The researchers found that many organizations and institutions worked to rectify the problem by creating programs to recruit minority teachers. The efforts of these long-running initiatives have been substantial (Ingersoll & May, 2011). The authors discussed the Ford Foundation and DeWitt Wallace Reader's Digest programs that were founded in the late 1980s. These two programs gave over \$60 million dollars to minority teacher recruitment and preparation programs (Ingersoll & May, 2011). Many of these initiatives focused on bringing minority teachers into low-income, urban school districts that served predominately minority populations (Ingersoll & May, 2011). Some of these initiatives have focused on recruiting male minority teachers, as they are considered to be the least represented (Ingersoll & May, 2011). Over half of the states in the US have a minority teacher recruitment initiative or policy, but the authors argued there was no discussion on the success of these programs. With support from the Flora Family Foundation, the authors conducted a study to determine if the initiatives were successful. In order to make this determination the researchers asked the following questions:

- "Have the numbers of minority teachers been going up or down? What changes have there been, if any, in the numbers of minority students and numbers of minority teachers in the school system, and how does this compare with white students and teachers?"
- "Where are minority teachers employed? Are minority teachers more likely than white teachers to be employed in schools serving high-poverty, urban, and high-minority student populations?"
- "How does minority teacher retention compare to that of white teachers, and has it been going up or down? (Ingersoll & May, 2011)"

“The data showed that in the 2008-2009 school year 34% of the nation’s population was minority, 41% of elementary and secondary students were minority, but only 16.5% of elementary and secondary teachers were minority” (Ingersoll & May, 2011). The researchers stated that previous studies conducted have attributed this disparity to the lack of recruitment, but Ingersoll and May (2011) found that recruitment did not seem to be the issue. They stated the gap persisted because the number of White students in public education decreased, while the number of minority students increased. Their findings stated the gap was not due to a failure to recruit minority teachers (Ingersoll & May, 2011). Since the 1980’s the number of teachers has increased, and the number of minority teachers has doubled (Ingersoll & May, 2011). The researchers found that over the past twenty years the number of minority male teachers has increased by 92%, while White male teachers have increased by only 18%. “Minority teachers are two times more likely than their White counterparts to work in hard-to-staff schools” (Ingersoll & May, 2011). The data in their study showed that in spite of competing occupations, barriers to entry, and placement in hard-to-staff schools, their recruitment efforts were more successful than previously noted. (Ingersoll & May, 2011).

In the fall of 2016, the VDOE and the office of the Secretary of Education received a grant from the National Governor’s Association. This grant was awarded to address the lack of minorities in the education field in the Commonwealth of Virginia. In 2016, 49% of the Commonwealth of Virginia’s students were minorities, but only 21.4% of educators were minorities (TDVEP, 2017). This grant led to the formation of the TDVEP, as designed by the Virginia Secretary of Education (TDVEP, 2017). The TDVEP included representatives from public schools, two-year institutions, Historically Black Colleges and Universities (HBCUS), four-year institutions, civil rights advocacy groups, and other community members. In the TDVEP (2017) the executive summary noted the disproportionality between teacher diversity and student diversity in the Commonwealth of Virginia. The TDVEP acknowledged that the Commonwealth of Virginia is a part of the nation’s growing problem in recruiting and retaining high quality teaching professionals, especially minority teachers (TDVEP, 2017). The TDVEP (2017) discussed the Commonwealth of Virginia’s main concern with disproportionate racial composition of school’s staff, being the direct threat, it poses to the success of Virginia’s minority students (TDVEP, 2017). The TDVEP (2017) identified three significant barriers that prevent minority candidates from becoming educators in Virginia as:

- “Barrier 1: The length and cost of the traditional teacher preparation pathway is disproportionate to salary, which is particularly burdensome for first-generation college students and low-income students – who are often minorities.”
- “Barrier 2: Students are not exposed to or made aware of pathways into the profession early enough, nor are non-teaching majors aware of potential pathways into the profession.”
- “Barrier 3: The provisional licensing route is underutilized, and teachers of color who are provisionally licensed in Virginia obtain full licensure at lower rates than their peers. (p. 2)”

The TDVEP (2017) stated there is no single solution to address this problem but argued the Commonwealth of Virginia and the VDOE had the tools and programs necessary to begin to solve the problem. The TDVEP (2017) provided a number of suggestions relating to each of the barriers, but highlighted five priorities they suggested would aide in solving the problem more efficiently:

- “The Virginia Board of Education (VBOE) should revise the Approved Program Regulations to allow undergraduate education-based majors in teaching/education in schools, colleges, and departments of education;”
- “Drawing on successful existing models, the [VDOE] should develop a model “Grow your own program” (GYO) to interest high school students in teaching careers and deploy it to all local school divisions. The state should also provide financial incentives and supports to school divisions for the design and implementation of GYO programs. As part of this, dual enrollment offerings should be expanded at the high school level and should transfer seamlessly into degree pathways for students.”
- “Virginia and its localities should provide model teacher induction and mentorship programs and support their implementation and training. Additionally, the state should redirect a portion of its Title II federal funds and increase state funding for mentors to support provisionally licensed teachers until they achieve full licensure.”
- “The state should cover or subsidize the cost of Praxis tests, the Virginia Communication and Literacy Assessment, and test prep programs for minority and low-income students;”

- “Virginia should annually convene teachers and teacher candidates of color to help facilitate their engagement in policy development as well as recruitment and retention strategies. This event emphasizes the state’s commitment to facilitating a diverse teaching workforce for our students, helps non-teaching major students understand options for teaching out of college, and supports human resource departments from local school divisions in the recruitment of potential teachers.” (p. 2–3)

In an effort to address the teacher shortage in Virginia, the VDOE approved 15 colleges and universities in the Commonwealth of Virginia to begin four-year teacher education degree programs (Hankerson, 2019). The programs began in the Fall of 2019 and span across the Commonwealth of Virginia (Hankerson, 2019). The programs are at both private and public universities, and the VDOE stated that the State Council for Higher Education (SCHEV) did not have to approve the programs at the private colleges/universities (Hankerson, 2019). In addition to the 15 new programs that started in fall 2019 a group of colleges and universities with existing education degree options will add additional programs (Hankerson, 2019). It is projected that “The College of William and Mary, University of Virginia, Virginia Tech and Virginia State, George Mason, James Madison, Old Dominion and Virginia Commonwealth will graduate 400 new teachers after adding their new programs” (Hankerson, 2019). These programs will address critical need areas, such as mathematics and science, but will also focus on the recruitment of minority teachers (Hankerson, 2019). According to data released by SCHEV, there were 3,139 Commonwealth of Virginia college students enrolled in teacher education programs but 900 unfilled teacher positions (SCHEV, 2019). In the article “VCU to Begin Offering 5 Undergraduate Degrees in Teaching” the current Dean of the Virginia Commonwealth University School of Education stated that the cost of graduate school and the limited financial aid have made it difficult for students to afford a teaching degree (McNeill, 2019, p. XX). By eliminating the need to attain a graduate degree to become a teacher, the Virginia Secretary of Education believed more minorities will go into the education field (Hankerson, 2019).

Egalite et al. (2015) explained that recruiting minority teachers would not solely solve the minority student achievement gap. Newly recruited minority teachers often did not possess the same skillset that veteran minority teachers possessed. This lack in skill set and experience could lead to different results in performance and behavior of minority students. Egalite et al. (2015) reminded future researchers and practitioners to be weary of only hiring minorities with the

intention to fulfill policy requests. Egalite et al. (2015) encouraged schools and school divisions to invest in training new teachers to prepare them for the workforce. School divisions cannot just hire on the basis of race or gender. The researchers encouraged school divisions to focus on the quality of their pipeline of teachers (Egalite et al., 2015).

In 2017 researcher Rhue conducted a study in the Commonwealth of Virginia “to compare the level of representation of high school (9-12) teachers to the representation of students, based on ethnicity, enrolled in each high school in the Commonwealth of Virginia” (Rhue, 2017). The data in the study reflected the teacher and student ethnicities from the 2016-2017 school year in all 130 school divisions in the Commonwealth of Virginia. Rhue (2017) argued that studying the relationship between the ethnic representation of teachers and students would provide a deeper understand of the levels. Her findings suggested, “that of the 24 school divisions that participated in her study, 45% of the school divisions had minority populations that were too small to report. Another finding stated that majority of high school students from the participating school divisions were White, followed by Black, then Hispanic. Rhue (2017) noted that teachers and students who identified as Native Hawaiian, American Indian, Asian, or Two or More ethnicities were underrepresented or not represented in 62% of the school divisions that participated in the survey”. Rhue (2017) suggested that further research be done to determine if the levels of representation between teachers and students, based on ethnicity, at the middle or elementary level were proportionate. Rhue (2017) also suggested that further research should be conducted on the impacts of teacher/student demographic proportionality on student achievement and discipline.

Teacher Retention

Over the last twenty years, there has been an increase in minority teachers entering the education field, but minority teacher turnover occurred at a higher rate than their white counterparts (Ingersoll & May, 2011). In 1987, The Tennessee State Board of Education cited a shortage of minority teachers in the state (Seivers & Branch, 2006). In 1988, response to this, the Tennessee Task Force on the Supply of Minority Teachers issued recommendations to increase the number of minority teachers. One of the needs listed in the report, was the need for minority teacher recruitment and retention (Seivers & Branch, 2006). The Task Force identified seven strategies for the retention of the recruited minority teachers. These strategies included the following:

- “Establish new teacher networks;
- Provide enhanced staff development;
- Assign mentors to assist new teachers adjust to the district;
- Continuously assess the needs of the new teachers;
- Provide social support and community orientation;
- Assign a community volunteer to involve the new teacher in community activities;
- Provide support for minority teachers to obtain an advanced college degree including, limited cost assistance” (Seivers & Branch, 2006).

The efforts of the Task Force on the Supply of Minority Teachers led to a more diverse teacher staff in the state of Tennessee (Seivers & Branch, 2006). In addition to the work done in Tennessee, other organizations have implemented the initiative to retain minority teachers and begun to research their effectiveness. In 2004, the Education Alliance at Brown University released a report on Minority Teacher Development, Recruitment, and Retention. In this report, the authors outlined their study that asked five research questions, with the fifth asking what the available data identified about minority teacher retention (Torres, Santos, Peck, & Cortes, 2004). The data presented two observations about minority teacher retention. The first observation presented a shallow body of limited research on minority teacher retention. The research found had a few cases on retention, but mostly focused on social justice (Torres, Santos, Peck, & Cortes, 2004). The second observation was that the research and literature led them to the connection between minority teacher retention and teacher self-efficacy. The second observation guided their research on how this could be added into teacher preparation programs (Torres, Santos, Peck, & Cortes, 2004).

Minority teacher retention has been cited as an issue in diversifying the education system in the United States (Ingersoll & May 2011). The data in the study conducted by Ingersoll and May (2011) showed that “minority teachers’ careers have been less stable than their White counterparts and led more frequently to job transition. The authors stated that some teacher turnover is normal, inevitable, and even beneficial” (Ingersoll & May 2011). Normal teacher turnover or exiting is credited to better jobs in education or in different fields. In some regards, teachers transferring schools, leaving the classroom, or going into careers outside of education does not represent a loss in human capital (Ingersoll & May, 2011). “While this is considered normal, it does not help increase or sustain the number of minority teachers in the classroom. In

the 2003-2004 school year, 47,600 minority teachers entered the education field but 20% of those teachers left a year later” (Ingersoll & May, 2011).

When discussing teacher retention one of the most commonly cited reasons for teacher departure is salary. Ingersoll and May (2011) stated that salary was not the actual root cause for the minority teacher retention issue. The authors stated that many minority teachers were placed in hard-to-staff schools, and while this was initially not an issue, the conditions of these schools soon became the reason these teachers left (Ingersoll & May, 2011). Their data showed that minority teachers were more likely to be employed in schools that served disadvantaged students, and these schools tended to be more difficult and less desirable places to work (Ingersoll & May, 2011). In a study conducted by Farinde, Allen, and Lewis (2016) they found that minority teachers were more likely to leave the profession due to teacher workload, school conditions, and salary. The text stated that various school conditions, such as, student behavior, administrative support, and resources were factors in minority teacher turnover (Farinde et al., 2016). As stated in the research, minority teachers were placed in hard-to-staff and lower performing schools at a higher rate than their White counterparts. The placement in these schools was thought to be one of the major factor’s minority teachers exiting the field. One of the challenges facing hard-to-staff schools was student behavior. For many of these new teachers, negative student behavior in conjunction with lack of experience becomes an issue that overwhelms many teachers (Farinde et al., 2016). Previous studies showed that teachers in schools with high discipline problems, student motivation issues, and lack of administrative support tended to leave education or transfer to schools with greater proportions of White students (Achinstein et al., 2010). The text stated, the demographics of the schools these minority teachers transferred into was not the allure, but it was the hope of positive behavior, administrative support, and shared decision making that motivated them (Achinstein et al., 2010).

Another factor for minority teacher turnover as evidenced by research is lack of human capital (Achinstein et al., 2010). Human capital, in this context, references professional knowledge and development, teacher attitudes, and commitment to the overall school community (Achinstein et al., 2010). In a study conducted by Kohli (2019), that documented the experience of 11 women of color veteran teachers, she found that the women all shared in a lack of effective professional development (Kohli, 2019). The text states each of these 11 veteran teachers were

placed in hard-to-staff schools that lacked true administrative support and professional development that prepared them for the obstacles they faced in their respective schools (Kohli, 2019). One of the teachers, Bernice, taught in a school in the Bay Area, California that educated many gang-affiliated students. It was commonly known that many of their students were in gangs, but Bernice stated they never received training or support on how to teach in an environment plagued with tragedy.

Kohli (2019) was told the following:

I broke down. And when I went to speak to the administrators about needing time to get away and to grieve the students, they were unapologetically callous. It was very matter of fact. Well [Bernice] what do you think the work is? You know the students that you work with, and that's just what they do to each other. It was okay to them. All of us here are working with the same kids. You're just taking it too personal. You need to distance yourself. You need to find a balance. Or, if you can't handle this—and this is the job—then maybe you should find another job. There was just no appreciation for the human life our students were. (p. 39)

While all minority teachers are not placed in situations as extreme as referenced above, Kohli (2019) discussed the importance for professional development and administrative support for all teachers. Kohli (2019) argued that professional development needed to address the racial and cultural topics that minority teachers faced on a daily basis. According to the findings in her study, the 11 veteran teachers reported feeling misunderstood at their schools and their concerns about cultural inaccuracies and racial tensions were left unaddressed (Kohli, 2019).

Academic Performance

Research that documented the achievement benefits of minority students with minority teachers dated back to 1995, when Ehrenberg et al. (1995) analyzed the data from Tennessee's Project STAR class-size study. This study was conducted to determine the benefits of smaller class sizes on student performance, but in turn shared results about same-race students and teachers on student performance (Egalite & Kisida, 2017). The study conducted by Ehrenberg et al. (1995) found that “Black and White third grade students randomly assigned to a Black teacher saw improved results on mathematics and reading assessments” (Egalite & Kisida, 2017).

Research conducted by Clotfelter et al. (2006), and replicated by Goldhaber and Hansen (2010), used longitudinal data from North Carolina to report minority student achievement for

those who were matched with a minority teacher. This study found that students assigned to racially congruent teachers improved assessment scores. (Goldhaber & Hansen, 2010). Clotfelter et al. (2006) stated that students in elementary school benefited more from a same-race teacher than students in middle or high school. These positive benefits included social-emotional impacts and academic impacts (Wright et al., 2017). The researchers concluded that minority students who had a minority elementary teacher or a teacher of the same race as them, had a positive effect on student behavior, perception, and academic outcome (Wright et al., 2017). Students in elementary school assigned to same-race or minority teachers showed improvement on mathematics and reading assessment scores in a study conducted using data from Florida schools. The findings stated Black and White students showed improvement in reading when they were matched with a minority teacher and Black, White, and Asian students improved in mathematics when they were matched with a same-race or minority teacher (Egalite et al., 2015). “On average, Asian American students obtain higher grades, perform better on standardized tests, and are more likely to finish high school and attend elite colleges than their peers of all other racial backgrounds, regardless of socioeconomic status” (Shafer, 2017).

The study conducted by Ehrenberg et al. (1995) was significant to the data on the impact of minority teachers on minority student achievement and has been cited in various current studies. The researchers Joshi et al. (2018) utilized the information found from the Tennessee STAR program study and conducted a new study in hopes of substantiating the earlier researcher’s findings that race-matching and minority teachers have positive effects on student achievement. Joshi et al. (2018) looked not only at how race affected student achievement, but also the level of teacher effectiveness based on data from the Tennessee state teacher value assessment system. The study sought to answer the research questions: 1) To what extent do students experience improved test scores when assigned to a race-congruent teacher? 2) To what extent do the effects of the race-match vary by race, student preparedness, and teacher quality? The results of the study suggested that “a student with a teacher of the same race does not have a significant or meaningful effect on student test scores in the full analytic sample” (Joshi et al., 2018, p. 8). While the study showed that same race did not provide overall meaningful results, the data did show that an elementary student with a teacher of the same race or a minority teacher had a positive effect on mathematics scores (Joshi et al., 2018). Even further, the results of the study showed that Black students who had a minority, specifically Black, teacher in

elementary school had significantly better test scores in both mathematics and reading (Joshi et al., 2018). The findings for the second research question supported the data from the first research question. The data stated that students who were paired with a teacher of their same race, but average performing, still experienced growth in their test scores. These data were even more significant in Black students (Joshi et al., 2018). The results also showed that students matched with higher or lower performing teachers did not see a decline or an improvement in their test scores. The researchers suggested “Even when teachers are in the middle range of pedagogical performance, the benefit students experience may come from the teachers serving as a role model for students or creating a safe classroom environment?” (Joshi et al., 2018).

Similarly, Yarnell and Bohrnstedt (2018) conducted a study that examined student-teacher racial matching, and its association with Black student achievement. This study focused on the Grade 4 National Assessment for Educational Progress (NAEP) in reading. The researchers chose this subject and assessment because previous research suggested the achievement gap between Black and White students grows at this age group (Yarnell & Bohrnstedt, 2017). The researchers acknowledged that there are noticeable changes in student performance at this age level between males and females. The following three research questions guided their study:

1. Is teacher race associated with Black student achievement via individual-level processes, as suggested by an interaction of Black teacher race with Black student race as measured at the student level?
2. Is teacher race associated with Black student achievement via classroom-level processes, as suggested by an interaction of Black teacher race with Black classroom composition?
3. Are the associations observed for racial match equivalent for Black males and Black females? (Yarnell & Bohrnstedt, 2017, p. 295)

The findings in this study echoed findings, in prior studies, that suggested a “Black student with a Black teacher is associated with higher levels of academic achievement” (Yarnell & Bohrnstedt, 2017). The results of this study also stated that Black females who were taught by a Hispanic teacher showed positive achievement on the grade 4 NAEP assessment. This finding led to support of the third research question used to guide the study. The text stated that interactions between student-teacher differed between Black males and Black females (Yarnell

& Bohrnstedt, 2017). This study also outlined that Black female students who were taught by a Hispanic teacher had improved achievement, while Black male students were stagnant in performance (Yarnell & Bohrnstedt, 2017). The findings also showed that Black males in a classroom with a White teacher were associated with lower levels of performance (Yarnell & Bohrnstedt, 2017). Dee (2004) argued that one of the factors contributing to low performance in Black males with White teachers is the “stereotype threat.” This stated that student performance may be affected if a student perceived that a stereotype regarding their ability would be held against them (Dee, 2004).

Many of the studies conducted in the literature reviewed, were completed in urban school divisions. These results may not be the same in school divisions with more diversity or in other settings (Egalite & Kisida, 2018). In the study conducted by Egalite and Kisida (2018), the measures used were generated from student reports, which could have produced results with student bias (Egalite & Kisida, 2018). The students could have wanted a teacher with similar demographic backgrounds for reasons other than what was intended to be studied (Egalite & Kisida, 2018). The researchers encouraged future researchers to determine if the student self-reports used in their study would result in positive long-term effects for students post high school.

Summary

The literature reviewed for this study demonstrated that a preponderance of the research supported the theory that the ethnic representation of teachers positively affects the academic performance and behavior of minority students. The research literature described the effects ethnic representation of teachers may have on minority students. The literature reviewed began with background of the literature. The first section focused on the theoretical framework. The second section discussed diversity in the teaching force and how minority teachers are recruited and retained. The third section discussed the effects ethnic representation may have on minority student academic performance and behavior.

While there were some counterarguments to the research presented, there was an overarching theme that supports the idea that diversity in education is necessary to close the minority student achievement gap, provide representation for minority students, and reduce the high numbers of exclusionary discipline applied to minority students. The research presented the barriers to the recruitment and retainment of minority teachers in public education, but explained

that investments in an effective, diverse, and culturally competent teacher workforce will lead to improved achievement of all students (Carver-Thomas, 2017). The reviewed literature leads to opportunities for future research on concrete evidence on the impacts of minority teachers on student achievement. Further research is needed on the addition of cultural competence curriculum in teacher preparation programs and the effects of this on the enrollment of minorities into these programs will. Similarly, further research is needed on the impacts of the incentives and changes made to current teacher prep programs in efforts to recruit and retain minorities in the field of education. Lastly, further research is needed to show the ethnic representation of students and teachers in localities to address specific needs for diversifying the teacher workforce, in support of the research reviewed.

Chapter Three

Methodology

Methodology

The purpose of this study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. The relationship between the ethnic representation of middle school students and middle school teachers may provide researchers with more information on the impact of minority teachers on student behavior and academic performance. This study used descriptive statistics to describe the set of data. The data collected in this study were categorical data used to represent a set or count of a number of items.

Research Design

This study used quantitative methodology as the information that was collected was based on the number of minority students enrolled in public middle schools in the Commonwealth of Virginia and the number of minority teachers in those schools. A VDOE School Quality Profile Report is completed for each school division in the Commonwealth of Virginia. The School Quality Profile Report reports student demographic and academic performance data for each public middle school in the Commonwealth of Virginia. The VDOE website (www.doe.virginia.gov) has each of the eight Superintendent's Regions categorized and the information is accessible through a Google search. The School Quality Profile Report are consistent amongst each comprehensive middle school. These data are disaggregated and do not require any further analysis. All data on teacher ethnicity was requested from the VDOE. This quantitation study used descriptive statistics determine the representation of licensed minority middle school teachers in the Commonwealth of Virginia in relation to the number of minority middle school students enrolled in public middle schools in the Commonwealth of Virginia.

Design Justification

This quantitative study used a descriptive design to analyze data for student and teacher ethnicities and academic performance reported to the VDOE by each Virginia school division. These data are listed by Superintendent's Regions on the VDOE website

(www.doe.virginia.gov), which provided half of the information needed to complete this study. The additional data needed were obtained by request from the VDOE. The research of Wright et al. (2017) indicated that Black and White students demonstrated academic improvement when matched with a minority teacher. According to Cheng (2017), increasing the population of minority teachers by 1% lowers the suspension and expulsion rates of Black students. Moreover, Bone (2010) stated that the demographic/ethnic composition of teachers and students must be determined in order to gain a better understanding of the impact of teacher ethnicity on student achievement.

A study conducted by Rhue (2017) determined whether the ethnic demographics of high school teachers in the Commonwealth of Virginia were proportionate to the ethnic demographics of high school students. The research suggested that future research could be done at the middle school level. Rhue's (2017) findings suggest that the majority of the educators in the Commonwealth of Virginia identify as White while the student demographics continue to diversify.

Research Questions

The research questions used to guide this study included the following:

1. What is the ethnic demographic representation of the licensed middle school teachers at each comprehensive middle school in the Commonwealth of Virginia?
2. What is the ethnic demographic representation of middle school students at each comprehensive middle school in the Commonwealth of Virginia?
3. How does the ethnic demographics of licensed middle school teachers reflect the ethnic demographics of middle school students in each comprehensive middle school in the Commonwealth of Virginia?
4. In which school divisions is representation of teachers and students by ethnic group disproportional based on the Standard 10 definition of representation determined by the VDOE?
5. What is the status of student academic performance on the Reading and Mathematics SOL at the eight most and the eight least representative comprehensive middle schools in the Commonwealth of Virginia for each ethnicity?

Sample Selection

This study used data collected from one source. The teacher and student data were collected from the School Quality Profile Reports that are listed on the Virginia Department of Education website for each school. A request was made to the VDOE for the teacher ethnicity data. The Commonwealth of Virginia was chosen because the researcher lives and works in a Virginia school division.

Data Collection Procedures

This study collected data from one source. One data source collected information on teacher ethnic demographics from teacher licensure information reported to and collected by the VDOE. A submission to IRB was done before initiating the study and receiving the data from the VDOE. This data collection did not require human subjects to be interviewed either verbally or nonverbally. The data for student demographics and SOL assessment pass rates was retrieved from the School Quality Profile Reports on the VDOE website. This information is listed online and accessible to the public.

Data Treatment and Management

This study obtained and analyzed data on the ethnic demographics of teachers and students in middle school along with the academic performance of middle school students in Grades 6-8 on the Reading and Mathematics SOL assessment at the eight most and the eight least representative comprehensive middle schools in the Commonwealth of Virginia. The data collected on students was gathered from the VDOE. The data collected on teachers did not require any information that would link the data collected to any one individual. The data collected were considered confidential. All of the data collected were stored in a password protected Microsoft Excel file in Google Drive.

Data Analysis Techniques

The VDOE created a Level of Representation formula to calculate the disproportionate representation of students who receive special education services. This formula was also used in a study conducted by Rhue (2017) to determine the relationship between the two variables, student race/ethnicity and licensed high school teacher race/ethnicity, in comprehensive high schools in the Commonwealth of Virginia. When using this formula for students who receive

special education services, the VDOE determined that any value calculated that is greater than 2.0 would be considered disproportionate while any value calculated below 2.0 would be considered proportionate. In this study, the Level of Representation formula was used to calculate the Level of Representation by dividing the student representation rate (ethnicity) by the teacher representation rate (ethnicity).

Level of Representation =

$$\frac{[\textit{Specific ethic group}] \textit{ Student Level of Representation Rate by School}}{[\textit{Spacific ethi group}] \textit{ Teacher Level of Representation Rate by School}}$$

This study used the same risk ratio of 2.0 that was applied by the VDOE for special education services. If the ratio calculated using the Level of Representation formula was below 2.0, then the representation was deemed proportionate. If the ratio calculated was above 2.0, the representation was deemed disproportionate. This same determination was used by Rhue (2017) when examining student ethnicity and licensed high school teachers in the Commonwealth of Virginia.

Student ethnicity and academic performance data for students in comprehensive middle schools in the Commonwealth of Virginia is available on the VDOE website for the 2018-2019 school year. Due to the cancellation of Virginia SOL assessments for the 2019-2020 school year, the 2018-2019 school year SOL data were used in this study. Student ethnicity and academic performance data for the 2018-2019 school year were collected from the School Quality Profile reports found on the VDOE website (www.doe.virginia.gov) during the fall of the 2020-2021 school year. The ethnic demographic data for licensed middle school teachers for the 2018-2019 school year were requested from the VDOE during the summer of 2020. The results for this study were reported during spring semester of 2021.

Summary

Chapter Three outlines the steps used to answer the five research questions that guided this study. The research design, design justification, research questions, sample selection, data collection procedures, data treatment and management, and data analysis techniques explained

how the study was justified and conducted. Chapter Three also outlined the sample from which the data set was collected and how it was analyzed.

Chapter Four

Data Presentation and Analysis

The purpose of this study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. Data presented reflects teacher and student ethnicities and middle school Reading and Mathematics SOL Assessment results for the 2018-2019 school year. The results of this study provide readers with an account of the ethnic demographic representation of comprehensive middle school teachers and students in the Commonwealth of Virginia and a profile of student academic performance.

The findings of this study are presented by each of the eight Superintendent's regions in the Commonwealth of Virginia. The results show the number of proportionate and disproportionate schools in each demographic reporting category and the range of proportionality rates. The findings of this study are also presented by the eight most disproportionate schools in the Commonwealth of Virginia, followed by the eight most proportionate schools in the Commonwealth of Virginia. Specifically, the results show the proportionality and academic results for the following reporting categories: Asian, Black, Hispanic, and White middle school teachers and students. Finally, data for all regions is available in supplemental tables located in Appendix C through Appendix J.

Based on the available literature, in discussing the importance of ethnic diversity in teaching staff, this study described the ethnicities of licensed middle school teachers and middle school students along with the status of middle school student performance on Reading and Mathematics SOL Standards of Learning (SOL) assessments in the Commonwealth of Virginia using the following five research questions:

1. What is the ethnic demographic representation of the licensed middle school teachers at each comprehensive middle school in the Commonwealth of Virginia?
2. What is the ethnic demographic representation of middle school students at each comprehensive middle school in the Commonwealth of Virginia?
3. How does the ethnic demographics of licensed middle school teachers reflect the ethnic demographics of middle school students in each comprehensive middle school in the Commonwealth of Virginia?

4. In which school divisions is representation of teachers and students by ethnic group disproportional based on the Standard 10 definition of representation determined by the VDOE?
5. What is the status of student academic performance on the Reading and Mathematics SOL at the eight most and the eight least representative comprehensive middle schools in the Commonwealth of Virginia for each ethnicity?

Virginia Middle School Teacher Demographics

During the 2018-2019 school year, this study reported 24,374 teachers in public middle schools (school serving students in Grades 6-8) in the Commonwealth of Virginia. Table 1 indicates the distribution by ethnicity reporting categories for middle school teachers across the Commonwealth of Virginia.

Table 1

Licensed Middle School Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

Ethnicities	Number of Licensed Middle School Teachers	%
American Indian	81	0.33
Asian	465	1.91
Black	3,086	12.66
Hispanic	654	2.68
Native Hawaiian	36	0.15
Two or More Races	83	0.34
White	18,525	76.00
Unknown, Not Reported	1,444	5.92
Total	24,374	100.00

Virginia Middle School Student Demographics

During the 2018-2019 school year, this study reported 265,631 students in Grades 6-8 in public middle schools in the Commonwealth of Virginia. Table 2 displays the distribution by ethnicity reporting categories for middle school students across the Commonwealth of Virginia.

Table 2

Middle School Students in the Commonwealth of Virginia During the 2018-2019 School Year

Ethnicities	Number of Middle School Students	%
American Indian	707	0.27
Asian	17,173	6.46
Black	59,596	22.44
Hispanic	41,907	15.78
Native Hawaiian	421	0.16
Two or More Races	14,799	5.57
White	131,028	49.33
Total	265,631	100.00

Proportionality Formula

In order to determine proportionality, the percentage of middle school student representation for each identified ethnic group in this study was calculated for the Commonwealth of Virginia and each middle school within the Commonwealth using the following formulas:

Student Representation Rate =

$$\frac{\text{Number of [specific ethnic group] Middle School Students in Virginia}}{\text{Total Middle School Student Population} - \text{Number of [specific ethnic group] Middle School Students in Virginia}}$$

and

Student Representation Rate =

$$\frac{\text{Number of [specific ethnic group] Middle School Students by School}}{\text{Total Middle School Student Population} - \text{Number of [specific ethnic group] Middle School Students by School}}$$

Next, using data obtained from the VDOE, the percentage of middle school teacher representation for each identified ethnic group in this study was calculated for the Commonwealth of Virginia and each middle school within the Commonwealth using the following formulas:

Teacher Representation Rate =

$$\frac{\text{Number of [specific ethnic group] Middle School Teachers in Virginia}}{\text{Total Middle School Teacher Population} - \text{Number of [specific ethnic group] Middle School Teachers in Virginia}}$$

and

Teacher Representation Rate =

$$\frac{\text{Number of [specific ethnic group] Middle School Teachers by School}}{\text{Total Middle School Teacher Population} - \text{Number of [specific ethnic group] Middle School Teachers by School}}$$

In order to determine whether the level of representation, based on ethnicity, of middle school students and teachers was proportionate during the 2018-2019 school year, the Level of Representation formula was used for each of the ethnicity groups identified in this study (American Indian, Asian, Black, Hispanic, Native Hawaiian, Two or More Races, and White).

Level of Representation =

$$\frac{\text{[Specific ethnic group] Student Level of Representation Rate by School}}{\text{[Specific ethnic group] Teacher Level of Representation Rate by School}}$$

The VDOE created a formula to determine the Levels of Representation of differing student ethnicities in the area of special education (VDOE, 2020). The determination was made that a risk ratio (or representation rate) of 2.0 or greater is an indicator of disproportionate representation. This study used the same Level of Representation formula to determine the levels of representation between middle school student and teacher ethnicities. If the ratio produced using the Level of Representation formula is below 2.0, then representation is deemed proportionate. If the ratio produced is above 2.0, then representation is deemed disproportionate (www.doe.virginia.gov).

Research Questions 1 Through 4

The research data below are presented by each of the eight Superintendent's Regions. These data show the number of schools in each ethnic demographic reporting category with a proportionality rate between 0 and 2, the number of schools with a proportionality rate over 2, and the total range of proportionality. If the ratio calculated using the "Level Representation" formula was below 2.0, then the representation was deemed proportionate. If the ratio calculated was above 2.0, the representation was deemed disproportionate. Proportionality rates and range of proportionality are not reported for ethnic groups that have no schools represented or have representation rates that are too low for reporting.

The representation rates of American Indian, Asian, Black, Hispanic, Native Hawaiian, Two or More Races, and White students and teachers were calculated for all middle schools in the Commonwealth of Virginia. The following sections describe the representation rates for these ethnic reporting categories in the eight Superintendent's Regions. Tables are used to describe the number of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates.

Region 1 – Representation Rates

As shown in Table 3, Region 1, also referred to as Central Virginia, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Native Hawaiian, and White. Disproportionate ethnicity reporting categories in Region 1 were Black, Hispanic, and Two or More Races. There were no schools with a disproportionate representation rate for Native Hawaiian and White. The American Indian and Native Hawaiian ethnic reporting categories were proportionate but underrepresented with only 148 students. Table 4 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 2, also known as the Tidewater region.

Table 3

Region 1 – Representation Rates by Ethnicity for Central Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Middle Schools		Range of Proportionality Rates
	Representation Rate Between 0 and 2.0	Representation Rate Over 2.0	
American Indian	6	0	0.00 – 0.26
Asian	19	10	0.04 – 13.65
Black	15	30	0.49 – 24.23
Hispanic	5	25	0.94 – 28.24
Native Hawaiian	7	0	0.00 – 0.86
Two or More Races	3	8	0.00 – 6.94
White	45	0	0.05 – 1.26

Note. Total number of middle schools: 45

Region 2 – Representation Rates

In Region 2, also known as the Tidewater Region, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Native Hawaiian, and White (see Table 4). Disproportionate ethnicity reporting categories in Region 2 were Black, Hispanic, and Two or More Races. There were no schools with a disproportionate representation rate for Native Hawaiian and White. The American Indian and Native Hawaiian ethnicity reporting categories were proportionate but underrepresented with only 308 students. The Two or More Races category was disproportionate but underrepresented with only 4092 students. Table 5 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 3, also referred to the Northern Neck of Virginia.

Table 4

Region 2 – Representation Rates by Ethnicity for Tidewater Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rates
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	18	0	0.04 – 0.63
Asian	29	8	0.00 – 10.93
Black	17	47	0.48 – 11.49
Hispanic	13	40	0.37 – 16.60
Native Hawaiian	2	0	0.25 – 0.44
Two or More Races	1	10	2.73 – 15.49
White	65	0	0.01 – 1.13

Note. Total number of middle schools: 65

Region 3 – Representation Rates

As shown in Table 5, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Native Hawaiian, and White in Region 3, the Northern Neck of Virginia. Disproportionate ethnicity reporting categories in Region 3 were Black, Hispanic, and Two or More Races. There were no schools with a disproportionate representation rate for Native Hawaiian. The Asian, American Indian and Native Hawaiian, ethnicity reporting categories were proportionate but underrepresented with only 511 students. The Two or More Races reporting category was disproportionate but underrepresented with only 1411 students. Table 6 conveys the number of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 4, commonly referred to as Northern Virginia.

Table 5
Region 3 – Representation Rates by Ethnicity for Northern Neck Virginia Middle Schools
During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rates
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	5	0	0.03 – 0.22
Asian	13	1	0.09 – 2.03
Black	8	19	0.59 – 1.40
Hispanic	13	40	0.79 – 23.47
Native Hawaiian	3	0	0.00 – 0.12
Two or More Races	0	8	2.2 2 – 7.16
White	26	2	0.08 – 5.70

Note. Total number of middle schools: 29

Region 4 – Representation Rates

In Region 4, commonly referred to as Northern Virginia, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Black, Native Hawaiian, and White (see Table 6). Disproportionate in Region 4 were Hispanic and Two or More Races. There were no schools with a disproportionate representation rate for Native Hawaiian. The American Indian and Native Hawaiian ethnic reporting categories were proportionate but underrepresented with only 426 students. Table 7 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 5, also known as the Valley region.

Table 6

Region 4 – Representation Rates by Ethnicity for Northern Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rates
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	16	1	0.00 – 84.29
Asian	24	17	0.09 – 57.05
Black	59	20	0.25 – 8.20
Hispanic	8	71	0.02 – 48.95
Native Hawaiian	12	0	0.00 – 0.29
Two or More Races	2	27	0.25 – 150.49
White	87	1	0.00 – 3.32

Note. Total number of middle schools: 88

Region 5 – Representation Rates

In Region 5, also referred to as the Valley, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Native Hawaiian, Two or More Races, and White (see Table 7). Disproportionate ethnicity reporting categories in Region 5 were Black and Hispanic. There were no schools with a disproportionate proportionality rate for American Indian and Native Hawaiian. The American Indian, Asian, Native Hawaiian, and Two or More Races ethnic reporting categories were proportionate but underrepresented with only 1873 students. Table 8 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 6, also referred to as Western Virginia.

Table 7

Region 5 – Representation Rates by Ethnicity for Valley Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rates
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	4	0	0.00 – 0.18
Asian	6	3	0.16 – 5.44
Black	10	17	0.56 – 11.94
Hispanic	2	15	0.77 – 52.46
Native Hawaiian	2	0	0.07 – 0.42
Two or More Races	2	1	1.16 – 9.11
White	31	2	0.05 – 5.46

Note. Total number of middle schools: 35

Region 6 – Representation Rates

As shown in Table 8, Region 6, referred to as Western Virginia, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Native Hawaiian, Two or More Races, and White. Disproportionate in Region 6 were Black and Hispanic. There were no schools with a disproportionate proportionality rate for American Indian, Native Hawaiian, and White. The American Indian, Asian, Native Hawaiian, and Two or More Races ethnicity reporting categories were proportionate but underrepresented with only 1156 students. Table 9 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality rates for Region 7, also known as Southwest Virginia.

Table 8

Region 6 – Representation Rates by Ethnicity for Western Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rates
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	3	0	0.00 – 0.11
Asian	6	3	0.03 – 0.42
Black	8	15	0.15 – 7.21
Hispanic	3	14	0.64 – 20.17
Native Hawaiian	1	0	0.00
Two or More Races	2	1	1.60 – 2.39
White	28	0	0.00 – 1.87

Note. Total number of middle schools: 28

Region 7 – Representation Rates

In Region 7, Southwest Virginia, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Black, Hispanic, Native Hawaiian, and White (see Table 9). There were no schools with disproportionate ethnicity reporting categories in Region 7. There were no schools with a disproportionate representation rate for American Indian, Hispanic, and Native Hawaiian. Additionally, there were no students or teachers who identified as Asian or Two or More Races in Region 7. The American Indian, Black, Hispanic, and Native Hawaiian ethnicity reporting categories were proportionate but underrepresented with only 762 students. Table 10 conveys the numbers of schools in each ethnicity demographic reporting category with a proportionality rate between 0 and 2, a proportionality rate over 2, and the range of proportionality for Region 8, commonly referred to as the Southside.

Table 9

Region 7 – Representation Rates by Ethnicity for Southwest Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rate
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	3	0	0.00 – 0.12
Asian	0	0	0.00
Black	10	1	0.04 – 2.43
Hispanic	4	0	0.34 – 1.06
Native Hawaiian	1	0	0.00
Two or More Races	0	0	0.00
White	24	4	0.14 – 3.59

Note. Total number of middle schools: 28

Region 8 – Representation Rates

As shown in Table 10, Region 8, also referred to as the Southside, proportionate ethnicity reporting categories for the 2018-2019 school year were American Indian, Asian, Hispanic, Native Hawaiian, and White. There were no schools with a disproportionate proportionality rate for American Indian, Asian, and Native Hawaiian. There were no middle school students or teachers who identified as Two or More Races in Region 8. The American Indian, Asian, and Native Hawaiian ethnic reporting categories were proportionate but underrepresented with only 47 students.

Table 10

Region 8 – Representation Rates by Ethnicity for Southside Virginia Middle Schools During the 2018-2019 School Year

Ethnicities	Number of Schools		Range of Proportionality Rate
	Proportionality Rate Between 0 and 2.0	Proportionality Rate Over 2.0	
American Indian	4	0	0.00 – 0.09
Asian	4	0	0.05 – 0.75
Black	5	8	0.86 – 20.16
Hispanic	5	1	0.92 – 3.88
Native Hawaiian	1	0	0.00
Two or More Races	0	0	0.00
White	12	0	0.10 – 0.81

Note. Total number of middle schools: 14

Research Question 5

Disproportionate Representation and Academic Achievement by Ethnicity Group

The research data below are presented by individual schools, which show the eight most ethnically disproportionate and proportionate schools of each ethnicity in the Commonwealth of Virginia and the pass rates of the middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year. Representation and proportionality rates are not reported for ethnic groups that have no teachers or students represented or have representation rates that are too low for reporting. Table 11 describes the ethnic disproportionality of Asian middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Asian middle school students on Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 11

Disproportionate Representation and Academic Achievement of Asian Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of Asian Students/ All Students	Ratio of Asian Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Loudoun County	J. Michael Lunsford Middle School	599/1,649	2/137	57.05	95	97
Loudoun County	Stone Hill Middle School	582/1,018	5/113	26.70	95	96
Culpeper County	Floyd T. Binns Middle School	13/818	1/75	17.87	85	86
Loudoun County	Mercer Middle School	577/1,466	5/131	16.23	96	96
Henrico County	Short Pump Middle School	210/979	1/63	13.65	93	97
Fairfax County	Franklin Middle School	243/892	2/68	12.48	95	99
Henrico County	George H. Moody Middle School	347/1,092	3/74	11.64	99	99
Loudoun County	Eagle Ridge Middle School	384/1,222	4/108	11.46	96	98

Based on the VDOE and school level reporting for the 2018-2019 school year, the highest rate of disproportionality in the number of Asian middle school teachers in comparison to the number of Asian middle school students occurred in these eight schools across the Commonwealth of Virginia. Table 12 describes the ethnic disproportionality of Black middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Black middle school students on the middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 12***Disproportionate Representation and Academic Achievement of Black Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year***

School Division	School	Ratio of Black Students/ All Students	Ratio of Black Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Henrico County	Hungary Creek Middle School	196/1,005	1/73	24.23	62	67
Stafford County	Stafford Middle School	272/920	1/63	20.99	69	65
Cumberland County	Cumberland Middle School	150/398	1/33	20.16	68	74
Spotsylvania County	Battlefield Middle School	210/837	1/66	16.75	56	65
Spotsylvania County	Spotsylvania Middle School	219/934	1/57	15.31	63	66
Lancaster County	Lancaster Middle School	204/374	3/36	13.33	52	54
Lynchburg City	Linkhorne Middle School	279/571	4/56	11.94	40	42
Virginia Beach City	Salem Middle School	275/1,066	2/73	11.59	75	83

Based on the VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of disproportionality in the number of Black middle school teachers in comparison to the number of Black middle school students occurred in these eight schools across the Commonwealth of Virginia. Table 13 describes the ethnic disproportionality of Hispanic middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Hispanic middle school students on middle school Reading and Mathematics SOL Assessments.

Table 13

Disproportionate Representation and Academic Achievement of Hispanic Middle School

Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of Hispanic Students/ All Students	Ratio of Hispanic Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Harrisonburg City	Skyline Middle School	362/707	1/65	52.46	53	62
Fairfax County	Herndon Middle School	557/1,126	2/105	48.95	47	52
Prince William County	Graham Park Middle School	336/1,027	1/70	48.63	63	68
Prince William County	George M. Hampton Middle School	584/1,048	2/76	41.95	62	65
Manassas Park City	Manassas Park Middle School	530/834	3/58	34.87	67	81
Manassas City	Grace E. Metz Middle School	769/1,143	5/84	34.27	62	65
Richmond City	Elkhardt Thompson Middle School	183/831	1/71	28.24	42	50
Harrisonburg City	Thomas Harrison Middle School	305/666	2/64	28.16	60	67

Based on VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of disproportionality in the number of Hispanic middle school teachers in comparison to the number of Hispanic middle school students occurred in these eight schools across the Commonwealth of Virginia. Table 14 describes the ethnic disproportionality of White middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of White middle school students on middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 14

Disproportionate Representation and Academic Achievement of White Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of White Students/ All Students	Ratio of White Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Rockingham County	J. Frank Hillyard Middle School	596/711	55/113	5.46	73	79
Russell County	Lebanon Middle School	345/353	24/26	3.59	91	87
Page County	Page County Middle School	359/391	27/35	3.32	69	74
Wythe County	Fort Chiswell Middle School	334/332	30/32	2.78	86	83
Wythe County	Rural Retreat Middle School	233/244	25/28	2.54	87	93
Rockingham County	Montevideo Middle School	530/778	52/113	2.51	85	91
Washington County	Damascus Middle School	204/217	23/26	2.05	87	92

Note. There were only 7 schools in the Commonwealth of Virginia that were disproportionate in the White reporting category.

Based on the VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of disproportionality in the number of White middle school teachers in comparison to the number of White students occurred in these seven schools across the Commonwealth of Virginia.

Proportionate Representation and Academic Achievement by Ethnicity Group

Table 15 describes the ethnic proportionality of Asian middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Asian middle school students on middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 15
Proportionate Representation and Academic Achievement of Asian Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of Asian Students/ All Students	Ratio of Asian Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Henrico County	John Rolfe Middle School	1/898	2/79	.04	<	<
Petersburg City	Vernon Johns Middle School	1/792	2/60	.04	<	<
Southampton County	Southampton Middle School	1/627	1/43	.08	<	<
Suffolk City	John F. Kennedy Middle School	1/552	1/55	.09	<	<
Middlesex County	St. Clare Walker Middle School	1/282	1/25	.09	<	<
Shenandoah County	North Fork Middle School	1/363	1/37	.09	<	<
Caroline County	Caroline Middle School	2/927	1/43	.11	<	<
Suffolk City	Forest Glen Middle School	2/461	1/39	.15	<	<

Note. SOL Pass Rates are not reported by the VDOE for ethnic groups that are too small to report.

Based on the VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of proportional representation in the number of Asian middle school teachers in comparison to the number of Asian students occurred in these eight schools across the Commonwealth of Virginia. Table 16 describes the ethnic proportionality of Black middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Black middle school students on the middle school Reading and Mathematics SOL Assessments.

Table 16
Proportionate Representation and Academic Achievement of Black Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of Black Students/ All Students	Ratio of Black Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Wythe County	Fort Chiswell Middle School	1/342	2/32	.04	<	<
Washington County	Damascus Middle School	1/217	1/26	.12	<	<
Montgomery County	Shawsville Middle School	1/226	1/35	.15	<	<
Fairfax County	Longfellow Middle School	38/1,321	10/91	.25	92	95
Fairfax County	Stone Middle School	60/772	16/63	.25	76	85
Loudon County	Middleburg Community Charter	6/144	3/23	.29	<	<
Botetourt County	Central Academy Middle School	4/389	1/38	.35	<	<
Montgomery County	Auburn Middle School	3/279	1/34	.36	<	<

Note. SOL Pass Rates are not reported by the VDOE for ethnic groups that are too small to report.

Based on the state and school reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of proportional representation in the number of Black middle school teachers in comparison to the number of Black students occurred in these eight schools across the Commonwealth of Virginia. Table 17 describes the ethnic proportionality of Hispanic middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of Hispanic middle school students on middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 17

Proportionate Representation and Academic Achievement of Hispanic Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of Hispanic Students/ All Students	Ratio of Hispanic Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Fairfax County	Carson Middle School	144/1,502	7/103	.02	83	86
Fairfax County	Cooper Middle School	61/1,032	6/71	.02	89	90
Franklin City	Joseph P. King Jr. Middle School	4/223	1/22	.37	<	<
Frederick County	Frederick County Middle School	58/711	1/67	.44	66	81
Portsmouth City	Cradock Middle School	13/473	2/46	.57	67	75
Alleghany County	Clifton Middle School	6/474	1/44	.64	50	50
Bedford County	Staunton River Middle School	21/702	2/57	.77	73	65
West Point	West Point Middle School	6/197	1/25	.79	100	86

Note. SOL Pass Rates are not reported by the VDOE for ethnic groups that are too small to report.

Based on the VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of proportional representation in the number of Hispanic middle school teachers in comparison to the number of Hispanic students occurred in these eight schools across the Commonwealth of Virginia. Table 18 describes the ethnic proportionality of White middle school students and middle school teachers in the Commonwealth of Virginia and the pass rates of White middle school students on middle school Reading and Mathematics SOL Assessments during the 2018-2019 school year.

Table 18
Proportionate Representation and Academic Achievement of White Middle School Students and Teachers in the Commonwealth of Virginia During the 2018-2019 School Year

School Division	School	Ratio of White Students/ All Students	Ratio of White Teachers/ All Teachers	Representation Rate	Reading SOL Pass Rate	Math SOL Pass Rate
Petersburg City	Vernon Johns Middle School	13/792	16/60	.05	79	50
Chesterfield County	Providence Middle School	269/1,080	69/81	.06	85	88
Henrico County	L. Douglas Wilder Middle School	50/808	37/72	.06	92	91
Richmond City	Martin Luther King Jr. Middle School	6/641	7/50	.06	<	<
Richmond City	Thomas C. Boushall Middle School	10/763	12/66	.06	38	56
Accomack County	Nandua Middle School	169/509	35/40	.07	84	90
Chesterfield County	Falling Creek Middle School	98/1,383	59/115	.07	71	64
Henrico County	Fairfield Middle School	66/1,087	38/79	.07	92	90

Note. SOL Pass Rates are not reported by the VDOE for ethnic groups that are too small to report.

Based on the VDOE and school level reporting for the Commonwealth of Virginia during the 2018-2019 school year, the highest rate of proportional representation in the number of White middle school teachers in comparison to the number of White students occurred in these eight schools across the Commonwealth of Virginia.

Summary

Chapter Four describes the results of the data collected using the methods outlined in Chapter Three. Each school’s information is displayed in a table that reflects the ethnic reporting category, the number of teachers and students in that school, the proportionality rate, and the middle school Reading and Mathematics SOL assessments for the 2018-2019 school year. Tables 1 and 2 are used to show the total number of students and teachers, in each ethnic reporting category, in the Commonwealth of Virginia’s comprehensive middle schools. The comprehensive data describing the ethnicities of students and teachers is located in Appendix B.

The data indicate that the reporting category, White, had the highest proportionate representation rate between all teacher and student ethnic groups. Out of all the ethnic reporting categories the data indicates that both Asian and White students SOL assessment results met the state benchmark with both proportionate and disproportionate representation of Asian or White teachers. American Indian and Native Hawaiian reporting categories were identified as having data too small to report. The ethnic category, Two or More Races was not reported, as there were no associated SOL assessment results reported by the VDOE. Upon analyzing each school's teacher and student data and SOL assessment results, a brief summary outlined the findings. Chapter Five includes the findings and implications determined based on the information presented in Chapter Four.

Chapter Five

Findings, Implications, and Recommendations

In Chapter Five the research questions, findings, implications, and recommendations for future studies are presented. The purpose of this quantitative study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. This study obtained and analyzed data on the ethnic demographics of teachers and students in middle school along with the academic performance of middle school students in Grades 6-8 on the Reading and Mathematics SOL assessment in the Commonwealth of Virginia. analyzed all comprehensive middle schools in the Commonwealth of Virginia during the 2018-2019 school year. Ethnic demographic data and SOL assessment results were gathered from the VDOE. Private, charter, and combination middle schools were not analyzed in this study. This chapter reflects the major findings and suggested implications of the study that may be relevant to school leaders in the Commonwealth of Virginia. The final section of this chapter outlines recommendations for future research.

Summary of Findings

The findings of the study revealed information about the levels of ethnic representation between middle school teachers and students in the Commonwealth of Virginia. These findings could be considered important to human resource departments and middle school leaders in regard to their recruitment and retention practices. The findings for this study are discussed in the following section.

Finding 1

When reviewing for disproportionality of targeted subgroups, the teacher-student ratio indicated an overrepresentation of White teachers to White students. Results revealed that 76% of middle school teachers in the Commonwealth of Virginia were White, while 51% of middle school students were White. Results displayed there were 18,525 licensed middle school teachers who were White, while the other subgroups (Asian, Black, and Hispanic) totaled 5,849. The results of this study showed the proportionality range for White teachers and White students was 0.00-5.70. The results indicated there were at total of 8 middle schools in the Commonwealth of Virginia with a disproportionate representation of White students to White

teachers. This finding regarding the overrepresentation of White teachers to White students aligns with the information found by NCES (2017). The NCES (2017) states the percentage of White teachers still exceeds the percentage of teachers of color.

Finding 2

Five of the eight middle schools with the highest Hispanic disproportionality rates, when considering the ratio of Hispanic teachers to Hispanic students, were in Region 4.

Results displayed that 56% of Hispanic students in the Commonwealth of Virginia are in middle schools in Region 4 – Northern Virginia. Results revealed there were a total of 23,636 Hispanic middle school students in Region 4. Data indicated there were 326 teachers who identified as Hispanic in Region 4. This finding in this study regarding the disproportionality in Region 4 aligns with the information written by Truong (2019). In an effort to recruit more Hispanic teachers in Region 4, Fairfax County extended their teacher recruitment efforts to Puerto Rico and states with higher Hispanic populations (Truong, 2019).

Finding 3

Asian students, even in schools with high disproportionality rates, exceeded state benchmarks for SOL assessment pass rates.

The results indicated six of the eight middle schools with the highest Asian disproportionality rates were in Region 4 – Northern Virginia. The results revealed the students in these six schools exceeded the state benchmark with an average of 94% pass rate on reading SOL assessment and 95% pass rate on mathematics SOL assessment. This finding regarding the academic performance of Asian students in this study aligns with a study conducted by Shafer (2017). The study stated that on average, Asian American students obtain higher grades, perform better on standardized tests, and are more likely to finish high school and attend elite colleges than their peers of all other racial backgrounds (Shafer, 2017).

Finding 4

Seven of the eight middle schools with the highest Black disproportionality rates had reading SOL pass rates below the state benchmark.

The results presented the average reading SOL assessment pass rate in these seven schools was 59%, while the state benchmark is 75%. The data indicate that in all eight middle schools with the highest disproportionality rates for Black students and teachers, there was an average of two Black teachers per school. This

finding aligns with the findings in a study conducted by Egalite et al. (2015). The study stated that Black and White students showed improvement in reading when they were matched with a minority teacher (Egalite et al., 2015).

Finding 5

When reviewing the number of schools with disproportionate representation for any of the subgroups identified in this study, disproportional representation of Hispanic teachers to students was the most frequently identified. The results showed that 16% of middle school students in the Commonwealth of Virginia are Hispanic and 2.7% of middle school teachers are Hispanic. The results indicated that 60% of middle schools in the Commonwealth of Virginia have a disproportional representation of Hispanic students to Hispanic teachers. This finding aligns with Brown and Boser (2017). Their findings stated there is one Hispanic teacher to every 52 Hispanic students (Brown & Boser, 2017).

Finding 6

When reviewing the number of schools with disproportionate representation for any of the subgroups identified in this study, disproportional representation of Black teachers to Black students was the second most frequently identified. The results showed that 23% of middle school students in the Commonwealth of Virginia are Black and 12% of middle school teachers are Black. The results indicated that 47% of middle schools in the Commonwealth of Virginia have a disproportional representation of Black students to Black teachers. This finding regarding the ethnic demographic representation of this study aligns with report by TDVEP (2017) This TDVEP report stated only 21% of the Commonwealth of Virginia's educators were minorities.

Finding 7

Hispanic students in all eight schools with the highest disproportionality rates of Hispanic teachers to Hispanic students fell below the state benchmarks in SOL assessment pass rates. The results indicated the average reading SOL pass rates in these eight schools was 57%, while the state benchmark is 75%. The results showed the average mathematics SOL assessment pass rate in these 8 schools was 64%, while the state benchmark is 70%. The results revealed five of the eight schools were located in Region 4, which has 56% of the Hispanic students in the Commonwealth of Virginia. This finding aligns with a study completed by

Goldhaber and Hansen (2010). This study found that students assigned to racially congruent teachers improved scores (Goldhaber & Hansen, 2010).

Implications

The seven findings from this study led to four implications for future researchers, practitioners, and Human Resource departments in the Commonwealth of Virginia. The implications from this study include the following:

Implication 1

School divisions in the Commonwealth of Virginia should consider implementing or expanding recruitment efforts focused on hiring minority educators at colleges and universities, including historically Black colleges and universities. This may allow for school divisions to develop better connections with minority teacher candidates. Targeted incentives could deepen the pool of teacher candidates and allow for a more diverse scope of recruitment. School divisions could offer signing bonuses to candidates in critical needs subject areas. School divisions could partner with local businesses and organizations to provide financial incentives to candidates looking to switch careers. School divisions could offer financial incentives to candidates who commit to coming back to their home school or division upon college graduation. School divisions could also partner with local apartment complexes and community businesses to offer discounted rent and memberships to teachers. This implication is associated with Findings 1 and 2.

Implication 2

The VDOE should consider supporting “grow your own” teacher cadet programs in all school divisions in the Commonwealth of Virginia. If school divisions give students in the programs a guaranteed contract upon the completion of their degree, they may potentially see an increase in teacher candidates. If these programs are focused on minority students and encourage the study of Spanish, this may help increase the demographic representation in schools across the Commonwealth. School divisions could prioritize dual enrollment courses for students in these programs in an effort to jumpstart their college requirements. This may decrease tuition costs and encourage more students to enroll in college full-time. This implication is associated with Finding 5.

Implication 3

School divisions in the Commonwealth of Virginia should consider implementing or expanding recruitment efforts to target minorities at college and universities, including consideration of incentives, focused on hiring minority educators. Targeted incentives could deepen the pool of teacher candidates and allow for a more diverse scope of recruitment. School divisions could offer signing bonuses to candidates in critical needs subject areas. School divisions could partner with local businesses and organizations to provide financial incentives to candidates looking to switch careers. School divisions could offer financial incentives to candidates who commit to coming back to their home school or division upon college graduation. School divisions could also partner with local apartment complexes and community businesses to offer discounted rent and memberships to teachers. School divisions could offer mentorship programs for new teachers to connect with veteran teacher mentors in their schools. This implication is associated with Finding 6.

Implication 4

School divisions in the Commonwealth of Virginia should consider providing teachers with professional development that targets culturally responsive instruction. Culturally responsive and relevant instruction may increase the academic performance of students in all subgroups (Goldhaber et al., 2015). School divisions could utilize the professional development programming of places such as the Virginia Center for Inclusive Communities, to share resources and strategies for culturally responsive instruction. School divisions could implement culturally responsive practices into their new teacher in-services each year. If teachers are equipped with strategies to connect with all students, school divisions may find an increase in performance and an increase in teacher retention. This implication is associated with Findings 3, 4, and 7.

Considerations for Future Research

The purpose of this study was to identify the demographic ethnic representation of public middle school teachers and students in the Commonwealth of Virginia, and to provide a profile of the student academic performance for the most and least representative schools for each ethnicity. This study focused only on comprehensive middle schools in the Commonwealth of Virginia. Future researchers should consider replicating this study at the elementary school level.

This would provide researchers and readers with a profile of the levels of demographic representation between student and teacher ethnicities across all levels in the Commonwealth. This would also allow school divisions to determine their need for teacher recruitment.

In this study, a profile of student academic performance was shown, based on the demographic representation of public middle school teachers and students. Future researchers may want to expand the setting to include factors that influence academic performance, such as teacher preparation programs, teacher efficacy, student attendance, student behavior, and retention rates. Researchers will be able to use these factors to determine whether a correlation exists between ethnic representation and student performance.

Future researchers may want to consider a study that includes longitudinal data over a 5- to 10-year period, specifically, in the school divisions with the highest levels of teacher and student ethnic disproportionality. School divisions may have implemented strategies for culturally responsive teaching and increased minority candidate recruitment efforts, a longitudinal study would allow researchers to determine if these efforts were effective.

Conclusion

The findings suggest that across the Commonwealth 76% of middle school teachers are White while 51% of middle school students in Virginia are not White. School divisions across the Commonwealth continue to see an increase in enrollment of ethnically diverse students. In order to diversify the educator workforce to match their student populations, school divisions must develop new strategies for teacher retention and recruitment. If school divisions can effectively implement new recruitment efforts that target ethnically diverse teachers, future researchers can then investigate a causal relationship between student and teacher ethnicities and student academic performance.

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Appendix A
CITI Program Course Certificate of Completion



Appendix B

IRB Approval



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

MEMORANDUM

DATE: July 1, 2020
TO: Ted S Price, Carol S Cash, Brittany Amanda Lopes
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires October 29, 2024)
PROTOCOL TITLE: A Study on The Status of Student Academic Performance Based on the Demographic Representation of Public Middle School Teachers and Students in Virginia
IRB NUMBER: 20-553

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

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

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

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

PROTOCOL INFORMATION:

Determined As: **Not Human Subjects Research**
Protocol Determination Date: **July 1, 2020**

ASSOCIATED FUNDING:

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

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Appendix C

Region 1 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Albert Hill Middle School	NR	1.59	NR	0.53
Bailey Bridge Middle School	NR	3.93	5.95	0.16
Binford Middle School	NR	3.88	NR	0.24
Brookland Middle School	5.93	2.08	6.69	0.14
Carter G. Woodson Middle School	NR	2.36	2.77	0.40
Chickahominy Middle School	NR	8.06	4.01	0.18
Colonial Heights Middle School	NR	2.56	2.72	0.25
Dinwiddie County Middle School	NR	1.67	3.77	0.58
Elizabeth Davis Middle School	NR	9.14	5.95	0.11
Elkhardt Thompson Middle School	1.73	1.35	28.24	0.09
Elko Middle School	0.51	3.10	9.38	0.23
Fairfield Middle School	0.56	9.19	NR	0.07
Falling Creek Middle School	0.96	1.46	27.09	0.07
George H. Moody Middle School	11.64	1.40	3.03	0.19
Goochland Middle School	0.89	2.77	NR	0.57
G. W. Carver Middle School	NR	3.46	NR	0.17
Holman Middle School	11.27	2.06	1.12	0.23
Hungary Creek Middle School	4.56	24.23	3.52	0.21
J. E. J. Moore Middle School	0.50	2.00	2.53	0.21
John Rolfe Middle School	0.04	4.32	5.65	0.16
L. Douglas Wilder Middle School	0.51	8.02	6.32	0.06
Liberty Middle School	1.30	1.85	NR	0.34
Lucille M. Brown Middle School	0.32	3.54	2.89	0.17
Luther P. Jackson Middle School	NR	1.53	0.94	0.77
Manchester Middle School	1.71	3.02	16.34	0.15
Martin Luther King Jr. Middle School	NR	7.38	NR	0.06
Matoaca Middle School	0.53	2.97	1.49	0.47
Midlothian Middle School	5.49	4.66	2.75	0.40
New Kent Middle School	NR	1.53	NR	0.44

Oak Knoll Middle School	NR	1.68	3.44	0.65
Pocahontas Middle School	5.44	2.74	2.25	0.56
Powhatan Middle School	NR	1.36	4.17	1.26
Providence Middle School	0.99	7.83	13.85	0.06
Quioccasin Middle School	9.65	2.52	23.36	0.17
Robious Middle School	NR	2.55	6.88	0.30
Salem Church Middle School	1.47	1.45	NR	0.29
Short Pump Middle School	13.65	0.74	NR	0.29
Sussex Central Middle School	0.26	1.67	NR	0.61
Swift Creek Middle School	4.08	3.61	NR	0.36
Thomas C. Boushall Middle School	NR	0.49	15.20	0.06
Tomahawk Creek Middle School	5.86	2.87	1.91	0.33
Tuckahoe Middle School	1.87	3.18	13.95	0.38
Vernon Johns Middle School	0.04	5.46	NR	0.05

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix D

Region 2 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Arcadia Middle School	NR	2.50	NR	0.14
Azalea Gardens Middle School	0.48	0.97	5.31	0.65
B. T. Washington Middle School	0.31	2.13	1.30	0.40
Bayside Middle School	0.50	6.52	NR	0.11
Benjamin Syms Middle	1.49	1.59	2.10	0.59
Berkeley Middle School	NR	1.02	16.60	0.59
Blair Middle School	0.88	3.60	7.62	0.22
Brandon Middle School	1.19	2.76	4.47	0.29
C. Alton Lindsay Middle School	NR	2.16	NR	0.16
Cesar Tarrant Middle School	NR	2.28	1.37	0.37
Churchland Middle School	NR	2.21	2.15	0.34
Colonel Fred Cherry Middle School	NR	4.48	NR	0.13
Corporate Landing Middle School	1.83	2.25	8.98	0.26
Cradock Middle School	NR	2.31	0.57	0.41
Crestwood Middle School	NR	3.08	5.32	0.17
Crittenden Middle School	0.41	2.62	3.71	0.27
Deep Creek Middle School	NR	4.85	4.73	0.17
Ethel M. Gildersleeve Middle School	2.98	1.39	11.34	0.34
Forest Glen Middle School	0.15	2.15	1.59	0.42
Francis W. Jones Magnet Middle School	0.55	2.40	4.37	0.29
Georgie D. Tyler Middle School	NR	1.02	NR	0.62
Grafton Middle School	10.50	1.49	NR	0.35
Great Bridge Middle School	NR	0.68	3.46	0.63
Great Neck Middle School	1.33	2.54	2.33	0.36
Greenbrier Middle School	NR	3.42	1.96	0.18
Hickory Middle School	2.63	1.00	3.41	0.52
Homer L. Hines Middle School	0.27	3.16	5.17	0.23
Hugo A. Owens Middle School	NR	1.90	6.32	0.34
Huntington Middle School	0.00	4.84	0.96	0.14

Independence Middle School	4.70	2.28	3.74	0.27
Indian River Middle School	1.43	4.51	3.01	0.18
J. M. Dozier Middle School	NR	2.85	4.73	0.12
James Blair Middle School	NR	1.59	9.65	0.52
John F. Kennedy Middle School	0.09	3.91	NR	0.21
John Yeates Middle School	NR	1.91	NR	0.31
Jolliff Middle School	0.95	1.59	4.13	0.42
Joseph P. King Jr. Middle School	NR	3.81	0.37	0.60
Kempsville Middle School	0.99	2.41	3.21	0.40
King's Fork Middle School	0.18	2.72	1.31	0.38
Lake Taylor Middle School	1.43	1.55	4.55	0.29
Landstown Middle School	9.35	4.13	4.75	0.13
Larkspur Middle School	1.25	3.15	9.79	0.14
Lois Hornsby Middle School	0.49	2.65	6.54	0.34
Lynnhaven Middle School	NR	2.08	13.88	0.23
Mary Passage Middle School	NR	2.19	5.70	0.23
Nandua Middle School	NR	6.33	NR	0.07
Northampton Middle School	0.10	2.40	NR	0.22
Northside Middle School	NR	2.32	2.67	0.32
Norview Middle School	0.59	2.03	2.82	0.21
Oscar Smith Middle School	0.37	5.31	6.94	0.12
Plaza Middle School	6.50	2.36	2.43	0.30
Princess Anne Middle School	1.79	0.48	1.40	0.87
Queens Lake Middle School	0.81	1.63	3.25	0.40
Salem Middle School	10.93	11.59	2.16	0.11
Smithfield Middle School	NR	2.87	1.99	0.38
Southampton Middle School	0.08	1.84	NR	0.56
Tabb Middle School	5.83	2.90	3.13	0.22
Thomas Eaton Middle School	NR	3.43	2.30	0.22
Toano Middle School	0.54	3.15	5.00	0.30
Virginia Beach Middle School	NR	3.31	3.43	0.33
Western Branch Middle School	NR	2.37	6.04	0.32
William E. Waters Middle School	NR	0.94	1.47	1.13
William H. Ruffner Middle School	0.26	10.04	0.83	0.02
Yorktown Middle School	NR	4.12	2.41	0.22

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix E

Region 3 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Andrew G. Wright Middle School	0.43	1.31	NR	0.24
Battlefield Middle School	1.86	16.75	6.74	0.09
Caroline Middle School	0.11	1.53	5.18	0.80
Chancellor Middle School	1.10	1.49	NR	0.33
Donald B. Dixon-Lyle R. Smith Middle School	NR	3.40	NR	0.21
Edward E. Drew Jr. Middle School	NR	3.24	5.08	0.15
Freedom Middle School	1.39	6.25	9.75	0.17
H. H. Poole Middle School	1.43	7.24	4.53	0.23
Hamilton Holmes Middle School	NR	NR	NR	NR
King George Middle School	NR	5.46	4.52	0.47
Lancaster Middle School	0.18	13.33	NR	0.19
Montross Middle School	NR	6.34	NR	0.14
Ni River Middle School	1.31	2.47	NR	0.60
Northumberland Middle School	NR	2.07	2.76	0.34
Page Middle School	0.18	4.13	NR	0.32
Peasley Middle School	0.25	0.59	NR	1.19
Post Oak Middle School	NR	1.91	4.42	0.57
Rodney E. Thompson Middle School	2.03	4.62	5.63	0.26
Shirley C. Heim Middle School	NR	3.15	23.47	0.08
Spotsylvania Middle School	NR	15.31	4.67	0.19
St. Clare Walker Middle School	0.09	NR	NR	0.26
Stafford Middle School	NR	20.99	11.11	0.14
T. Benton Gayle Middle School	0.61	1.99	5.75	0.44
Thomas Hunter Middle School	NR	1.24	NR	0.56
Thornburg Middle School	1.05	7.82	9.25	0.17
Walker-Grant Middle School	NR	2.61	NR	0.18
West Point Middle School	NR	1.40	0.79	0.42

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix F

Region 4 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Auburn Middle School	1.01	NR	5.03	0.30
Belmont Ridge Middle School	6.32	1.32	2.02	0.39
Blue Ridge Middle School	1.54	1.10	NR	0.40
Brambleton Middle School	7.56	1.54	2.88	0.28
Bull Run Middle School	1.92	5.84	7.26	0.17
Carson Middle School	1.35	2.12	0.02	0.13
Cedar Lee Middle School	0.80	1.05	7.08	0.43
Cooper Middle School	0.59	NR	0.02	0.13
Culpeper Middle School	NR	7.58	27.43	0.23
Daniel Morgan Middle School	NR	2.59	15.19	0.16
E. H. Marsteller Middle School	11.22	1.74	NR	0.20
Eagle Ridge Middle School	11.46	0.98	1.80	0.35
Farmwell Station Middle School	8.66	2.36	4.11	0.20
Floyd T. Binns Middle School	17.87	8.20	7.21	0.00
Francis C. Hammond Middle School	1.50	0.79	14.13	0.24
Franklin Middle School	12.48	1.90	15.69	0.16
Fred M. Lynn Middle School	5.43	1.41	16.81	0.04
Frederick County Middle School	NR	NR	0.44	0.41
Frost Middle School	7.42	1.03	12.55	0.18
Gainesville Middle School	NR	2.02	7.35	0.20
George M. Hampton Middle School	2.57	0.85	41.95	0.09
Glasgow Middle School	4.31	1.18	13.05	0.12
Grace E. Metz Middle School	0.93	1.10	34.27	0.06
Graham Park Middle School	NR	1.33	48.63	0.13
Gunston Middle School	3.85	0.71	3.91	0.43
Harmony Middle School	1.07	0.75	7.58	0.66
Harper Park Middle School	3.29	0.93	10.98	0.35
Herbert J. Saunders Middle School	3.05	1.39	8.38	0.23
Herndon Middle School	2.41	1.09	48.95	0.13

Holmes Middle School	5.02	1.60	9.99	0.09
Hughes Middle School	0.98	1.77	6.51	0.09
Irving Middle School	4.00	2.07	10.28	0.21
J. Lupton Simpson Middle School	2.26	0.59	5.86	0.46
J. Michael Lunsford Middle School	57.05	1.05	1.73	NR
Jackson Middle School	6.22	0.50	11.50	0.13
James Wood Middle School	NR	5.64	37.41	0.08
Jefferson Middle School	3.32	1.23	10.01	0.27
Johnson-Williams Middle School	NR	1.16	NR	NR
Kenmore Middle School	2.05	0.58	10.42	0.24
Key Middle School	5.65	2.95	13.06	0.05
Kilmer Middle School	6.14	0.86	10.23	0.28
Lake Ridge Middle School	9.91	3.83	8.00	0.09
Lanier Middle School	6.63	1.72	3.68	0.23
Liberty Middle School	3.92	0.98	3.34	0.24
Locust Grove Middle School	0.43	NR	NR	0.45
Longfellow Middle School	6.15	0.25	4.27	0.37
Louise A. Benton Middle School	2.17	2.26	11.07	0.23
Luray Middle School	NR	0.92	0.60	NR
Manassas Park Middle School	1.46	0.76	34.87	0.08
Marshall Middle School	0.41	3.51	14.38	0.26
Mary Ellen Henderson Middle School	1.84	0.95	NR	0.30
Mercer Middle School	16.23	1.72	4.38	0.17
North Fork Middle School	NR	NR	6.87	NR
Page County Middle School	NR	NR	NR	3.32
Parkside Middle School	3.52	0.86	18.40	0.17
Peter Muhlenberg Middle School	NR	NR	11.59	0.11
Poe Middle School	9.62	3.13	17.75	0.02
Potomac Middle School	4.57	1.68	4.51	0.12
Prospect Heights Middle School	NR	4.14	1.00	0.48
Rippon Middle School	5.03	2.83	6.65	0.05
River Bend Middle School	3.39	2.32	7.68	0.24
Robert E. Aylor Middle School	NR	1.54	7.86	0.22
Rocky Run Middle School	11.29	0.85	6.78	0.11

Ronald Wilson Reagan Middle School	3.06	0.99	2.41	0.53
Sandburg Middle School	0.98	0.92	5.69	0.48
Seneca Ridge Middle School	3.23	0.73	18.36	0.24
Signal Knob Middle School	NR	NR	NR	0.51
Skyline Middle School	NR	1.74	3.22	0.48
Smart's Mill Middle School	2.25	1.85	7.20	0.24
South County Middle School	5.93	1.67	2.66	0.20
Sterling Middle School	1.62	1.40	22.91	0.05
Stone Hill Middle School	26.70	0.96	9.46	0.08
Stone Middle School	1.47	0.25	15.78	0.43
Stonewall Middle School	3.37	1.77	25.54	0.06
Stuart M. Beville Middle School	NR	1.18	18.66	0.09
Swanson Middle School	1.72	0.67	2.13	0.61
Thoreau Middle School	3.80	4.13	2.86	0.28
Trailside Middle School	8.92	1.15	5.75	0.33
Twain Middle School	2.32	1.99	8.43	0.18
W. C. Taylor Middle School	NR	NR	3.66	0.13
Warren County Middle School	NR	0.44	1.62	NR
Warrenton Middle School	NR	1.28	NR	0.75
Whitman Middle School	0.38	1.00	13.05	0.20
William H. Wetsel Middle School	NR	3.54	NR	0.35
Williamsburg Middle School	2.49	0.88	2.83	0.58
Woodbridge Middle School	5.29	2.32	10.58	0.09

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix G

Region 5 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Amherst Middle School	NR	0.89	NR	0.55
Beverley Manor Middle School	0.20	0.62	NR	1.53
Brookville Middle School	1.06	2.10	NR	0.47
Buford Middle School	2.96	6.30	NR	0.21
Elkton Middle School	NR	NR	5.42	0.21
Fluvanna Middle School	NR	1.56	NR	0.37
Forest Middle School	NR	8.70	4.34	0.30
J. Frank Hillyard Middle School	NR	NR	NR	5.46
Jack Jouett Middle School	NR	5.43	5.64	0.09
Jackson P. Burley Middle School	2.61	3.57	6.33	0.24
Joseph T. Henley Middle School	NR	0.56	2.82	0.58
Kate Collins Middle School	NR	9.27	6.52	0.12
Leslie H. Walton Middle School	1.14	2.45	5.08	1.56
Liberty Middle School	NR	2.29	1.26	1.04
Linkhorne Middle School	0.26	11.94	NR	0.11
Louisa County Middle School	NR	6.60	4.64	0.42
Lylburn Downing Middle School	NR	NR	NR	NR
Maury River Middle School	NR	NR	NR	0.23
Monelison Middle School	NR	2.29	NR	0.26
Montevideo Middle School	NR	3.05	NR	2.51
Mortimer Y. Sutherland Middle School	5.44	2.77	5.03	0.25
Nelson Middle School	0.16	0.99	NR	0.51
Parry McCluer Middle School	NR	NR	NR	1.30
Rustburg Middle School	NR	3.40	NR	0.24
S. Gordon Stewart Middle School	NR	1.43	NR	0.75
Sandusky Middle School	NR	6.64	NR	0.09
Shelburne Middle School	NR	3.29	3.46	0.24
Skyline Middle School	NR	4.07	52.46	0.05

Staunton River Middle School	NR	0.95	0.77	0.67
Stuarts Draft Middle School	NR	1.54	NR	0.38
Thomas Harrison Middle School	1.07	1.62	28.16	0.09
Wilbur S. Pence Middle School	NR	NR	6.27	0.45
William Monroe Middle School	NR	NR	2.02	0.40
Wilson Middle School	NR	1.57	4.03	0.39

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix H

Region 6 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

	Asian	Black	Hispanic	White
Andrew Lewis Middle School	NR	2.50	5.84	0.36
Auburn Middle School	NR	0.36	NR	0.81
Benjamin Franklin Middle-East School	NR	1.60	NR	0.24
Benjamin Franklin Middle-West School	NR	0.98	6.77	0.50
Blacksburg Middle School	NR	4.91	1.03	0.41
Breckinridge Middle School	0.42	3.81	3.26	0.20
Cave Spring Middle School	NR	NR	NR	0.12
Central Academy Middle School	NR	0.35	NR	1.87
Chatham Middle School	NR	7.21	NR	0.13
Christiansburg Middle School	NR	NR	5.64	0.24
Clifton Middle School	NR	0.84	0.64	0.96
Dan River Middle School	NR	6.10	1.49	0.26
Fieldale-Collinsville Middle School	NR	3.61	20.17	0.20
Glenvar Middle School	NR	NR	2.55	1.06
Gretna Middle School	NR	3.59	NR	0.39
Hidden Valley Middle School	NR	NR	NR	0.20
James Madison Middle School	NR	5.61	2.65	0.30
John P. Fishwick Middle School	NR	5.45	9.44	0.14
Laurel Park Middle School	0.31	1.56	6.80	0.38
Martinsville Middle School	NR	2.45	NR	0.18
Northside Middle School	NR	3.66	NR	0.12
O. Trent Bonner Middle School	NR	5.00	3.58	0.00
Read Mountain Middle School	NR	NR	3.40	0.48
Shawsville Middle School	NR	0.15	NR	0.49
Tunstall Middle School	NR	1.71	3.93	0.44
Westwood Middle School	NR	4.97	NR	0.14
William Byrd Middle School	NR	6.51	4.60	0.33
Woodrow Wilson Middle School	NR	5.31	5.59	0.18

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix I

Region 7 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Carroll County Middle School	NR	1.33	NR	0.66
Chilhowie Middle School	NR	NR	1.06	1.37
Coeburn Middle School	NR	0.76	NR	0.61
Damascus Middle School	NR	0.12	NR	2.05
Dublin Middle School	NR	1.59	NR	0.93
E. B. Stanley Middle School	NR	1.16	NR	0.62
Elydale Middle School	NR	NR	NR	1.25
Fort Chiswell Middle School	NR	0.04	NR	2.78
Galax Middle School	NR	2.43	NR	0.20
Gate City Middle School	NR	NR	NR	0.62
Glade Spring Middle School	NR	NR	NR	0.40
Graham Middle School	NR	NR	0.34	0.79
Independence Middle School	NR	NR	NR	0.22
Jonesville Middle School	NR	NR	NR	1.56
L. F. Addington Middle School	NR	0.76	0.55	1.21
Lebanon Middle School	NR	NR	NR	3.59
Marion Middle School	NR	1.24	NR	0.66
Northwood Middle School	NR	NR	NR	0.71
Pennington Middle School	NR	NR	NR	1.77
Pulaski Middle School	NR	NR	NR	0.73
Richlands Middle School	NR	NR	NR	0.63
Ridgeview Middle School	NR	NR	NR	1.89
Rural Retreat Middle School	NR	NR	NR	2.54
Scott Memorial Middle School	NR	NR	0.71	0.14
Tazewell Middle School	NR	NR	NR	0.29
Union Middle School	NR	0.99	NR	0.87
Virginia Middle School	NR	1.16	NR	0.63
Wallace Middle School	NR	NR	NR	1.27

Note. Reporting categories with low populations or no representation are not reported (NR).

Appendix J

Region 8 – Representation Rates of Middle School Students and Teachers during the 2018-2019 School Year

Middle Schools	Representation Rate of Students to Teachers			
	Asian	Black	Hispanic	White
Amelia County Middle School	0.09	1.98	NR	0.81
Appomattox Middle School	NR	NR	1.03	0.20
Bluestone Middle School	NR	6.85	NR	0.19
Buckingham County Middle School	NR	1.89	1.50	0.48
Central Middle School	NR	4.69	0.92	0.27
Cumberland Middle School	NR	20.16	1.31	0.10
Edward W. Wyatt Middle School	0.06	2.95	NR	0.38
Halifax County Middle School	NR	2.03	NR	0.48
James S. Russell Middle	0.05	0.86	NR	NR
Lunenburg Middle School	NR	1.92	3.88	0.39
Nottoway Middle School	NR	2.61	NR	0.27
Park View Middle School	NR	2.78	NR	0.40
Prince Edward Middle School	0.75	3.70	1.97	0.38

Note. Reporting categories with low populations or no representation are not reported (NR).