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SCHOOL FINANCE EQUITY: AN INTRADISTRICT EQUITY AUDIT

by

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Bachelor of Science, December 2008, Longwood University

Master of Education, May 2016, Old Dominion University

A Dissertation Proposal Submitted to the Faculty of  
Old Dominion University in Partial Fulfillment of the  
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

EDUCATIONAL LEADERSHIP

OLD DOMINION UNIVERSITY

May 2021

Approved by:

Dr. William Owings (Director)

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## ABSTRACT

### SCHOOL FINANCE EQUITY: AN INTRADISTRICT EQUITY AUDIT

Nicole Kathryn Duplain  
Old Dominion University, 2021  
Committee Chair: Dr. William Owings

This overview provides a synthesis of a comprehensive study of an intradistrict equity audit of one mid-Atlantic school district. The purpose of this study was to measure the intradistrict distribution of educational resources across elementary, middle, and high schools of one school district through an equity audit to determine whether or not the allocation and distribution of fiscal resources were equitable and adequate. This study utilized publicly available school-level expenditure data to determine the allocation and distribution of resources to expose any existing disparities. The researcher investigated any disparities in per-pupil expenditures, teacher quality, and academic achievement by examining Skrla, et al.'s (2004) three classifications.

Being there is no other research study like this to date, the researcher designed and examined the findings to determine any inequities and inadequacies through an a priori lens suggesting differences as slight, moderate, or notable. To rate the differences in funding as slight, moderate, or notable, the researcher created three per-pupil expenditure weighting groups based on Verstegen's (2008) suggested student enrollment subgroup category weighting recommendations. The researcher's findings of this study supported slight, moderate, and notable differences in allocation disparities, teacher quality, and an association between funding and academic achievement among the elementary school level, middle school level, and high school level when utilizing the a priori guidelines. This study aimed to add to the body of

literature by addressing the gap in research related to intradistrict equity and adequacy of educational funding.

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I dedicate this dissertation to my two beautiful daughters, Natalee and Abrie. Never forget to put God first, do everything with grace, and love yourself. May all of your hopes and dreams come true. Always remember, you can accomplish anything your heart desires in life, and never let anyone question your worth. The sky is the limit. I love you both forever and always. She is clothed in strength and dignity and laughs without fear of the future. Proverbs 31:25.

## ACKNOWLEDGEMENTS

First and foremost, I would like to praise and thank God whose blessings, love, and faithfulness have made me who I am today. I would like to express my deep and sincerest gratitude to my family. My parents, Paul and Kathryn Poyant, for who I am greatly indebted. They sacrificed so much in order to prepare me for my future. My husband, Lee Duplain, Jr. who pushed me to pursue what I never knew I wanted or dreamed possible. He believed in me when I did not believe in myself. And my two remarkable daughters, Natalee and Abrie, for inspiring me to be the best me each and every day.

I wish to express my sincerest gratitude to my advisor, Dr. William Owings for his continued support and outstanding guidance and advice throughout my Ph.D. journey. His continued patience, motivation, enthusiasm, and immense knowledge helped open the door to my passion and assisted me in achieving what I never thought possible. I could not have imagined having a better advisor and mentor. I am forever grateful to you. In addition to my advisor, I would also like to thank the rest of my committee: Dr. Steven Myran and Dr. Petros Katsioloudis for their encouragement, support, and insight.

I would like to recognize and thank Dr. Stenette Byrd, III for serving as my mentor and always reminding this “young grasshopper” timing is everything. His reflective questioning, guidance, and words of encouragement assisted in my professional growth and helped me see my true potential. Additionally, I would like to thank Ms. Debra Hicks for inspiring me to take the step to become an educational leader. Her wisdom, guidance, and support encouraged me to be the leader I am today. For that, I am truly thankful.

Lastly, I would like to thank my friends who have supported me and throughout my academic journey. You have been my cheerleaders and I am grateful for all of your

encouragement. Also, Old Dominion University, Ph.D. Cohort 3, thank you for your friendship, support systems, and accountability partnerships as we took on this adventure of a lifetime together. I will forever cherish our friendships.



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## Chapter One: Introduction

### **Background of the Study**

For decades, there has been an energetic debate concerning whether or not money matters regarding education. In prior studies, there has been a close relationship between research and policy in school finance, especially in the area of equity and adequacy (Berne, 1988). School finance equity has been a major focus of research and legal action since the late 1960s. Researchers and lawyers thought equalizing spending between wealthy and poor districts would ensure disadvantaged students would benefit from as much public spending as non-disadvantaged students (Roza & Miles, 2002). Unfortunately, they did not take account of the fact school districts – even those receiving large amounts of state “equalization” funds – can create their own spending pattern inequities (Roza & Miles, 2002).

Baker (2016) explains sustained improvements in the level and distribution of funding across local public-school districts lead to improvements in the level and distribution of student outcomes, ranging from graduation rates to educational attainment and wages. Available research shows that a more equitable and adequate allocation of financial inputs to schooling provides a necessary underlying condition for improving the equity and adequacy of outcomes (Baker, 2016). Nevertheless, the traditional quest for school finance equity has not accomplished its goal (Odden, 2000). There is a considerable amount of literature in the field of education regarding interdistrict resource allocations. There is, however, a limited amount of research regarding the significant differences in intradistrict resource allocations. This may be a result of the scarcity of school-level data (Rubenstein, Schwartz, Stiefel, & Amor, 2007; Owings & Kaplan, 2010) and the presumption district-level equity might guarantee fair distribution across schools within districts (Woo, 2010).

Nevertheless, the existing literature consistently documents the inequity and inadequacy of intradistrict resource allocation distribution across schools, particularly those within large urban school districts (Iatarola & Stiefel, 2003; Rubenstein, Schwartz, Stiefel, & Amor, 2007; Schwartz & Stiefel, 2004). Despite difficulty obtaining school-level data, there is growing evidence of inequity in intradistrict spending. These significant inequities in resource allocation within a school district are not fully understood and deserve additional research (Darling-Hammond & Post, 2000; Rubenstein, Schwartz, & Stiefel, 2006). What is not yet known about intradistrict funding disparities is whether and how these disparities have changed in recent years, and why districts would continue to have such disparities among their schools. It should not be assumed school finance reforms directed at resolving resource inequities between school districts will ensure those resources are equitably distributed among schools and their students.

### **Statement of the Problem**

The issue of school finance equity has been a long-standing topic for the past four decades (Rodriguez, 2004). The existing literature of intradistrict resource allocations reveals an unequal distribution pattern to schools within large districts, particularly ones serving tens of thousands of students and spending hundreds of millions of dollars on education (Roza & Miles, 2002). Frequently, these inequities work against schools serving low-income and minority students. Numerous researchers report that intradistrict funds are systemically directed away from disadvantaged students and toward more advantaged students (Rubenstein, Schwartz, & Stiefel, 2006; Woodworth & Ritter, 2012; Owings & Kaplan, 2020). Unintended funding inequities can be caused due to the differences in allocation and distribution of resources from the states to the districts and the districts to the schools.

Tracking money is a huge challenge for school districts for several reasons. One being, in most states, school funding is distributed and tracked only to the district level. Additionally, their revenues come from a variety of numerous sources, which include state, local, federal, and philanthropic, at various times. Furthermore, school district budgeting processes create large and hidden differences within school budgets. The fact districts are unaware of how much is spent at one school versus another allows for major inequities often hurting the schools most in need of resources (Roza & Hill, 2004). Instead of supplying more resources to the school districts and schools serving populations of low-income and minority students, they provide less (Owings & Kaplan, 2010). Low-income and minority students tend to be concentrated in low-income and minority communities, and these students often attend schools receiving far fewer resources per pupil despite their greater need.

No matter which fiscal equity measure is used, it is clear school districts and schools with a high percentage of low-income and minority students are not receiving their fair share of education funding (Epstein, 2011). The inequity and inadequacy in school funding must be remedied so all students have access to the resources necessary to achieve at high levels (Epstein, 2011). Intradistrict analyses have the potential to yield useful information for state and local policymakers, educators, the courts, and researchers because most educational resources are expended at individual schools. Thus, researchers have begun to devote more attention to intradistrict analyses (Stiefel, Rubenstein, & Berne, 1998). Illuminating intradistrict disparity issues are extremely important because these inequities and inadequacies are further shortchanging low-income and minority students. As a result, intradistrict disparities may be the next “ripeness” factor for school finance litigation (Owings & Kaplan, 2010).



The *Every Student Succeeds Act* (ESSA) serves as the latest revision of the *Elementary and Secondary Education Act of 1965*, replacing the previous revision as the *No Child Left Behind Act* (NCLB) in 2002. The implementation of ESSA provides an opportunity to expose the longstanding inequities and inadequacies among school districts and schools. Under ESSA school districts will have to address any resource disparities to comply with the law. The first step to advocating for equitable and adequate funding is to know where and how the money is being spent. For the first time, states will have to report to the United States Department of Education, and publish on state and district report cards, the per-pupil expenditure at the district level and school level. The data must include the different sources of funds, so it can be compared both intradistrictly and interdistrictly (ESSA, 2015). Therefore, the purpose of this study is to measure the intradistrict distribution of educational resources of one mid-Atlantic school district through an equity audit. In doing so, this study was to help inform the field of education by discovering how one diverse mid-Atlantic school district currently distributes resources across elementary, middle, and high schools within the district. Specifically, this research looks at the processes district leaders use to allocate and distribute resources to schools within their district and to determine whether or not the allocation and distribution of resources are equitable and adequate.

### **Purpose of the Study**

The struggle for school fiscal equity has been ongoing across the United States since the beginning of public education. Strangely enough, our progress toward fiscal equity in school financing has been slow in contrast to the beliefs and values of the American people (Johns, 1976). A majority of research on school finance equity is based on individual states (Berne & Stiefel, 1983). Unfortunately, little research has been conducted focusing on the resource

allocations across schools within school districts. In most states, individual schools seldom participate in any major reorganization of school-level resources. Typically, school-level funding is distributed and tracked only to the district level. Too often, the school district budget process begins where last year's budget process left off. Assuming the existing resource allocations should remain and providing no allowance for shifts in the distribution of resources. As a result, careful investigations of this potential problem require an analysis of funding at the individual school level.

### **Research Questions**

The research questions driving this study are:

*RQ1.* Is there a difference in variation in resource allocation of per-pupil funding at the elementary school level? middle school level? high school level?

*RQ2.* Is there a difference in variation in teacher quality at the elementary school level? middle school level? high school level?

*RQ3.* What is the association between funding and academic achievement at the elementary school level? middle school level? high school level?

### **Overview of Methodology**

In this study, the researcher will utilize available school-level expenditure data to examine the allocation and distribution of resources to students within one mid-Atlantic school district to determine what, if any, disparities exist among different schools within the same district. Particularly, the researcher will be looking for any disparities in per-pupil expenditures, teacher quality, and academic achievement. Since there is no other research study like this to date, the researcher will design and examine the findings through an a priori lens. This study will use this a priori lens to examine and determine any inequities within the district. The

guidelines for the a priori lens suggest a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable. The researcher will examine per-pupil expenditures and calculate the cents per dollar spent at each school. Furthermore, the researcher will utilize Verstegen's suggested student enrollment subgroup category weighting to create three per-pupil expenditure weighting groups. The per-pupil expenditures will be compared to examine vertical equity, horizontal equity, and equal opportunity.

### **Conceptual Framework**

The terms equity and adequacy are referenced frequently within school finance literature. The three research questions driving this study are linked to adequacy and equity principles. The researcher will use these two common terms to build a conceptual framework for this study utilizing a framework developed by Berne and Stiefel (1994), examining concepts and measures of three equity principles – equal opportunity, horizontal equity, and vertical equity. Equal opportunity is defined in terms of the relationship between a specific school characteristic and a second variable, where in most cases the absence of a relationship signifies equal opportunity (Berne & Stiefel, 1994).

Horizontal equity, or the equal treatment of equals, takes on particular significance at the school level, in terms of financial resources and output measures (Berne & Stiefel, 1994; Steifel, Rubenstein, & Berne, 1998). Under this principle, each school within a district would receive equal funding per-pupil, as long as the students within each school possessed the same skills, needs, level of preparation, etc. Horizontal equity is relatively easy to compute and can provide a valid criterion upon which to evaluate the equity of general education or basic funding. Horizontal equity measures capture the dispersion of a distribution and assess how far the distribution is from perfect equality. There are two important limitations of horizontal equity.

First, the assumption each school possesses the same needs equally across the board cannot be maintained in practice. Second, numerical equality of funding should not be considered the end all be all if every entity receives insufficient funding. Thus, horizontal equity principles can be regarded as the starting point for an equitable system, however, adjustments are necessary (Glen, Picus, Odden, & Aportela, 2009).

On the other hand, vertical equity, or the appropriately unequal treatment of unequals, is a very important equity concept at the school level. Under this principle, each school within a district would receive more funding per-pupil, to students of poverty, with learning disabilities, and/or having a native language other than English. State legislatures have recognized the importance of providing additional funding to educate those students affected by poverty, race, urbanicity, limited English proficiency, and family characteristics such as low parental educational attainment, who are at risk of academic failure (Vesley & Crampton, 2004). Vertical equity is much more complex to measure and will assess the degree to which schools receive more resources per pupil. There are two important limitations of vertical equity. First, there are no consistent specific targets used to determine whether vertical equity has been reached. Second, vertical equity measures do not take into account the effects of multiple dimensions of student need.

Another important yet still evolving concept is school finance adequacy. It means that school finance today encompasses not only fiscal inputs, but also their connection to educational programs, teacher compensation, and student achievement (Odden, 2003). For a school to be considered to have adequate funding each school would need to be provided the sufficient funds necessary to teach the average student, plus sufficient additional funding resources for those students of poverty, with learning disabilities, and/or having a native language other than English

to allow them to meet the state standards as well (Odden & Picus, 2004). To measure adequacy requires an explicit connection between school funding and student achievement and thus, addressing the concerns of teacher quality and teacher salaries.

Verstegen (2008) suggests specific populations of students cost more to educate than others. Therefore, per-pupil expenditures are weighted for students falling into these specific subgroup categories. Weighting these specific subgroup categories and multiplying the current per-pupil expenditures reveals the amount of funding needed to meet the basic educational needs of these students. Verstegen suggests different populations are weighted differently based on student need. The researcher will apply Verstegen's (2008) weighting to selected student enrollment subgroup categories to measure equity as it relates to per-pupil expenditures at each school.

Verstegen reasons, a student with a disability per-pupil expenditure would be twice as much the district per-pupil expenditure (or 2.0), while students eligible to receive free or reduced-price lunch and English learners per-pupil expenditure would be one and a half times as much (or 1.5). Based on Verstegen's suggested student enrollment subgroup category weighting, the researcher created three per-pupil expenditure weighting groups: in order to rate the difference in funding as slight, moderate, or notable. The researcher's a priori lens suggests a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable.

- The first group of weights (full weight) was gathered from existing research: students with disabilities (2.0), English learners (1.5), and students eligible for free or reduced-price lunch (1.5)
- The second group of weights (half weight): students with disabilities (1.5), English learners (1.25), and students eligible for free or reduced-price lunch (1.25)

- The third group of weights (quarter weight): students with disabilities (1.25), English learners (1.125), and students eligible for free or reduced-price lunch (1.125).

Weighting the per-pupil expenditures for the specific subgroups will allow the researcher to examine any discrepancies among schools at the elementary school level, middle school level, and high school level.

### **Limitations, Delimitations, and Assumptions**

The following Limitations and Delimitations should be considered when reviewing the results of this study:

1. Small sample sizes at the individual school levels.
2. Hidden inequities within individual schools or among specific populations of students.
3. Not all school-level data were publicly available through the state department of education's school report card.
4. The a priori guidelines created were not vetted as they were created by the researcher.
5. The assumption each school possesses the same needs equally across the board cannot be maintained in practice.

### **Organization of the Study**

Chapter 1 explains the background of the study as well as what the study intends to explore. Chapter 2 presents a detailed literature review describing the inequities in intradistrict funding. Chapter 3 describes the quantitative research design used within the study, including the population, data collection process, instruments, and methods used to answer the research questions. Chapter 4 will provide a detailed analysis of the data gathered in the study. Chapter 5

will review the findings, providing conclusions based on the findings, and offering suggestions for future research and practice related to resource variations among schools within a district.

### **Definition of Key Terms**

**Adequacy** – In school finance, the term refers to providing sufficient funds for the average school district to teach the average child to state standards, plus sufficient additional revenues for students with special needs to allow them to meet performance standards as well (Odden & Picus, 2004).

**Adequate Funding** – The amount of money schools would need to offer an “accredited” or basic program, or meet minimum state education requirements (Equity Center, 2013).

**Community Eligibility Provision (CEP)** – A non-pricing meal service option for schools and school districts in low-income areas, allowing schools and districts to provide breakfast and lunch at no cost to all students enrolled without collecting household applications (US Department of Agriculture, 2019).

**English Learners** – Students whose first language is other than English and who are in a language instruction education program for learning English (U.S. Department of Education, 2017) Also referred to as bilingual students and English language learners.

**Equal Opportunity** – The relationship between school objects and a second variable, where in most cases the absence of a relationship signifies equal opportunity (Stiefel, Rubenstein, & Berne, 1998).

**Equity** - In school finance, the term refers to the fair or equal distribution of resources for schooling, taking into account student differences and school district characteristics (Equity Center, 2013).

Horizontal Equity – “Equal treatment of equals”; examines whether students in “equal” situations receive equal resources allocated to them for their education (Rubenstein, 2016; Brimley & Garfield, 2005; Owings & Kaplan, 2020).

Inequity - Inequity among districts means children in lower-funded districts do not have access to the same resources as their peers in districts with higher levels of funding (Epstein, 2011).

Intradistrict Disparity - School finance inequities among schools within the same district (Rubenstein, et al., 2006).

Intradistrict Equality – Equity of distribution of education resources between students enrolled in the same school district, but attending different schools (Burke, 1999).

Intradistrict Resources - The distribution of resources across schools within a district (Owings & Kaplan, 2010).

Interdistrict Disparity - School finance inequities between different districts within states (Rubenstein, et al., 2006).

Interdistrict Equality – The differences in the distribution of education resources between two students within the same state, but enrolled in different school districts (Burke, 1999).

Interdistrict Resources - The distribution of resources across districts (Owings & Kaplan, 2010).

Majority-to-Minority Transfer Program – Permits a student to transfer from a school where his or her race is the majority to a school where his or her race is in a minority if space is available in order to complete desegregation and achieve full unitary status (United States Department of Justice, 2017).



Resource Allocation - “The ways in which fiscal and non-fiscal resources are divided between competing needs and expended for educational purposes” (Pan, Rudo, Schneider, & Smith-Hansen, 2003, p. 5).

Ripeness – Refers to the readiness of a case for litigation. The United States Supreme Court will not consider accepting disputes that do not constitute a legitimate case or controversy (Owings & Kaplan, 2010).

Strict Scrutiny – The most rigorous level of examination for courts to apply to equal protection clause challenges. Commonly granted for suspect classifications such as race or in claims involving fundamental rights (Roellke, Green, & Zielewski, 2004).

Suspect Classification – Refers to a class of individuals having been historically subject to discrimination; by race, by ethnicity, and by religion are examples (Legal Information Institute, 1992; Owings & Kaplan, 2010).

Wealth - In school finance, “wealth” is not a measure of income – the wealth of a district is generally measured in taxable property value per student (Equity Center, 2013).

Vertical Equity – The appropriate “unequal treatment of unequals;” stresses students with different needs should receive different levels of resources so each may be given an equal opportunity for success. Often systems designed for vertical equity will give students with special needs (students with IEP's, ELL students, low-income students) a "weight" (Rubenstein, 2016; Brimley & Garfield, 2005; Owings & Kaplan, 2020).

## Chapter Two: Literature Review

School finance equity and adequacy are not new to the field of research. Equity and adequacy in school finance have been a concern of both scholars and reformers since the early 1900s and became a subject of court litigation in the late 1960s and early 1970s (Roellke, et al., 2004). Despite intensified school finance litigation and legislation over the past several decades, school systems in the United States continue their struggle to operate equitably and adequately. This persistent inequity, both in terms of educational inputs and outcomes, has generated a long and complex series of lawsuits. Beginning in the late 1960s, there had been various lawsuits brought forward arguing state funding systems violated provisions of either the federal or state constitution.

Scholars have divided school finance litigation into three waves. The first two waves were dominated by equity approaches, while the third has been driven by adequacy claims. The first wave, lasting approximately from 1969 through 1973, challenged the federal constitution, and the second wave, lasting approximately from 1973 to 1989, challenged state education (Roellke, et. al., 2004). Most of the school finance reforms implemented in the United States during the 1970s and 1980s were designed to decrease the disparities in per-pupil revenue between poor and wealthy districts (Verstegen & Salmon, 1989). Despite the litigation surrounding school finance, significant funding disparities still exist among schools and districts within many states (Epstein, 2011). Research over the past 25 years has begun to tease out the nature of intradistrict spending patterns.

School finance researchers are beginning to focus on resource allocation decisions at the school-level rather than the district-level (Stiefel, et al., 1998). These studies are generally limited to a few states or individual districts where school-site expenditure data have been

available (Baker & Welner, 2010). Determining intradistrict resource allocations can be problematic because individual school allotments are often masked in analyses using district-level averages (Owings & Kaplan, 2010). Nonetheless, studies conclude intradistrict resource disparities are often larger than more widely recognized interdistrict disparities (Owings & Kaplan, 2020), especially among larger districts. In this section, I will review the literature on school finance equity and adequacy. I will focus on school finance litigation as it relates to school finance at the federal, state, and district levels, as well as on intradistrict inequities and inadequacies.

### **Equity and Adequacy Issues in School Finance**

The reform of education has been at the forefront of national policy for decades. Parallel to and closely linked with school reform is the growing concern of school finance and seems likely to remain so for years to come (Picus, 2004). School finance reform is like a Russian novel; it's long, tedious, and everybody dies at the end (Yudof, 1991, p. 499; Roellke, et. al., 2004). The focus of school finance has shifted in response to the emphasis on standards-based education reform initiatives, including the *No Child Left Behind Act*, a goal that has elements of both equity and excellence built into it (Odden, 2003). A driving question is how much money is needed to ensure all – or almost all – students are able to meet state standards? Determining how much money is needed to provide an adequate education has become the centerpiece of school finance research and school finance litigation in recent years (Picus, 2004).

Despite the shift to adequacy, those who make school finance policy must remain vigilant regarding fiscal disparities caused by unequal distribution of fiscal resources (Odden, 2003). Achieving greater equity and adequacy, in regards to school funding, continues to be an ongoing struggle in many states (Crampton & Thompson, 2011). Rather than supplying more

fiscal resources to schools and districts serving concentrations of low-income and minority students, they provide less (Owings & Kaplan, 2010). There currently is a significant body of literature shedding a considerable amount of light on interdistrict funding resource allocation. However, there is a lack of research examining intradistrict funding resource allocation. This may be due to the lack of school-level data (Rubenstein, et. al, 2007) and the belief that district-level equity and adequacy guarantees fair distribution across schools within districts (Woo, 2010).

Nonetheless, the literature available constantly displays the unequal distribution of resources across schools, particularly, those schools within large urban districts (Betts, Rueben, & Danenberg, 2000; Biddle & Berliner, 2002; Stiefel, Rubenstein, & Schwartz, 2004). There is a major concern, districts are allocating more resources to schools with fewer low-income and fewer minority students (Owings & Kaplan, 2010; Stiefel, et. al., 2004). The outcome of these resource allocation disparities is predictable: the further widening of the achievement gap, which has become prevalent among schools across the United States.

### **School Finance Litigation: A Brief Overview**

School finance equity and adequacy are the two most prominent principles in school finance. In its broadest sense, school finance equity specifies equally situated students should be treated equally. In contrast, school finance adequacy prescribes the level of educational resources made available be sufficient to provide all students the opportunity to reach at a minimum, a state-standard level of proficiency (Springer, Liu, & Guthrie, 2009). These two principles have been a concern of scholars and reformers for the past century and became a subject of court litigation beginning in the late 1960s and early 1970s. Despite increased school finance litigation and legislation over the past several decades, school systems in the United

States continue their struggle to operate equitably and adequately. This evidence is clear these goals of equity and adequacy have been particularly elusive for schools attended primarily by low-income and minority children (Hochschild & Scovronick, 2003; Roellke & Rice, 2002). This persistent inequity, both in terms of educational inputs and outcomes, has generated a long and complex series of lawsuits. Scholars have divided school finance litigation into three distinct waves, each dominated by one legal theory (Enrich, 1995; Heise, 1995; Thro, 1994; Versteegen, 1998, Roellke, et. al., 2004). The first two waves were dominated by equity approaches, whereas the third wave has been driven by adequacy claims.

The first wave plaintiffs challenged finance systems through the federal Constitution's Equal Protection Clause of the Fourteenth Amendment and were influenced by the work of Arthur Wise (1968) and Coons, Clune, and Sugarman (1970). Wise observed poor districts could not provide the same level of educational funding as their wealthier counterparts, even if taxed at a higher rate. He concluded school finance systems violated the equal protection clause because the educational opportunity was based on the wealth of the districts in which the students lived (Roellke, et. al., 2004). Coons, et. al. (1970) developed the concept of "fiscal neutrality" meaning the quality of education may not be a function of wealth other than that of the entire state. In school finance litigation, plaintiffs built upon these arguments in an attempt to establish "wealth as a suspect classification under the United States Constitution (Roellke, et. al. 2004). The California Supreme Court accepted the arguments presented by the plaintiffs in *Serrano I* (1971) and found education to be a fundamental interest and wealth was a suspect classification. Contrarily, in the *San Antonio Independent School District v. Rodriguez* (1973), the United States Supreme Court rejected fundamental right and suspect classification claims, abruptly ending the short-lived first-wave litigation (Roellke, et. al., 2004).

The second wave of school finance litigation immediately followed *Rodriguez* in 1973 and lasted approximately until 1989. The second wave plaintiffs challenged school finance systems on the education and equal protection clauses of state constitutions. Only one month after the United States Supreme Court rejected federal equal protection arguments, the New Jersey Supreme Court ruled in *Robinson v. Cahill* (1973) that although education was not a fundamental federal right, wide spending disparities among school districts violated the New Jersey Constitution's requirement that the state maintains a "thorough and efficient" system of public schools (Obhof, 2004). The California Supreme Court reaffirmed *Serrano* in 1976, this time because funding disparities violated the California Constitution's equal protection clause. By the late-1970s plaintiffs challenged more than twenty state school finance systems (Obhof, 2004). Although plaintiffs had some success, most state courts rejected second wave equality challenges (Roellke et al., 2004).

The third wave of school finance litigation began in 1989, with the important plaintiff victories *Rose v Council for Better Education* (1989) in Kentucky and *Helena Elementary School District v. State* (1989) in Montana. In contrast to earlier school finance cases, which focused on reducing spending disparities to increase equity, the adequacy-based litigation concentrated on the sufficiency of school funding (Obhof, 2004). Plaintiffs allege school finance formulas prevent poor school districts from providing an adequate education as defined by the state education clauses (Obhof, 2004; Roellke, et. al., 2004). The greater promise of adequacy suits has proven true in the courtroom. Thus, the third wave has been better for plaintiffs. Courts in a few states that previously rejected equity challenges to their school finance systems have found their state systems unconstitutional under the burgeoning "adequacy" standard (Obhof, 2004).

### School Litigation: First Wave

The first wave of school finance litigation involved state and federal challenges to funding schemes based on the Fourteenth Amendment's Federal Equal Protection clause (Obhof, 2004). First wave plaintiffs claimed that school finance disparities violated the equal protection clause of the United States Constitution, which provides that no state "shall deny to any person within its jurisdiction the equal protection of the laws" (Roellke, et. al., 2004). Due to the development of a new theory based on the variation of per-pupil spending of school districts and the relationship between district wealth and spending, disparities were viewed as a violation of the United States Constitution's equal protection clause, especially if education was considered to be a fundamental right (Augenblick, Myers, & Anderson, 1997). This wave was short-lived beginning in 1969 with *Burruss v. Wilkerson* and ending in 1973 with the U.S. Supreme Court's rejection of this approach in *San Antonio Independent School District v. Rodriguez*. A summary of key first-wave cases is provided in Table 1.

Plaintiffs litigated two court cases under the Fourteenth Amendment's Equal Protection Clause and education spending: *McInnis v. Shapiro* (1968), in Illinois, and *Burruss v. Wilkerson* (1969), in Virginia. Both cases challenged the constitutionality of state education across the various school districts under the Equal Protection clause, citing large disparities in the districts' ability to fund education within their respective states (Owings & Kaplan, 2010). The funding disparity resulted in wealthy school districts spending more money to meet students' needs than did poorer districts that had a greater educational need than the affluent districts (Owings & Kaplan, 2020). In both cases, the plaintiffs argued school finance systems relying heavily on local property taxes, which are inherently unevenly distributed, create systems that treat individuals differently. The State, by not providing for equalization of school funding, deprived

children in poor school districts access to equitable educational resources (Alexander & Salmon, 1995; Owings & Kaplan, 2010; *McInnis v. Shapiro*, 1969; *Burruss v. Wilkerson*, 1970).

Plaintiffs identified alternatives that would be less discriminatory to poor school districts (Roellke, et. al., 2004). However, in both cases the federal district courts ruled against the plaintiffs and for the existing funding practices in Illinois and Virginia, saying that the Fourteenth Amendment did not require equal expenditures. Furthermore, the plaintiffs were unable to define a court-requested reasonable standard to assess and measure educational needs. At that time little consensus or research existed to answer the court's questions about measuring need. Because the court could not address these ideas concerning educational needs; thus, it refused to declare the states' finance systems to be unconstitutional (Owings & Kaplan, 2020). Both cases were appealed by the plaintiffs and summarily affirmed without an opinion or statement by the United States Supreme Court; *McInnis* in 1969, and *Burruss* in 1970. The vagueness left many legal and finance scholars unclear about the Court's rationale in the decisions (Owings & Kaplan, 2010).

Two years after the *McInnis v. Shapiro* (1968) and *Burruss v. Wilkerson* (1969) decisions, the California Supreme Court in *Serrano I* (1971) applied strict scrutiny to hold the state's school finance system violated the federal and state equal protection clauses and found strict scrutiny was applicable because wealth was a suspect classification (Roellke, et. al. 2004). The California Supreme Court ruling found the school finance system was not fiscally neutral, considered education as a fundamental right and the state's property tax-based funding system violated that right by creating vast spending disparities between school districts (Obhof, 2004, Roellke, et al., 2004). This standard was an adaptation of Coons, et al.'s (1970) concept of fiscal neutrality: The quality of education should not be a function of district wealth but of state wealth.



The case was remanded back to the trial court to enforce an alignment between the United States and California State Constitutions.

Their rationale began with the acknowledgment that education was of fundamental interest to the government such that it created an educated electorate capable of exercising the right to vote and the State of California had made education compulsory. The California Supreme Court continued to say the method of funding schools was, “mandated in every detail by the California Constitution and statutes”, and that the state has the burden of providing equal protection by its own laws. Conclusively, while the Court acknowledged differences in financing are inevitable as long as districts maintain local control and voters determine their own tax rates, the differences in property wealth between school districts were so large as to make the concept of local determination of per-pupil expenditure a “cruel illusion” (*Serrano v. Priest*, 1971). The California Supreme Court also found that wealth, whether looked at on an individual or group basis, cannot become a basis for unequal treatment of individuals. Unfortunately, this was a short-lived victory for poor communities and their schools.

These school-funding cases paved the way for the 1973 *San Antonio Independent School District v. Rodriguez* case – arguably the most famous Supreme Court school finance litigation. The plaintiffs argued, on behalf of several Mexican-American parents, that the Texas education funding model made educational quality a function of the local property tax base and that state funding was insufficient to correct the inherent inequalities (Owings & Kaplan, 2013, Owings & Kaplan, 2020). Following the logic and ruling of *Serrano v. Priest* (1971), the Texas Supreme Court three-judge panel concluded that the finance model denied equal protection of the law since education is a state function, the equality of education should not be determined by the locality’s wealth, but by the state’s overall wealth (Owings & Kaplan, 2010). The three-judge

federal court panel concluded that the Texas funding model assumed incorrectly that property wealth in the school districts was sufficiently equal to allow for comparable spending throughout be based on the state's – not the district's wealth (Owings & Kaplan, 2013; Owings & Kaplan, 2020). The United States Supreme Court accepted the appeal from the school district in *San Antonio Independent School District v. Rodriguez* (1973) overturning the lower court's ruling, deciding that it was not unconstitutional, which became the federal landmark decision in school finance litigation. Contrarily, because of the Supreme Court ruling that access to free public education is not a fundamental right under the equal protection clause of the Fourteenth Amendment of the United States Constitution, in the landmark case of *San Antonio Independent School District v. Rodriguez* (1973), all further challenges of school finance inequity at the federal level came to a halt. The *Rodriguez* decision absolved the federal government of any obligation to rectify inequities existing in the provision of educational services (Burke, 1999) stating education is not a fundamental federal right and that states are free to balance the values of local control and equality of educational resources (Obhof, 2004, Roellke, et al., 2004). This struck at the heart of the *Serrano* ruling. As a result, education is not viewed as a fundamental right, therefore, property wealth is not a “suspect classification” and the inequities in school spending do not violate the federal Constitution (Obhof, 2004). Litigation for school finance reform under the federal Equal Protection clause umbrella ended with *Rodriguez* and all future funding litigation would be restricted to state courts and state equal protection provisions in state constitutions (Owings & Kaplan, 2013). After the United States Supreme Court decision litigation moved from federal to state courts making the case for fiscal neutrality, that is the level of resources available to students should not be a function of the district's wealth, rather the

wealth of the state as a whole since education, by virtue of the 10<sup>th</sup> Amendment, is a state function.

Table 1

*First-Wave School Finance Litigation*


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<i>McInnis v. Shapiro</i> (IL)	1968	The plaintiffs, in this case, argued that the Illinois state school finance system was unconstitutional because of the wide disparities in per-pupil educational spending. They argued that because education is a fundamental right, any spending differences need to be related to educational needs and not property wealth. The court, however, ruled the cases were nonjusticiable because the court had no standard for educational need to assess the claims of the plaintiffs.
<i>Burruss v. Wilkerson</i> (VA)	1969	The plaintiffs, in this case, argued that the Virginia state school finance system was unconstitutional because of the wide disparities in per-pupil educational spending. They argued that because education is a fundamental right, any spending differences need to be related to educational needs and not property wealth. The court, however, ruled the cases were nonjusticiable because the court had no standard for educational need to assess the claims of the plaintiffs.
<i>Serrano v. Priest</i> (CA)	1971	The plaintiffs in the case argued that disparities in per-pupil spending across various school districts violated the equal protection clause of the U.S. Constitution, particularly if education was considered to be a “fundamental right” guaranteed by the Constitution. The California Supreme Court agreed and ruled education a fundamental constitutional right and remanded the case for trial.
<i>San Antonio Independent School District v. Rodriguez</i> (TX)	1973	The plaintiffs claimed that Texas’s system for financing public education violated the Equal Protection Clause of the Fourteenth Amendment because it discriminated based on wealth. The Supreme Court reversed a ruling by a federal district court and upheld the Texas system stating wealth is not a suspect classification and the state’s funding system was rational and constitutional.

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Any future attacks on states' methods of funding schools would have to be on state constitutional grounds rather than on the 14<sup>th</sup> Amendment's Equal Protection Clause (Alexander & Alexander, 2009; Owings & Kaplan, 2010).

### **School Litigation: Second Wave**

The second wave of school finance litigation, which lasted from about 1973 to 1989, immediately followed *San Antonio Independent School District v. Rodriguez* (1973). Plaintiffs turned to state courts and focused on state constitutional provisions to invalidate finance schemes result in "savage inequalities" among interdistricts within a state (Verstegen, 1994). The results of this stage were mixed (Obhof, 2004; Minorini & Sugarman, 1999). These court cases were based on claims of the state's funding system violating the state constitution's equal protection clause or the state's constitution education clause (Obhof, 2004; Roellke, et al., 2004). As a result, school finance systems in seven states were found to be unconstitutional. This required those states to change the structure of their system (Augenblick, Myers, & Anderson, 1997). A summary of key second wave cases is provided in Table 2.

Only one month after the United States Supreme Court rejected federal equal protection arguments, the New Jersey Supreme Court held that although education was not a fundamental right, wide spending disparities among school districts violated the New Jersey Constitution's requirement that the state maintains a "thorough and efficient" system of public schools in the case of *Robinson v. Cahill* (1973) (Obhof, 2004). In 1976 *Serrano v Priest* (*Serrano II*), the California Supreme Court reaffirmed *Serrano I* (1971), this time because funding disparities violated the California Constitution's equal protection clause (Obhof, 2004; Roellke, et al., 2004). Plaintiffs in other states quickly followed, by the late 1970s more than twenty states faced challenges to their school finance systems some due to political pressures, and some as a

result of judicial decisions and orders (Obhof, 2004). By 1980, roughly thirty states had been involved in some form of school finance litigation. Although some cases were successful, most

Table 2

*Second-Wave School Finance Litigation*


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<i>Robinson v. Cahill (NJ)</i>	1973	The plaintiffs claimed that the state's system of financing elementary and secondary schools failed to meet the state constitution's requirement of a "thorough and efficient" system of education because of discrepancies in per-pupil spending. The New Jersey Supreme Court agreed and ruled that the state's funding system violated New Jersey's Constitution's Equal Protection clause.
<i>Olsen v. State ex rel. Johnson (OR)</i>	1976	The plaintiffs in the case argued that Oregon's funding system violated Article VIII, section 3 of the Oregon Constitution, which states that, "(t)he Legislative Assembly shall provide by law for the establishment of a uniform, and general system of Common schools." The Oregon Supreme Court rejected this argument, holding that the state satisfies its obligation if it requires and provides for a minimum of educational opportunities in local school districts and permits the districts to exercise local control over what they desire, and can furnish, over the minimum.
<i>Serrano v. Priest II (CA)</i>	1977	The California Supreme Court reaffirmed its prior decision in <i>Serrano I</i> and affirmed the lower court's finding that the wealth-related disparities in per-pupil spending generated by the state's education finance system violated the equal protection clause of the California constitution.
<i>Horton v. Meskill (CT)</i>	1977	The Connecticut Supreme Court held that the right to education in Connecticut is so fundamental that any intrusion on the right must be strictly scrutinized. Public school students are entitled to equal enjoyment of the right to education, and a system of school financing without regard to disparities in town wealth and that lacked significant equalizing state support was unconstitutional.
<i>Board of Education of Cincinnati v. Walter (OH)</i>	1979	The Ohio Supreme Court rejected challenges based on the state equal protection clause and education clause because the legislature has discretion in educational matters and the courts will not interfere with such discretion where education appears adequate.

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<i>Washakie County School District v. Herschler</i> (WY)	1980	The Wyoming Supreme Court found that the state education funding system violated the state constitution's equity requirement, noting that "until the equality of financing is achieved, there is no practicable method of achieving the equality of quality." The Court ruled that public education is a fundamental right under the Wyoming Constitution and matched "equality of financing" with "equality of quality."
<i>Board of Education, Levittown Union Free School District v. Nyquist</i> (NY)	1982	The New York Court of Appeals held that despite the unequal education, New York State had acted constitutionally in its financing structure because the state constitution does not refer to equal education and equitable funding and also because the plaintiffs made no claim that the quality or quantity of education in these poor districts was below that of the minimum set by the New York State Board of Regents.
<i>Lujan v. Colorado State Board of Education</i> (CO)	1982	The Supreme Court of Colorado concluded that the state's education clause did not require "absolute equality in educational services or expenditures." Also, the court ruled that the goal of local school control was a legitimate state purpose, which justified the state's school financing system under the equal protection clause.
<i>DuPree v. Alma School District No. 30 of Crawford County</i> (AR)	1983	The Arkansas Supreme Court found that the state's school funding system unconstitutional under the equal protection clause of the state constitution holding that "no legitimate state purpose" and "no rational relationship" to "educational needs" in the state's method of financing public schools. This equity ruling rejected "local control" as justification for the disparities of funding and educational opportunities in the state's school districts.
<i>Hornbeck v. Somerset County Board of Education</i> (MD)	1983	Maryland's State Supreme Court held that the state constitution did not mandate equality in per-pupil spending among the state's school districts. However, the court also held that the education clause of the Maryland constitution embodies a right to "an adequate education measured by contemporary educational standards."

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state courts rejected second-wave equality and equity challenges. State supreme courts heard only ten school finance cases from 1980 to 1988 and of those only two state courts invalidated

their states' school funding schemes, while eight upheld their systems as constitutional (Minorini & Sugarman, 1999).

Overall, the first- and second-wave litigation has not been seen as successful for several reasons. Roellke (2004) identified six factors for the first- and second-wave litigations' failure. Many courts have been unwilling to give education fundamental rights status and classify wealth as a suspect classification. Additionally, courts have found education clauses do not require equal educational opportunities. Lastly, equity is a deceptively difficult concept to measure.

### **A Nation at Risk**

In 1983, the National Commission on Excellence in Education published a report, *A Nation at Risk*, emphasizing the need for a careful examination of excellence and equity as we approached the end of the second-wave of school finance litigation. *A Nation at Risk* exposed American society and its educational institutions for truly having lost sight of the fundamental purposes of schooling and the expectations and disciplined effort required to achieve them (National Commission on Excellence in Education, 1983). Some educators were offended, whereas others were enthusiastic, embracing the opportunity for improvement. The initial responses were often accompanied by the assumption of mutual exclusivity of excellence and equity (Rodriguez, 2004). Unfortunately, even though desegregation brought together students of varying backgrounds in addition to the significant studies made to equalize basic funding in numerous states, inequitable academic outcomes persisted among racial, gender, and class lines (Rodriguez, 2004). Many considered *A Nation at Risk* to be a turning point in American education policy, challenging the established perspective on the role of school finance in broader educational policy reform. School finance researchers continued efforts to conceptualize and operationalize equity more clearly within the field (Berne, 1988; Rodriguez, 2004). Despite the

critiques contained in *A Nation at Risk* and the associated call for excellence in education, school finance researchers persisted in their attempts to articulate the equity implications of the various formula innovations offered at the time. As a result of *A Nation at Risk*, state legislators responded by directing their attention toward “achieving excellence in education” often by changing education standards, graduation requirements, and teacher certification requirements and compensation.

### **School Litigation: Third Wave**

By the last 1980s, it had become clear most state courts would not uproot a school funding system based on spending disparities alone (Obhof, 2004). Thus, beginning the third wave of school finance litigation, which began in 1989 and has lasted to the present time, plaintiffs have argued that school finance systems prevent poor districts from providing their students with an adequate education as defined by state education clauses following the *Nation at Risk* report (Roellke et al., 2004; Augenblick, et al., 1997). In contrast to earlier school finance cases, which focused on reducing spending disparities to increase equity, the adequacy-based litigation concentrated on the sufficiency of school funding (Obhof, 2004). The greater promise of adequacy suits has proven true in the courtroom. In 1989 and 1990, five state high courts ruled on the constitutionality of state funding systems. One court, in Wisconsin, upheld the existing system, but in Kentucky, Montana, New Jersey, and Texas, the court rulings upset existing systems and upheld major new legal claims (Augenblick, et al., 1997). A summary of key third wave cases is provided in Table 3.

This third wave began in 1989 with two important victories in Kentucky and Montana. One pivotal third wave case is *Rose v. Council for Better Education* (1989). In this case, the Kentucky Supreme Court ruled that the state’s educational system violated its education



clause by failing to provide its students with an adequate education. The court overturned Kentucky’s entire education system and then identified several capacities the state had to fulfill to reach its constitutional mandate, including the provision of sufficient oral and written communication skills as well as academic or vocational skills (Roellke, et al., 2004; Owings & Kaplan, 2013). This decision required the General Assembly to develop a new schooling organization that would receive constitutional approval and adequate funds (Owings & Kaplan, 2020). “Adequate” school funding in the courts as a school finance issue began here.

Table 3

*Third-Wave School Finance Litigation*


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<i>Rose v. Council for Better Education (KY)</i>	1989	The plaintiffs argued that Kentucky’s system of school finance was inadequate and violated the state’s education clause as well as the equal protection clause and due process of the law clause of the Fourteenth Amendment of the U.S. Constitution by failing to provide its students with an adequate education. The Kentucky Supreme Court ruled in favor of the plaintiffs ruling that the existing system of finance did not satisfy the requirement of an efficient educational system and created a standard of an “efficient system of common schools.”
<i>Helena Elementary School District v. State (MO)</i>	1989	The Montana Supreme Court ruled that the State’s education funding system was unconstitutional both because it resulted in inadequate funding and because the spending disparities among the State’s school districts “translate into a denial of equality of educational opportunity.” The Court concluded, “the plain meaning of the second sentence of subsection (1) is that each person <i>is guaranteed</i> equality of educational opportunity.”
<i>Edgewood v. Kirby (TX)</i>	1989	The <i>Edgewood</i> court held that Texas’s public education financing did not ensure an efficient education for all schoolchildren because the system failed to address the differences in revenue-raising ability among districts. As a result, the court found the financing system to be unconstitutional and invalidated the state funding system three times over the course of 28 months.

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<i>Kukor v. Grover</i> (WI)	1989	Wisconsin’s high court, upheld the finance plan, stating “Our deference would abruptly cease should the legislature determine that it was ‘impractical’ to provide to each student a right to attend a public school at which a basic education could be obtained, or if funds were discriminatorily disbursed and there was no rational basis for such a finance system.”
<i>Abbott v. Burke</i> (NJ)	1990	The court held the New Jersey finance system unconstitutional only as it related to a specific class of districts. The court’s order required the legislature to fund poor urban districts at a level commensurate with wealthy districts and to provide additional funding to accommodate special needs students.
<i>McDuffy v. Secretary of the Executive Office of Education</i> (MA)	1993	The plaintiffs in the case, Massachusetts students, claimed their less wealthy school districts were unable to provide them with an “adequate” education. The Massachusetts Supreme Court ruled in favor of the plaintiffs holding that “the duty of legislatures and magistrates, in all future periods of this Commonwealth, to cherish...public schools and grammar schools in the towns’ includes the duty to provide an adequate education to the young people of the State, and that this duty is ‘an enforceable obligation of the Commonwealth.’”
<i>Roosevelt Elementary School District No. 66 v. Bishop</i> (AZ)	1994	The court found that Arizona had failed to provide a “general and uniform” education and declared unconstitutional the finance statutes relating to capital outlay provisions, because “a district’s property value largely determines its ability to construct new buildings and to buy computers and textbooks.”
<i>Scott v. Commonwealth</i> (VA)	1994	The Supreme Court of Virginia ruled that the state system was constitutional. Despite concluding, “education is a fundamental right under the Constitution,” the court nonetheless held that “equal, or substantially equal, funding, or programs” were not mandated by the Virginia Constitution.
<i>DeRolph v. Ohio</i> (OH)	1997	In 1991, a combination of plaintiffs filed suit claiming the education provided in their Ohio schools was constitutionally inadequate. The trial court ruled for the plaintiffs, relying heavily on the Kentucky court’s prior articulation of adequacy

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*Campaign for Fiscal Equity* 2003  
*v. State* (NY)

standards in elaborating the Ohio Constitution's requirements. On appeal, the Ohio Supreme Court, in 1997, upheld the trial court's decision and found the state's education finance system was unconstitutional.

The plaintiffs charged New York State was failing in its constitutional duty to provide the opportunity for a sound basic education to hundreds of thousands of its schoolchildren. The New York Court of Appeals ruled that every public school student is entitled to the opportunity for meaningful high school education. The Court ordered the state to implement major education funding and accountability reforms to allow students to meet this constitutional standard.

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In 1985, a coalition of school districts and parents filed a lawsuit claiming the State of Montana deprived students of equal educational opportunity under the state education article. In 1989, the Supreme Court of Montana declared, in *Helena Elementary School District v. State*, (1989), the state's education finance system was unconstitutional. The Montana Constitution's strong education clause provides that "It is the goal of the people to establish a system of education which will develop the full educational potential of each person. Equality of educational opportunity is guaranteed to each person of the state." It also provides that "the state recognizes the distinct and unique cultural heritage of the American Indians and is committed in its educational goals to the preservation of their cultural integrity." The Supreme Court in *Helena* (1989) said, "We specifically affirm...the spending disparities among the State's school districts translate into a denial of equality of educational opportunity." The Montana legislature responded in 1989 by adopting a foundation program with higher payments from the state to local districts and, in 1993, overhauled the formula, this time benefiting smaller districts.

In 1991, eleven public school students and seven local school boards brought suit claiming that Virginia's system of funding public schools denied some children "an educational

opportunity substantially equal to that of children who attend public school in wealthier divisions.” In *Scott v. Commonwealth*, (1994) the Supreme Court of Virginia ruled the state system was constitutional. Despite concluding, “education is a fundamental right under the Constitution,” the Court nonetheless held that “equal, or substantially equal, funding or programs” were not mandated by the Virginia Constitution. Since the plaintiffs did not contend that inadequate funding kept the schools from meeting state quality standards, the court did not analyze the adequacy of Virginia’s schools. There have been no further equity or adequacy litigations filed in Virginia since 1991 (Center for Educational Equity, 2020).

### **Intradistrict Funding Inequities**

A majority of school finance litigation has focused on the distribution of resources equitably and adequately across school districts, there are only a few court cases concerned with differences in spending between schools in a single district. *Hobson v. Hansen* (1967) is often cited as a landmark case, achieving educational equality. The case examined the funding disparities from school to school, in addition to the distribution of inexperienced and less-educated teachers to high-need minority schools (Owings & Kaplan, 2010). In 1967, the *Hobson v. Hansen* ruling found the superintendent and school board of Washington D.C. guilty of discriminating both racially and economically. The school district was required to develop a plan to balance intradistrict expenditures within a five percent variation.

Another major intradistrict equity case, *Rodriguez v. Los Angeles Unified Schools District* (1992), resulted in a 1992 consent decree, focused on the distribution of teachers across schools. Schools in the Los Angeles Unified Schools District (LAUSD) serving higher percentages of low-income and minority students had less-experienced and educated teachers and therefore had lower teacher salaries and per-pupil expenditures, as compared to schools

serving higher-income and non-minority students. Thus, the case charged, low-income and minority students were deprived of California's equal protection laws (Rubenstien, et al., 2006). The LAUSD agreed to equalize non-categorical per-pupil spending in 90 percent of schools within \$100 of the district average (Bradley, 1994) and cut funding in schools with per-pupil spending well above the district average as a part of the consent decree (Roos, 2000). Sugarman (2002) reports the district has substantially equalized spending across schools, however, schools serving low-income students continue to have higher percentages of less-experienced teachers.

It is critical to move beyond interdistrict analyses to more accurately assess the intradistrict resources available to students since the federal *No Child Left Behind Act* holds schools accountable for improving student achievement performance (Rubenstein, et al., 2007). Almost 75% of school districts in the United States have fewer than five schools, the largest 100 school districts enroll almost one-quarter of the total public school students, averaging 163 schools each (Owings & Kaplan, 2010; Rubenstein, et al., 2007). Disparities across those schools within small districts are likely to be relatively modest – however, intradistrict disparities among large districts can be sizeable (Owings & Kaplan, 2010). The Thomas B. Fordham Institute released a report in 2006 signed by former Secretaries of Education Rod Paige and William Bennett along with many others, asserting “even within school districts, there are often vast disparities among schools – disparities that generally favor schools with savvier leaders and wealthier parents” (p.2).

Studies consistently show less experienced and educated teachers along with lower average teacher salaries in high-poverty, high minority, and low-performing schools (Rubenstein et al., 2007). Veteran teachers seek positions in more advantaged schools, leaving low-performing schools with novice teachers (Roza & Hill, 2004). Intradistrict allocation is a key

factor of overall resource distribution and to ensuring fiscal equity (Rubenstein, et al., 2007; Owings & Kaplan, 2010). Furthermore, there is some concern that the within-district variation is pernicious, for example, allocating more resources to schools with fewer poor and minority students, and fewer immigrants (Rubenstein, et al., 2007). Intradistrict analyses are capable of revealing patterns of equity or inequity. As resources within districts around the country become increasingly constrained and new ways of financing schools grow (e.g. vouchers and charter schools), the equity of resource allocation patterns among schools as well as districts will be of critical importance (Stiefel, et al., 1998).

### **Conceptual Issues in the Assessment of Intradistrict Funding Equity**

Berne and Stiefel (1994) developed concepts and measures of three equity principles – equal opportunity, horizontal equity, and vertical equity. In their early work, these principles are measured with district-level data. Research utilizing districts as a unit of analysis implicitly assumes each school within the district receives the average level of resources available to schools within the district (Stiefel, et al., 1998). This assumption may be reasonable for smaller districts with relatively few schools. However, in large school districts with many schools, it is important to determine whether or not resource allocation disparities occur between schools within the same district and to explore the factors linked to such disparities (Stiefel, et al., 1998).

Equal opportunity is defined in terms of the relationship between school characteristics and a second variable, where in most cases the absence of a relationship signifies equal opportunity (Stiefel, et al., 1998). School characteristics can be broadly conceptualized to include inputs, outputs, and outcomes as possibilities. At the district level, equal opportunity concerning the ability to pay is a dominant political and fiscal issue (Berne & Stiefel, 1994; Stiefel et al., 1998). Since individual schools do not have revenue-raising responsibilities or

individual tax bases on which to draw, a new series of equal opportunity issues is important at the school level. These might include relationships between resources and student characteristics, or between resources and a school's geographic location within a district (Berne & Stiefel, 1994; Stiefel et al., 1998). Within districts, there are renewed concerns about the distribution of resources for race or ethnicity. Similarly, it is often claimed certain areas within a given district favored with additional resources (Berne & Stiefel, 1994; Stiefel, et al., 1998).

Horizontal equity refers to the equal treatment of individuals of equal backgrounds and circumstances. Horizontal equity as a concept is concerned with measuring equal levels of equality among distributed resources (Houck, 2011; Rubenstein, 2016; Owings and Kaplan, 2020). When there is no inequality in funding, there is perfect horizontal equity (Owings & Kaplan, 2013). Funding streams coming into the school often can be separated into general education resources, intended to provide an equal base for all students, and special education or compensatory education resources, which are meant to be used differentially across students (Berne & Stiefel, 1994). Intradistrict horizontal equity assumes each school within a district would receive equal per-pupil expenditures based on equality. Because it focuses on equality, horizontal equity is the easiest to identify and measure. However, students rarely have the same needs or circumstances and therefore it is often the least useful concept for policymaking (Rubenstein, 2016). Thus, horizontal equity could provide a valid criterion upon which to evaluate the equity of general education funding and not for special education or compensatory education resources.

Vertical equity recognizes that students and schools are different, and refers to the appropriately unequal treatment of individuals of varying backgrounds and circumstances (Owings & Kaplan, 2013; Stiefel et. al., 1998). Vertical equity is conceptually linked to the

proportionality of distributed resources as related to the specific district, school, or student-level characteristics. Vertical equity is present when characteristics deemed to merit additional resources are significantly and positively related to additional funding (Houck, 2011). A few variables likely to serve as characteristics again which to measure whether or not there are more financial resources available are poverty, learning disabilities, and English as a second language (Berne & Stifel, 1994). Intradistrict vertical equity takes into account that not all students are equal. Vertical equity stresses students with different needs should receive different levels of resources (Rubenstein, 2016). The spirit of vertical equity is to make public schools more responsive to the varying needs of students. In turn, schools that are more responsive to the varying educational needs of students are more likely to realize the intended impact of the additional resources allocated in accordance to needs (Rodriguez, 2004). Vertical equity measures will assess the degree to which schools receive more resources per pupil (Berne & Stiefel, 1994).

### **Intradistrict Educational Spending and Student Achievement**

The debate over whether or not educational spending affects student achievement has persisted for decades, largely because of methodological and analytical limitations associated with the use of district-level data (Condron & Roscigno, 2003). Some studies have suggested there is no correlation between educational spending and student achievement, while others found otherwise. The best evidence shows that money spent wisely has a significant impact on positive student outcomes (Baker, 2016; Owings and Kaplan, 2020). Nonetheless, some continue to question this finding based upon research conducted in the 1960s and 1970s that seemed to suggest that money does not improve student achievement (Baker, 2016). However, these debates and research are limited for numerous reasons, some of which are the reliance on



district-level data on spending (Farland, 1997; Picus 1997) in addition to the methodological flaws (Baker 2016).

Global resource variables such as per-pupil expenditures show strong and consistent correlations with achievement. Data show increased spending on teacher quality, staff professional development, reduced class size and school size, increased teacher salaries, and improved school facilities produce a significant return on investment for fostering student achievement gains (Owings & Kaplan, 2013; Baker 2016). Also, variables that attempt to describe the quality of teachers, including teacher ability, teacher education, and teacher experience, show very strong correlations with student achievement (Baker 2016). Research shows that teacher qualifications are not spread evenly throughout schools in larger urban districts (Roza & Hill, 2004;). Within districts fixed salaries, experienced teachers make no more money if he or she chooses a challenging position at a high-poverty school over a less demanding position in a high-performing school.

Typically, teachers within a school district receive salaries from a salary scale with increased monies paid for increased years of teaching experience and additional academic credentials (Owings & Kaplan, 2010). Teachers with little to no experience and fewer advanced degrees receive low salaries. As a result, schools with higher average teacher salaries tend to have more experienced and well-educated teachers. Schools with lower average teacher salaries tend to have newcomers with the fewest years of professional experience (Owings & Kaplan, 2010). The result is a “salary gap” and teacher “experience gap” between teachers in affluent schools and teachers in low-income schools (Roza & Hill, 2004; Owings & Kaplan, 2020). Therefore, it is not surprising, teachers with enough seniority to make choices seek the positions in the more advantaged schools (Roza & Hill, 2004). With research affirming carefully targeted

school funding, focusing on enhancing teacher quality, designing appropriate school organization, and providing safe and comfortable facilities makes a measurable difference in student achievement (Owings & Kaplan, 2013).

### **Every Student Succeeds Act**

School district budgets are in the news. Few districts know precisely how much money they have, and surprise surpluses are also possible (Roza & Hill, 2004). Tracking money is a huge challenge for school districts for many reasons: their revenues come from many sources (state, local, federal, and philanthropic) at different times (Roza & Hill, 2004). Funders require separate record-keeping for each program, and their rules about cost accounting differ. Therefore, districts maintain separate accounting systems for funds from different sources, and information is often kept on separate computer systems, bought and programmed at different times, so they cannot talk to one another (Roza & Hill, 2004). To assist with the inequities within school districts, the Every Student Succeeds Act (ESSA) is now requiring school districts, for the first time, to break out school-level funding, causing stress for district administrators and financial personnel, state lawmakers, and civil rights activists.

The Every Student Succeeds Act (ESSA), enacted in 2015, requires all states to publish per-pupil expenditures for each local education agency (LEA) and school on the annual state report card. Section 1111(h)(1)(C)(x) of the Elementary and Secondary Education Act of 1965, as amended by ESSA, requires the state to report, “The per-pupil expenditures of Federal, State, and local funds, including actual personnel expenditures and actual no-personnel expenditures of Federal, State, and local funds, disaggregated by source of funds, for each local education agency and each school in the State for the preceding fiscal year.” Publishing per-pupil expenditure data for each school and each LEA will give the public useful information about how much federal

and local dollars are spent in every school within each district in each state. Additionally, reported expenditures must include actual teacher salaries rather than average salaries. This is important because teacher salaries make up approximately 60 percent of the average district budget (United States Department of Education, 2017). Under the new reporting guidelines, actual teacher salaries may reveal inequitable distributions of more experienced teachers across a district, as these teachers often earn higher salaries (Woods, 2018).

While this requirement may cause substantial challenges for states, districts, and schools. ESSA does not provide details on how to implement it. Proposed, but ultimately rescinded, regulations would have provided additional details for states on how to implement this new provision. Non-regulatory guidance released in January 2017 relied on those proposed regulations; it is now only applicable in as much as it reflects what is in ESSA itself (United States Department of Education, 2017). The United States Department of Education has said that it plans to revise non-regulatory guidance on report cards, including on per-pupil expenditure reporting (Woods, 2018).

### **Summary**

To date, resource equity research has focused primarily on inequities across districts or states (Roza, 2002). Since students learn in schools, and schools are accountable for improving academic achievement, it is essential to look beyond district-level assets to more accurately assess the resources available to students within their schools (Owings & Kaplan, 2010). Looking within districts at how resources are distributed among schools is extremely important, to identify intradistrict inequities. However, determining intradistrict resource allocations is problematic. Individual school allotments are often masked in analyses using district-level averages (Owings & Kaplan, 2010). Many urban districts have enormous budgets. The

allocation of these resources has real implications for some of the nation's poorest-performing students (Roza, 2002).

School finance systems do not need to be repaired. They need to be radically redesigned and aligned with change and improvement across all facets of the education system, in an effort to achieve both excellence and equity for all students and all schools (Verstegen, 1994).

Redesigned finance systems would rest on a conception of high-quality education for all students, not basic or minimum education. Equity without excellence is not the goal. This is the challenge presented by the leading court cases and their progeny. It is also the opportunity (Verstegen, 1994). Today, the evidence is clear that money that is thoughtfully and equitably spent does matter (Baker, 2016). Schools and districts with more money are able to provide higher quality, broader, and deeper educational opportunities to the children they serve (Baker, 2016). Greater equity in funding means special education, low income, vocational, and ESL students, requiring more resources to learn would receive them (vertical equity) and all students characterized identically would be funded identically (horizontal equity), (DeLuca, Takano, Hinshaw, & Raisch, 2009).

## Chapter Three: Research Method

### **Purpose of the Study**

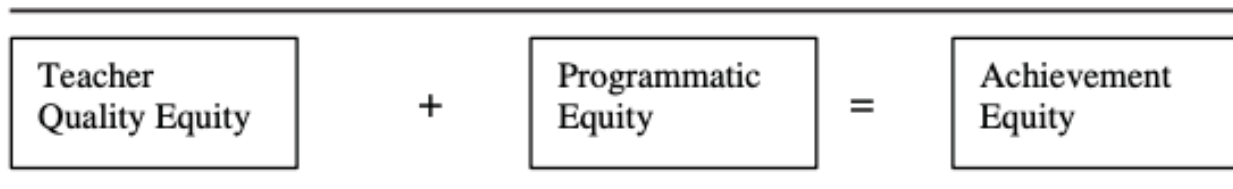
While resource allocation across school districts is well studied, relatively little attention has been paid to how resources are allocated to individual schools within those districts (Owings & Kaplan, 2010). While fiscal disparities across schools within small districts are likely to be relatively modest, intradistrict fiscal disparities in large districts with many schools can be sizeable (Rubenstein, et al., 2006; Owings & Kaplan, 2010). Intradistrict disparities are linked to local patterns of racial and class stratification and concentration and have negative consequences for student achievement (Condrón & Rodcigno, 2003; Owings & Kaplan, 2010). Districts make the fiscal inequities between high- and low-poverty schools worse by how they choose to disperse the financial resources they do have (Owings & Kaplan, 2020). Resource allocation is a key factor in ensuring fiscal equity within a district. Inequitable distribution of fiscal resources across schools within a district represents a lack of vertical equity and equal opportunity in the distribution of teacher resources (Iatarola & Stiefel, 2003; Owings & Kaplan, 2010).

Persistent achievement gaps by race and class within districts and schools as a result of fiscal disparities are educationally and ethically deplorable and, thus, need to be eliminated. One-way to understand the intradistrict spending disparities first-hand is to conduct an equity audit (Owings & Kaplan, 2010). An equity audit is a tool that can be utilized to uncover, understand, and change inequities that are internal to schools and districts into three categories – teacher quality, educational programs, and student achievement (Skrla, Scheurich, Garcia, & Nolly, 2004). These three categories are comprised of a set of 12 key indicators that together form a straightforward delimited audit of equity (Skrla, et al., 2004).

- Teacher quality equity: including teachers' years of experience, the highest level of education, the number teaching outside of their certification, and average teacher turnover (Sparks, 2015; Skrla, et al., 2004).
- Programmatic equity: the proportion of students disciplined or assigned to special education, gifted and talented programs, and bilingual education (Sparks, 2015; Skrla, et al., 2004).
- Achievement equity: including state assessment performance, dropout rates, the proportion of students on college-preparatory tracks, and the participation and performance of students on college entrance exams such as the ACT or SAT (Sparks, 2015; Skrla, et al., 2004).

Skrla, et al. (2004), acknowledge there are many other areas of potential application and each has significant importance in a given context, however, they framed some specific variables, where data are widely available, to get started in each of the three categories. There unquestionably are inequities within our districts and schools, such as inequitable distributions of teacher quality or inequitable distributions of students in programs such as special education or AP courses that must be addressed if the achievement gaps are to be removed (Skrla, et al., 2004). Thus, the purpose of this study is to measure the intradistrict distribution of educational resources of one mid-Atlantic school district through an equity audit.

Figure 1:  
*A Simple Formula for Equity Auditing*



Source: Skrla, et al (2009), p. 24.

## Methodology

Over time, equity studies of state public education finance systems have been performed although the methodology has been varied, with few studies incorporating key principles of equity as a guide (Verstegen, 2015). There are several ways to conceptualize and measure intradistrict equity, however, this study adapted Berne and Stiefel's (1984) interdistrict framework in which three equity concepts were analyzed: horizontal equity, vertical equity, and equal opportunity. Berne and Stiefel's conceptualization and measurement of equity in school finance were elucidated in their seminal work (Verstegen, 2015). Today, more than 33 years later, these measures continue to be utilized in most studies addressing horizontal and vertical equity. In determining methods of equity, horizontal equity recognized every student is equal, however, vertical equity is the opposite and recognizes every student is not equal, and therefore requires unequal funding (Rubenstein, 2016; Brimley & Garfield, 2005; Owings & Kaplan, 2020). The premise of being unequal lies in the fact students with varying backgrounds and experiences than those without them. Therefore, vertical equity is evident when the analysis yields unequal amounts of funding per-pupil. Consequently, it is logical to assume horizontal equity and vertical equity are mutually exclusive.

Equity is a multidimensional concept thus multiple measures are utilized to evaluate the equity and wealth neutrality of the finance system, based on research and best practice (Verstegen, 2015). To determine horizontal equity, vertical equity, and equal opportunity, the research method chosen for this study was a quantitative analysis, using an a priori lens designed by the researcher. As stated in Chapter 1, the guidelines for the a priori lens used in this study were a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable.

Additionally, the researcher will use Verstegen's suggested student enrollment subgroup category weighting to create three per-pupil expenditure weighting groups:

- The first group of weights (full weight) was gathered from existing research: students with disabilities (2.0), English learners (1.5), and students eligible for free or reduced-price lunch (1.5)
- The second group of weights (half weight): students with disabilities (1.5), English learners (1.25), and students eligible for free or reduced-price lunch (1.25)
- The third group of weights (quarter weight): students with disabilities (1.25), English learners (1.125), and students eligible for free or reduced-price lunch (1.125).

Weighting the per-pupil expenditures for the specific subgroups allow the researcher to examine any discrepancies among schools at the elementary school level, middle school level, and high school level. Moreover, the researcher will analyze Skrla, et al.'s (2004) set of 12 key indicators categorized into three classifications: teacher quality equity, programmatic equity, and achievement equity.

### **Research Questions**

The research questions driving this study are:

*RQ1.* Is there a difference in variation in resource allocation of per-pupil funding at the elementary school level? middle school level? high school level?

*RQ2.* Is there a difference in variation in teacher quality at the elementary school level? middle school level? high school level?

*RQ3.* What is the association between funding and academic achievement at the elementary school level? middle school level? high school level?



### Site and Sample Selection

In order to measure intradistrict equity, one mid-Atlantic school district was chosen for this study. The decision to choose this district was due to its uniqueness. One attribute contributing to its uniqueness is its majority-to-minority transfer program. The majority-to-minority transfer program is in place to enhance desegregation due to an open federal court desegregation order from the United States Department of Education's Office of Civil Rights (United States Department of Justice, 2014). Beginning in 1954, the United States Department of Education's Office of Civil Rights mandated federal court desegregation orders to 769 districts across the United States. Of those 769 districts, 330 districts still have open mandated federal court desegregation orders, this district being one of them. The majority-to-minority transfer program permits a student to transfer from a school where his or her race is the majority to a school where his or her race is in a minority if space is available in order to complete desegregation and achieve full unitary status (United States Department of Justice, 2017).

The school district is approximately 430 square miles and is comprised of 11 elementary schools, five middle schools, and three high schools. The district is geographically referred to as having three distinct areas: Northside, Southside, and Downtown. The Northside area is suburban, the Southside area is rural, and the Downtown area is urban. The district serves approximately 14,265 students with varying socioeconomic and demographic backgrounds. The overall demographic makeup of the student population is 54.98% Black, 31.63% White, 5.58% Hispanic, 5.81% Two or more races, 1.57% Asian, 0.22% American Indian, and 0.17% Native Hawaiian. 48.69% of those who are eligible to receive free or reduced-price lunch, 12.66% of who are categorized as students with disabilities, and 0.65% of who are labeled as students who

are English learners. This study will provide an opportunity to explore the research questions entirely, measuring for horizontal equity, vertical equity, and equal opportunity.

### **Data Collection and Analysis Sequence**

The researcher thoroughly examined the budgets of each school in one mid-Atlantic school district. The individual schools within the district were broken into three groups: elementary level, middle level, and high level. The 11 elementary schools, five middle schools, and three high schools were compared across each level. The data was collected from sources publicly available in the field, such as the state report cards, and information obtained from the State Department of Education as well as the National Center for Education Statistics. The calculations included only district funds – PTA or parent-generated funding was not included due to the variance increase among schools from the additional resources, nor were that data publicly available.

To fully examine horizontal equity, vertical equity, and equal opportunity the researcher collected specific data from each school within the district. The researcher identified which of the 19 schools within the district were identified as Title I schools as well as which schools were participating in the majority-to-minority transfer program. Additionally, the researcher collected specific categorical data on students, administrators, and professional staff. This data allowed the researcher to calculate the total spending, total spending per student, and cents spent per dollar. A summary of the data collected from each school is provided in Table 4.

Furthermore, the researcher examined the three categories of teacher quality equity, programmatic equity, and achievement equity. Within each of the three categories are key indicators, which assisted in the identification and determination of equity (Skrla, et al., 2004). The key equity categories and indicators are provided in Table 5.

Table 4  
*School Budget Audit*

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Students	Student Enrollment Percentage of Student Race/Ethnicity Percentage of Students Eligible for Free or Reduced-Price Lunch Percentage of Students with Disabilities Percentage of English Learners
Administrators Principals Assistant Principals	Number of Administrators
Teachers	Number of Teachers Student to Teacher Ratio Highest Level of Education Average Teacher Salary
Total Spending	
Total Per Pupil Spending	
Cents Spent per Dollar	

---

The researcher was unable to examine all 12 indicators as not all data were publicly available through the state department of education's school report card. Therefore, when examining teacher quality, the researcher focused on the highest level of education and the number of teachers teaching outside of their certification. When examining programmatic equity, the researcher focused on the percentage of students with disabilities and the percentage of English learners. Lastly, when examining achievement, the researcher focused on state assessment performance, dropout rates, and the percentage of students on college-preparatory tracks.

Table 5

*Key Equity Categories and Indicators*


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Teacher Quality	Highest Level of Education Number Teaching Outside of Certification
Programmatic	Percentage of Special Education Students Percentage of Bilingual Education Students
Achievement	State Assessment Performance Dropout Rates Percentage of Students on College-Preparatory Tracks

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**Summary**

The purpose of this chapter was to describe the research methodology utilized for this study, describe the procedures used for collecting the data, and describe the procedures used to analyze the data. The Berne and Stiefel (1984) methodological framework was used as a guide for the intradistrict equity analysis of 11 elementary schools, five middle schools, and three high schools. The intradistrict equity analysis addressed horizontal equity, vertical equity, and equal opportunity by examining Skrla, et al.'s (2004) three classifications: teacher quality equity, programmatic equity, and achievement equity.

## Chapter Four: Findings

The purpose of this study was to measure the intradistrict distribution of educational resources of one mid-Atlantic school district through an equity audit. Since there are no other studies like this to date, the researcher designed and examined the findings through an a priori lens. The researcher's a priori guideline suggested a 10% difference in resource allocation as slight, a 25% difference in resource allocation as moderate, and a 40% difference in resource allocation as notable. The results of the data analysis for this quantitative study will be explained throughout this chapter. Chapter 4 includes a comprehensive review of descriptive data. The data used were compiled from two primary sources, the state department of education and the National Center for Education Statistics. The researcher collected the data and any available information from the 2018-2019 school year to support this study. Public data for each category were not available for all areas for the 2018-2019 school year. When data were not available for the 2018-2019 school year, 2019-2020 data were used as a substitute. In this chapter, the results of the research are presented in a narrative format and include figures as evidence of the findings. The results in chapter 4 are separated by the research question and subdivided by each school level, elementary, middle, and high. Each research question will be answered for each school level. The following research questions guided this study:

*RQ1:* Is there a difference in resource allocation of per-pupil funding at the elementary school level? middle school level? high school level?

*RQ2:* Is there a difference in teacher quality at the elementary school level? middle school level? high school level?

*RQ3:* What is the association between funding and academic achievement at the elementary school level? middle school level? high school level?

## **Population and Descriptive Findings**

The population of this study included 19 different schools, 11 elementary, five middle, and three high, within the same school district. The school district was approximately 430 square miles. The district had three distinct geographical areas: Northside, Southside, and Downtown. The Northside area was considered suburban, the Southside area was considered rural, and the Downtown area was considered urban. The district served approximately 14,265 students with varying socioeconomic and demographic backgrounds. The overall demographic makeup of the student population for the entire district was 54.98% Black, 31.63% White, 5.58% Hispanic, 5.81% Two or more races, 1.57% Asian, 0.22% American Indian, and 0.17% Native Hawaiian. 48.69% of those who were eligible to receive free or reduced-price lunch, 12.66% of who were categorized as students with disabilities, and 0.65% of whom were labeled as English learners.

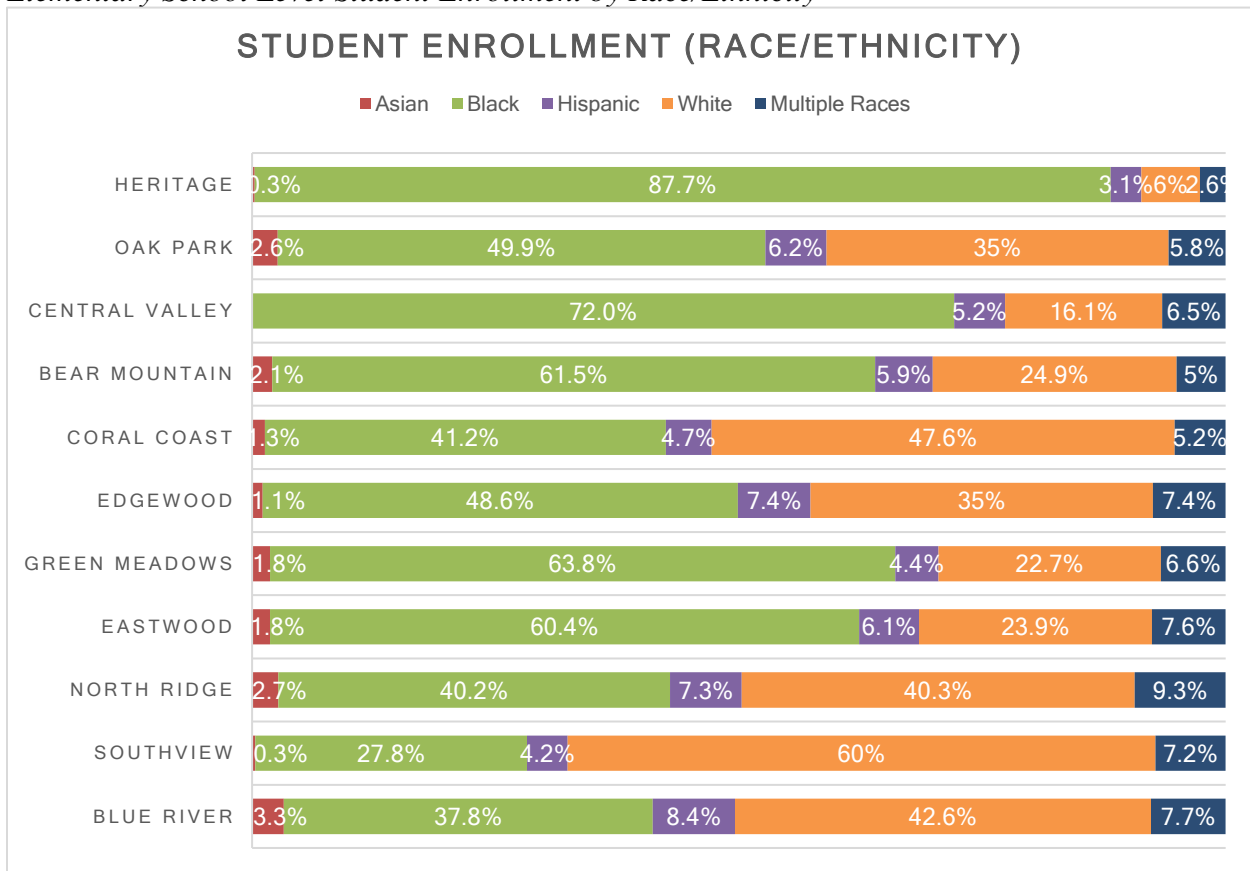
### **Student Enrollment by Race/Ethnicity**

#### **Elementary School Level**

There were 11 elementary schools across the district. Due to the uniqueness and variation of geographical areas within the district, the elementary school's student enrollment varied from school to school. The student enrollment by race and ethnicity results at the elementary school level are displayed in Figure 2. Bear Mountain, Green Meadows, and Eastwood all had similar student enrollment percentages in regards to student race and ethnicity, students with disabilities, and English learners. This was also the case for Oak Park, Coral Coast, and Edgewood. North Ridge and Blue River also had similar student enrollment percentages of race and ethnicity, students with disabilities, and English learners. Additionally, North Ridge and Blue River were the only two non-Title I schools. Therefore, they had the

lowest percentages of students eligible to receive free or reduced-price lunch. Neither Heritage nor Southview had similar enrollment percentages to any other elementary school. Southview had the lowest percentage of black students, students with disabilities, and English learners. Whereas, Heritage had the highest percentage of black students and students eligible to receive free or reduced-price lunch.

Figure 2:  
*Elementary School Level Student Enrollment by Race/Ethnicity*

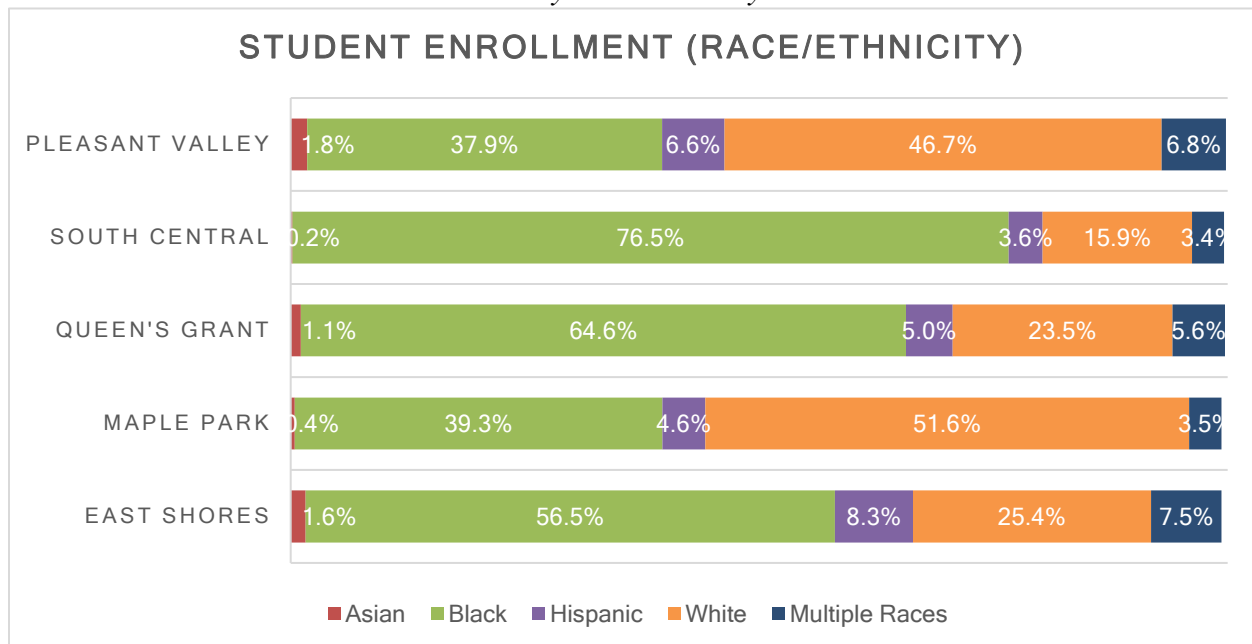


**Middle School Level**

There was also a variation of student enrollment across the middle school level. This disparity was also a result of the difference in geographical areas across the school district. The student enrollment by race and ethnicity results at the middle school level are displayed in Figure 3. Pleasant Valley and Maple Park had similar enrollment percentages of race and ethnicity and

English learners. This was also true for East Shores and Queen’s Grant. On the other hand, South Central did not have similar student enrollment to any other school. South Central had the highest percentage of black students and students eligible to receive free or reduced-price lunch. The student enrollment percentages of students eligible to receive free or reduced-price lunch and students with disabilities differed from school to school.

Figure 3:  
*Middle School Level Student Enrollment by Race/Ethnicity*



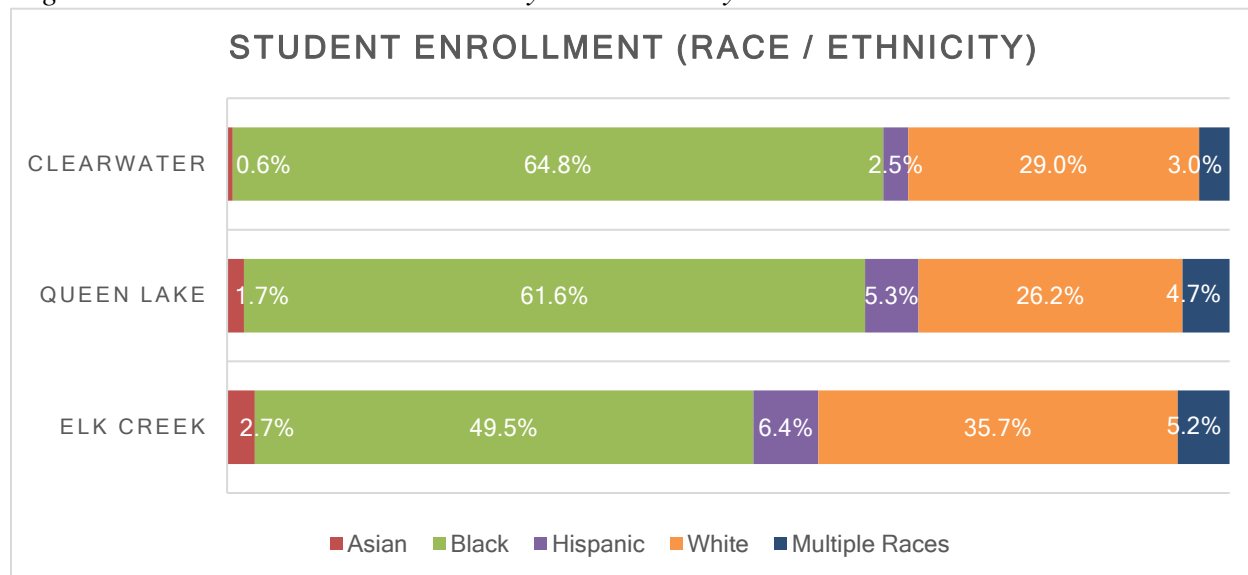
### High School Level

At the high school level, there was not as much variation of student enrollment from school to school. Being that there were only three high schools across the district, many students from different geographical areas were mixed together at the high school level. The student enrollment by race and ethnicity results at the high school level are displayed in Figure 4. Queen Lake and Clearwater had similar enrollment percentages of race and ethnicity, students with disabilities, and students eligible to receive free or reduced-price lunch. Elk Creek had the



lowest percentages of black students, students with disabilities, and students eligible to receive free or reduced-price lunch.

Figure 4:  
*High School Level Student Enrollment by Race/Ethnicity*



### Poverty Level

The state Department of Education defines the poverty levels as follows: a school having fewer than 25% of the students in poverty would be considered a low-poverty school, a school having between 25% and 75% of the students in poverty would be considered a medium-poverty school, and if a school has over 75% of the students in poverty would be considered a high-poverty school. At the elementary school level, a majority of the schools were considered to be medium-poverty schools. These schools include Eastwood, Oak Park, Southview, Edgewood, Blue River, and Coral Coast. North Ridge was the only school considered a low-poverty school. While Heritage, Central Valley, Bear Mountain, and Green Meadows were considered to be high-poverty schools. Blue River and North Ridge were the only two elementary schools not considered Title I. The remaining nine elementary schools were considered Title I.

At the middle school level, the majority of the schools were considered medium-poverty schools. These schools include Queen's Grant, Maple Park, and East Shores. Pleasant Valley was the only school considered to be low-poverty. While South Central was the only school considered to be high-poverty. At the high school level, a majority of the schools were considered to be medium-poverty schools, including Queen Lake and Clearwater. Elk Creek was considered a low-poverty school. There were no high-poverty schools at the high school level.

### **Majority-to-Minority Transfer Program**

Due to a long-standing federal court order requiring desegregation of schools, the U.S. Department of Justice was obliged to review and approve the zoning plan for the district. In addition to the district adopting a voluntary Majority-to-Minority transfer option. A majority is defined by the largest percentage of students by race. For example, a school with 60 percent of white students would be considered a "majority-white" school, and a school with 60 percent of black students would be considered a "majority-black" school. Students attending a majority school would be allowed the opportunity to attend a school where they would be in the minority.

For example, black students at Heritage, Central Valley, and Bear Mountain would be allowed to attend Southview, and white students assigned to Southview would be allowed to attend Heritage, Central Valley, or Bear Mountain. Furthermore, the district would provide free transportation and ensure reasonable travel time on a school bus for those students participating in the voluntary Majority-to-Minority transfer option. Students who chose to participate in the voluntary majority-to-minority transfer program at the elementary school level would be allowed to attend the respective middle school. Students who choose to attend Heritage, Central Valley, or Bear Mountain would be allowed to attend South Central, and students who chose to attend

Southview would be allowed to attend Maple Park. However, students also would have the option to attend the middle school in which they are zoned.

### **Research Question 1**

The first question of this study included: Is there a difference in resource allocation of per-pupil funding at the elementary school level? middle school level? high school level? Beginning with data for the 2018-2019 school year, the Every Student Succeeds Act required states to publish annual school-level per-pupil expenditures on their online school report cards. The report required school districts to report the total per-pupil expenditures at the individual school level broken down to show how much each school received at the school level and the district level in local, state, and federal per-pupil funding. Therefore, the researcher collected data from the state department of education school report cards for each school. Data included school-level expenditures per pupil, district-level expenditures per pupil, and total per-pupil expenditures. To answer this research question, the researcher examined the per-pupil expenditures at each school then calculated the cents per dollar spent at each school. Lastly, the researcher calculated weighted per-pupil expenditures by weighting specific student enrollment subgroup categories into three weight groups.

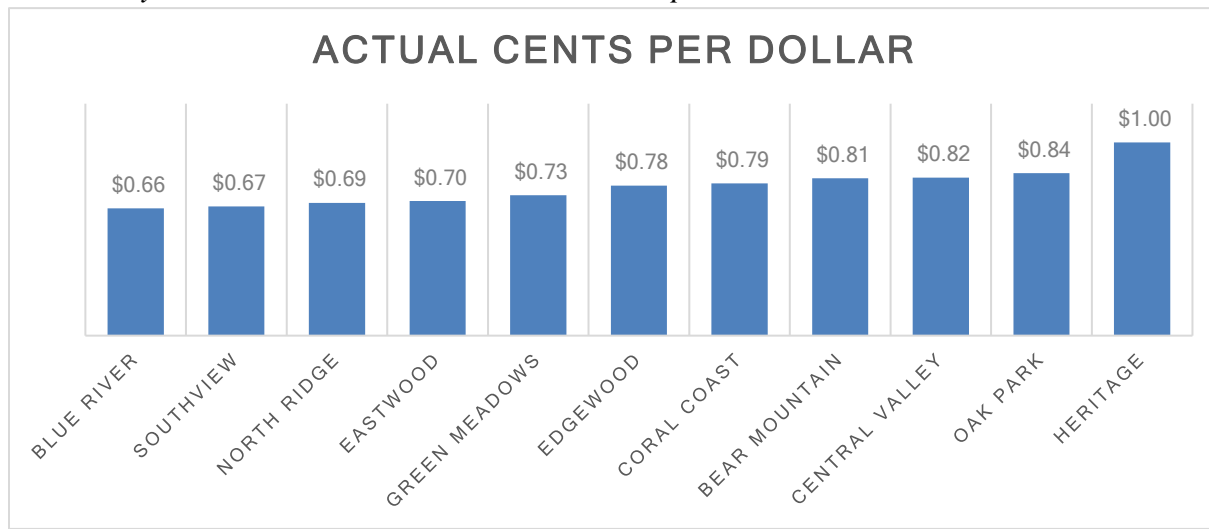
#### **Elementary School Level**

At the elementary school level, the total per-pupil expenditures at each of the 11 individual schools ranged from \$8,731 to \$13,267. The  $\Delta$  of the elementary school with the lowest per-pupil expenditure and the highest per-pupil expenditure was \$4,536. The mean per-pupil expenditure was \$10,217, while the median per-pupil expenditure was \$10,291. To further examine the variation in total per-pupil expenditures, the researcher calculated the actual cents per dollar spent at each school. In order to calculate the actual cents per dollar, the researcher

took each school's per-pupil expenditure and divided it by the highest school's per-pupil expenditure. The results for the elementary school level are displayed in Figure 5. The actual cents per dollar shows for every \$1.00 spent at the school with the highest per-pupil expenditure, how many cents on the dollar were spent at each school in comparison. For every \$1.00 spent per pupil at Heritage, \$0.66 was spent per pupil at Blue River. Thus, resulting in a \$0.34 per \$1.00 difference per pupil. The  $\Delta$  of cents per dollar at the elementary level ranged from \$0.16 to \$0.34.

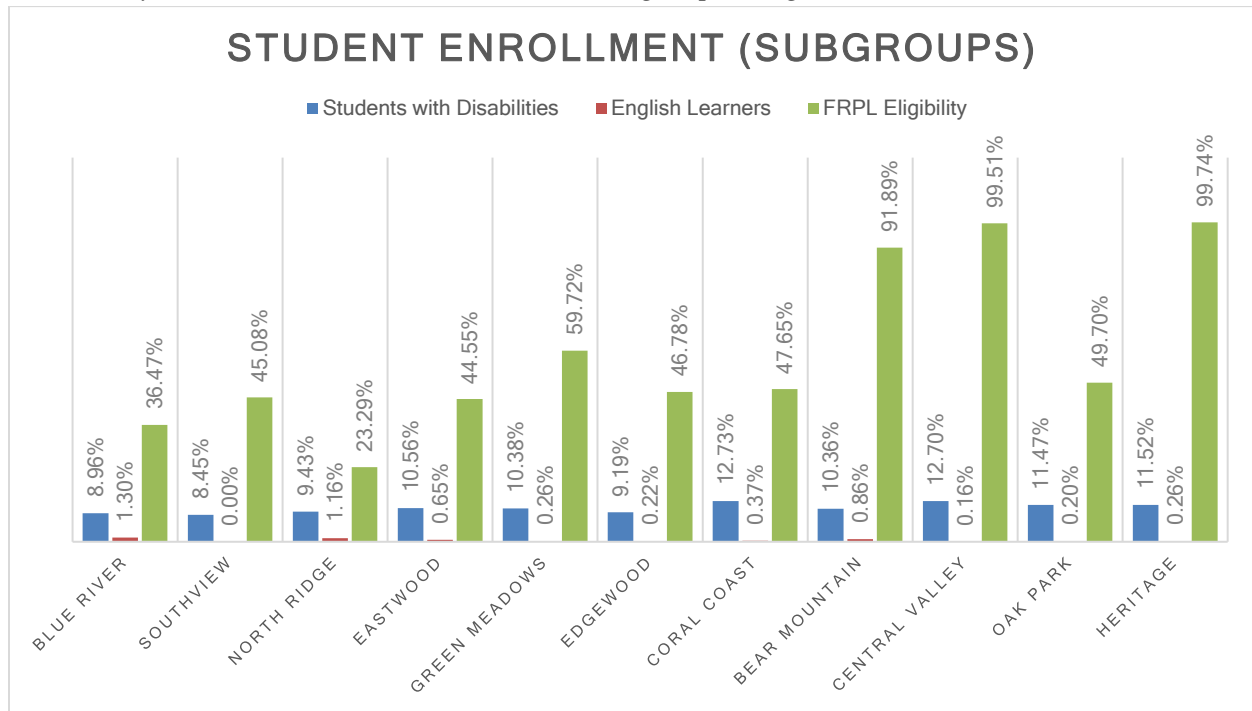
After investigating the variation in per-pupil expenditures, the researcher examined the student enrollment, specifically focusing on the subgroups of students with disabilities, students eligible to receive free or reduced-price lunch, and English learners. Percentages of the student enrollment data by subgroup at each elementary school can be found in Figure 6. The percentage of English learners at the elementary school level ranged from 0% to 1.3%. Overall, there was not a large percentage of English learners across all elementary schools. Meanwhile, some elementary schools had a large percentage of students eligible to receive free or reduced-price lunch, whereas other elementary schools had a much lower percentage. The percentage of students eligible to receive free or reduced-price lunch at the elementary school level ranged from 23.29% to 99.74%.

Figure 5:  
*Elementary School Level Actual Cents Per Dollar Spent*



Heritage, Central Valley, and Bear Mountain had the highest percentage of students eligible to receive free or reduced-price lunch and were operating under the USDA Community Eligibility Provision (CEP). The CEP is a special school meal funding option of the National School Lunch Act enabling schools to provide free meals to all students. To be eligible to operate CEP, a school within a district must have an Identified Student Percentage (ISP) of 40% or higher. To calculate ISP, a school must count all of the students who are categorically eligible for free lunch and divide by total student enrollment. Furthermore, Heritage, Central Valley, and Bear Mountain had the smallest percentage of English learner students. On the other hand, North Ridge and Blue River had the lowest percentage of students eligible for free or reduced-price lunch and had the highest percentage of English learner students.

Figure 6:  
*Elementary School Level Student Enrollment Subgroup Categories*



Lastly, the researcher examined the percentage of students with disabilities. The percentage of students with disabilities at the elementary school level ranged from 8.45% to 12.73%. Coral Coast and Central Valley had the highest percentage of students with disabilities at the elementary school level. Blue River and Southview had the lowest percentage of students with disabilities at the elementary school level. The researcher collectively examined the percentage of students classified into each of the student enrollment categories. Overall, Northridge had the lowest collective percentage of students classified into any of the student enrollment subgroup categories with 33.88%. On the other hand, Central Valley, Heritage, and Bear Mountain each had the highest collective percentage of students classified into any of the student enrollment subgroup categories with over 100%. Having a collective percentage of over 100% indicated some students fell into more than one student enrollment subgroup category.

Next, the researcher applied Verstegen's (2008) weighting to the selected student enrollment subgroup categories to measure equity as it relates to per-pupil expenditures at each school. Verstegen reasons, a student with a disability per-pupil expenditure would be twice as much as a student without a disability, while students eligible to receive free or reduced-price lunch and English learners per-pupil expenditure would be one and a half times as much. For example, if the actual per-pupil expenditure at a school was \$10,000, the weighted per-pupil expenditure of a student with a disability would be \$20,000 and the weighted per-pupil expenditure of a student eligible to receive free or reduced-price lunch or an English learner student would be \$15,000.

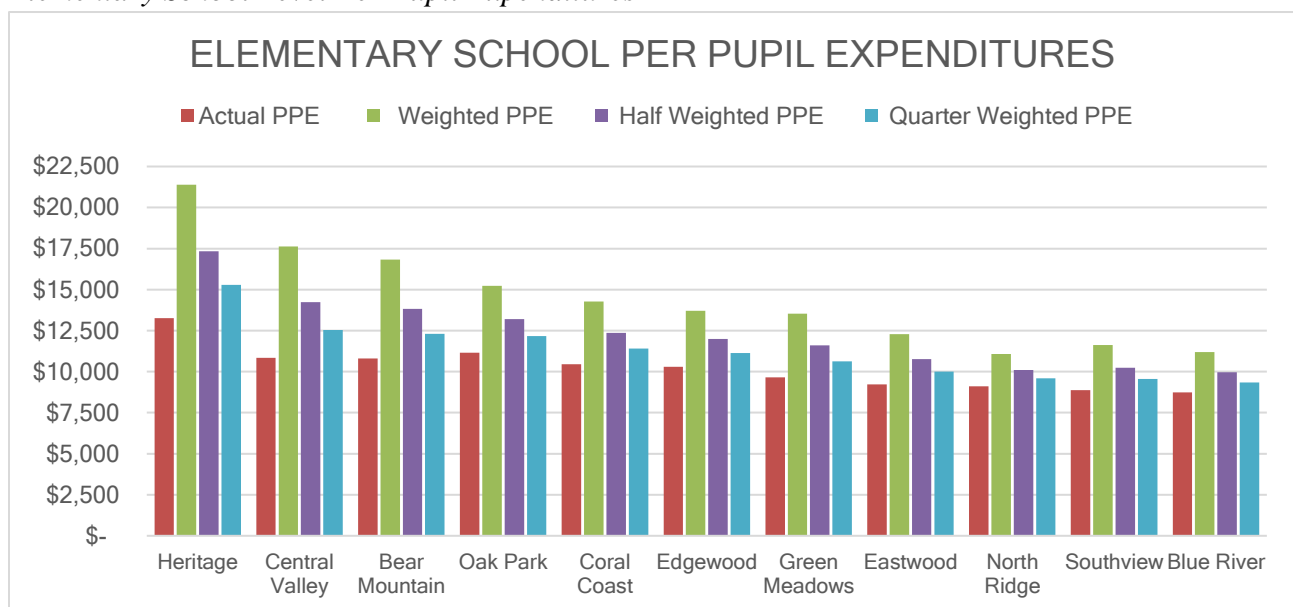
Furthermore, students could fall into more than one student enrollment subgroup category. Unfortunately, the individual student data were unavailable, thus leaving the researcher to have stacked weighting calculations of students falling into multiple student enrollment subgroup categories. For example, a student who was eligible to receive free or reduced-price lunch could also be a student with a disability and therefore have a weighted per-pupil expenditure of \$35,000 as a result of stacked weightings. Since individual student data were unavailable and weight stacking could occur, the researcher wanted to take a more conservative approach when examining equity with per-pupil expenditure weighting. The researcher took Verstegen's (2008) weightings and halved it, and then also quartered it. Therefore, the researcher examined three groups of per-pupil expenditure weighting:

- The first group of weights (full weight) was gathered from existing research: students with disabilities (2.0), English learners (1.5), and students eligible for free or reduced-price lunch (1.5)

- The second group of weights (half weight): students with disabilities (1.5), English learners (1.25), and students eligible for free or reduced-price lunch (1.25)
- The third group of weights (quarter weight): students with disabilities (1.25), English learners (1.125), and students eligible for free or reduced-price lunch (1.125).

The results of the per-pupil expenditure weighting at the elementary school level are shown in Figure 7. Weighting the per-pupil expenditures for the specific subgroups allowed the researcher to examine any discrepancies among schools at the elementary school level, middle school level, and high school level. At the elementary school level, Heritage had the highest per-pupil expenditure. After the researcher weighted the student enrollment subgroup categories, Heritage remained to need the highest per-pupil expenditure based on the weighting in each of the three groups of weights. However, Central Valley had the third-highest per-pupil expenditure. When the researcher weighted the per-pupil expenditure as a result of the student enrollment subgroup categories the weighted per-pupil expenditure exposed Central Valley as needing the second-highest per-pupil expenditure in each of the three groups of weights.

Figure 7:  
*Elementary School Level Per Pupil Expenditures*





After weighing the per-pupil expenditures of each elementary school based on the three weighting groups, the researcher examined the inadequacies of per-pupil funding at each school. The discrepancies in the actual per-pupil expenditures versus each weight group were examined using the a priori guidelines. The results are displayed in Table 6. The discrepancies ranged from slight to notable across the three weight groups. Heritage, Bear Mountain, and Green Meadows had the highest inadequacy concerns among the elementary school level.

Table 6  
*Discrepancies in Actual PPE versus Weighted PPE Based on the A Priori Suggestions at the Elementary School Level*

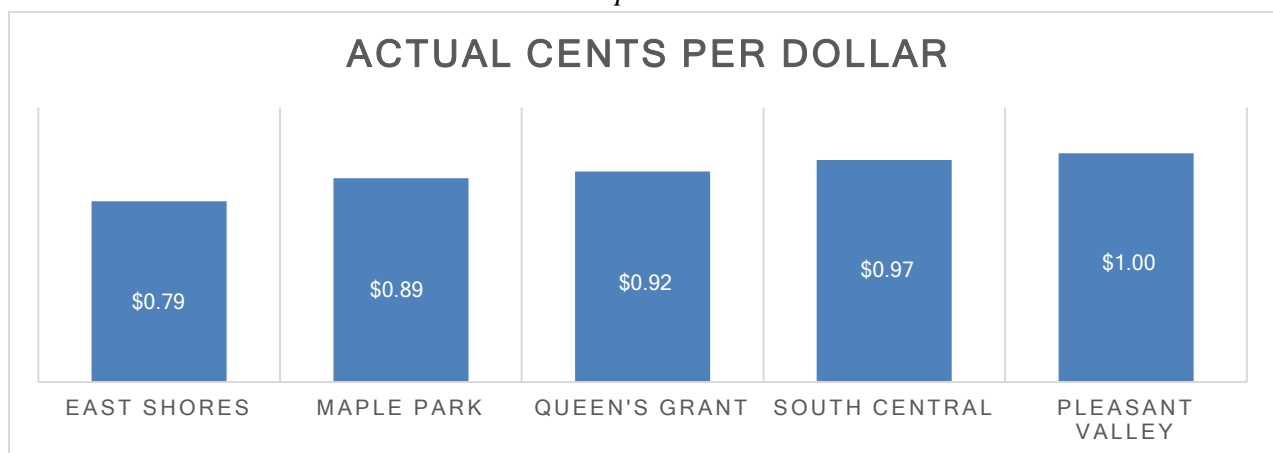
Elementary School	Full Weighted	Half Weighted	Quarter Weighted
Heritage	Notable	Moderate	Slight
Oak Park	Moderate	Slight	-
Central Valley	Moderate	Slight	-
Bear Mountain	Notable	Moderate	Slight
Coral Coast	Moderate	Slight	-
Edgewood	Moderate	Slight	-
Green Meadows	Notable	Moderate	Slight
Eastwood	Slight	Slight	-
North Ridge	Moderate	Slight	-
Southview	Moderate	Slight	-
Blue River	Moderate	Slight	-

### **Middle School Level**

At the middle school level, the total per-pupil expenditures at each of the 5 individual schools ranged from \$9,306 to \$11,739. The  $\Delta$  of the middle school with the lowest per-pupil expenditure and the highest per-pupil expenditure was \$2,433. The mean per-pupil expenditure was \$10,712. While the median per-pupil expenditure was \$10,753. In order to further examine the variation in total per-pupil expenditures, the researcher calculated the actual cents per dollar

spent at each school. The results for the middle school level are displayed in Figure 8. For every \$1.00 spent per pupil at Pleasant Valley, \$0.79 was spent per pupil at East Shores. Thus, resulting in a \$0.21 per \$1.00 difference per pupil. The  $\Delta$  of cents per dollar at the middle school level ranged from \$0.03 to \$0.21. After investigating the variation in per-pupil expenditures, the researcher examined the student enrollment, specifically focusing on the subgroups of students with disabilities, students eligible to receive free or reduced-price lunch, and English learners. Percentages of the student enrollment data by subgroup at each middle school can be found in Figure 9.

Figure 8:  
*Middle School Level Actual Cents Per Dollar Spent*

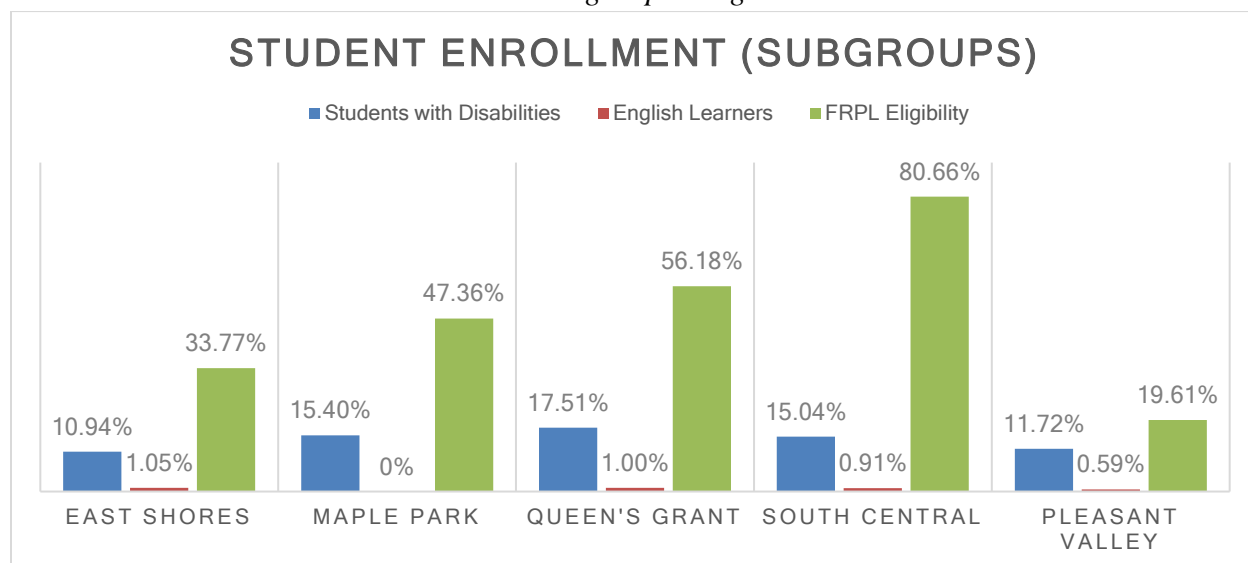


The percentage of English learners at the middle school level ranged from 0% to 1.05%.

Overall, there was not a large percentage of English learners across all middle schools. The percentage of students eligible to receive free or reduced-price lunch at the middle school level ranged from 19.61% to 80.66% and the percentage of students with disabilities at the middle school level ranged from 10.94% to 17.51%. South Central and Queen's Grant had the highest percentage of students eligible to receive free or reduced-price lunch and students with disabilities. On the contrary, East Shores and Pleasant Valley had the lowest percentage of students eligible for free or reduced-price lunch and students with disabilities. Lastly, the

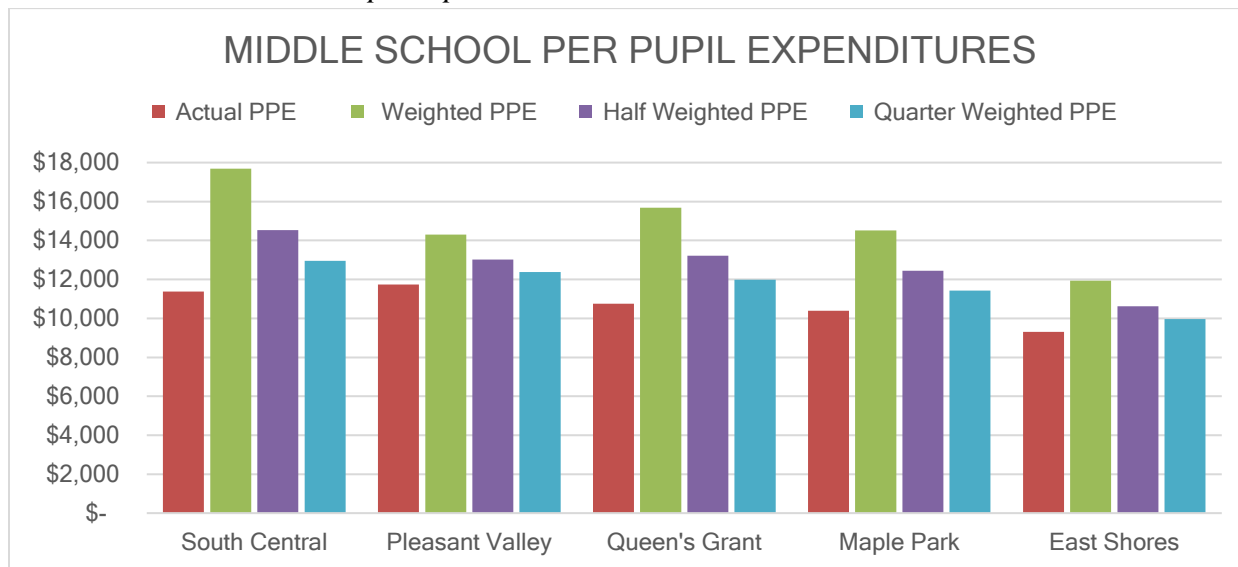
researcher collectively examined the percentage of students classified into each of the student enrollment categories. Overall, Pleasant Valley had the lowest collective percentage of students classified into any of the student enrollment subgroup categories with 31.92%. On the other hand, South Central had the highest collective percentage of students classified into any of the student enrollment subgroup categories with 96.61%.

Figure 9:  
*Middle School Level Student Enrollment Subgroup Categories*



Next, the researcher applied Verstegen's weighting to the selected student enrollment subgroup categories to measure equity as it relates to per-pupil expenditures at each middle school. The results of the per-pupil expenditure weighting at the middle school level are shown in Figure 10. At the middle school level, East Shores had the lowest per-pupil expenditure. After the researcher weighted the student enrollment subgroup categories, East Shores remained to need the lowest per-pupil expenditure based on Verstegen's weighting in each of the three groups. However, South Central had the second-highest per-pupil expenditure. When the researcher weighted the per-pupil expenditure as a result of the student enrollment subgroup categories the weighted per-pupil expenditure exposed South Central as needing the highest per-pupil expenditure in each of the three groups of weights.

Figure 10:  
Middle School Level Per Pupil Expenditures



After weighing the per-pupil expenditures of each middle school based on the three weighting groups, the researcher examined the inadequacies of per-pupil funding at each school. The discrepancies in the actual per-pupil expenditures versus each weight group were examined using the a priori guidelines. The results are displayed in Table 7. The discrepancies ranged from slight to notable across the three weight groups. South Central, Queen's Grant, and Maple Park had the highest inadequacy concerns among the middle school level.

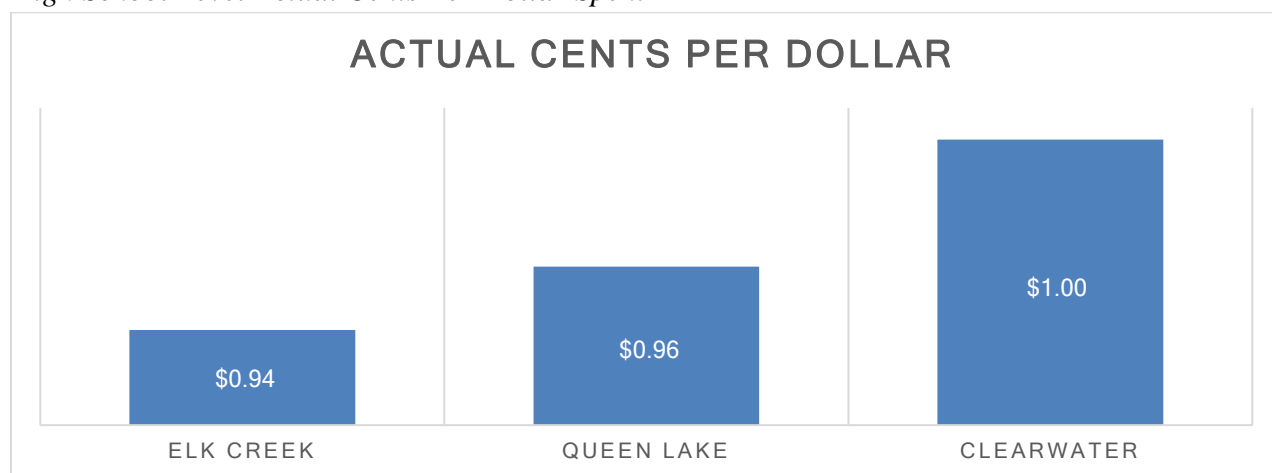
Table 7  
*Discrepancies in Actual PPE versus Weighted PPE Based on the A Priori Suggestions at the Middle School Level*

Middle School	Full Weighted	Half Weighted	Quarter Weighted
Pleasant Valley	Slight	Slight	-
South Central	Notable	Moderate	Slight
Queen's Grant	Notable	Slight	Slight
Maple Park	Notable	Slight	Slight
East Shores	Moderate	Slight	-

## High School Level

At the high school level, the total per-pupil expenditures at each of the 3 individual schools ranged from \$10,286 to \$10,985. The  $\Delta$  of the high school with the lowest per-pupil expenditure and the highest per-pupil expenditure was \$699. The mean per-pupil expenditure was \$10,595 while the median per-pupil expenditure was \$10,513. In order to further examine the variation in total per-pupil expenditures, the researcher then calculated the actual cents per dollar spent from each school. The results for the high school level are displayed in Figure 11.

Figure 11:  
*High School Level Actual Cents Per Dollar Spent*

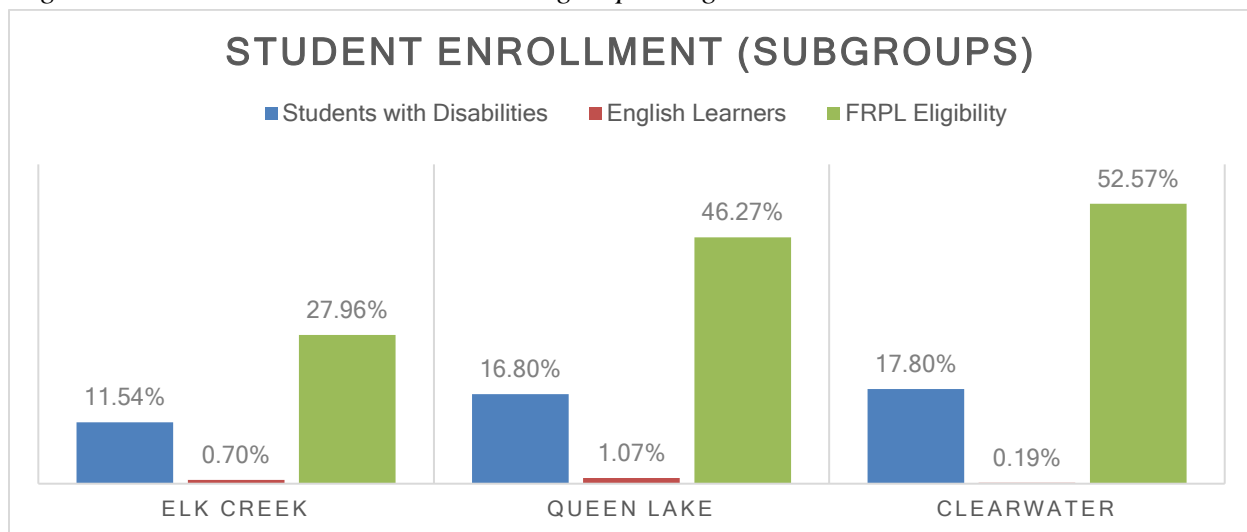


For every \$1.00 spent per pupil at Clearwater, \$0.94 was spent per pupil at Elk Creek resulting in a \$0.06 per \$1.00 difference per pupil. The  $\Delta$  of cents per dollar at the high school level ranged from \$0.04 to \$0.06.

After investigating the variation in per-pupil expenditures, the researcher examined the student enrollment, specifically focusing on the subgroups of students with disabilities, students eligible to receive free or reduced-price lunch, and English learners. Percentages of the student enrollment data by subgroup at each high school can be found in Figure 12. The percentage of English learners at the high school level ranged from 0.19% to 1.07%. Overall, there was not a large percentage of English learners across all high schools. The percentage of students eligible

to receive free or reduced-price lunch at the high school level ranged from 27.96% to 52.57% and the percentage of students with disabilities at the high school level ranged from 11.54% to 17.80%.

Figure 12:  
*High School Level Student Enrollment Subgroup Categories*



Clearwater had the highest percentage of students eligible to receive free or reduced-price lunch and students with disabilities and the lowest percentage of English learner students. Contrarily, Elk Creek had the lowest percentage of students eligible for free or reduced-price lunch and students with disabilities. Subsequently, the researcher collectively examined the percentage of students classified into each of the student enrollment categories. Overall, Elk Creek had the lowest collective percentage of students classified into any of the student enrollment subgroup categories with 40.20%. On the other hand, Clearwater had the highest collective percentage of students classified into any of the student enrollment subgroup categories with 70.56%.

Lastly, the researcher applied Verstegen's (2008) weighting to the selected student enrollment subgroup categories to measure equity as it relates to per-pupil expenditures at each high school.

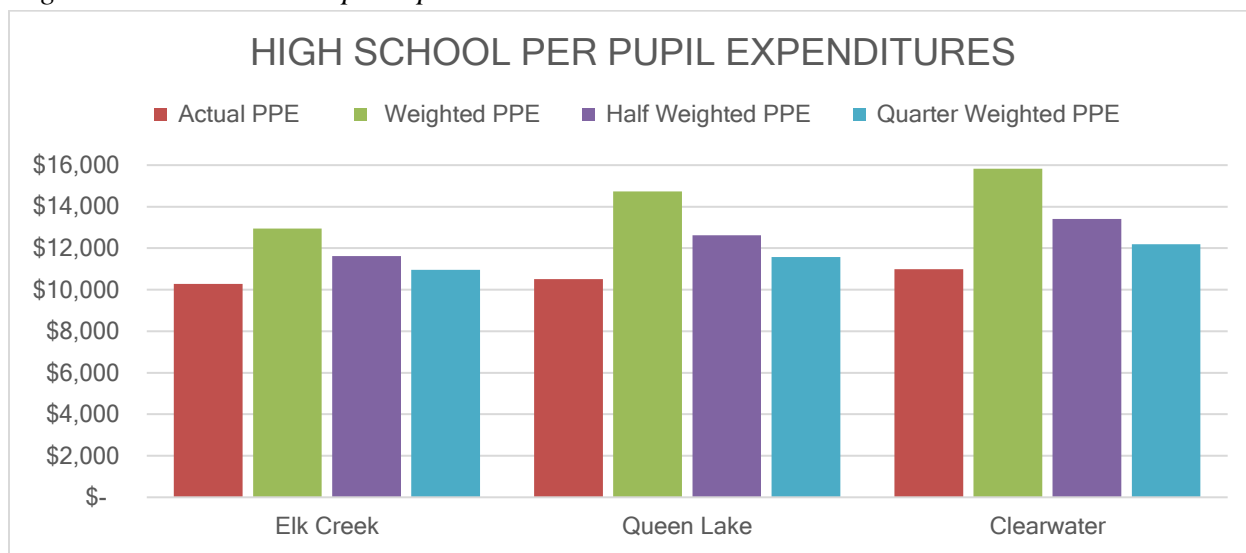
The results of the per-pupil expenditure weighting at the high school level are shown in Figure

13. At the high school level, Elk Creek had the lowest per-pupil expenditure. After the

researcher weighted the student enrollment subgroup categories, Elk Creek remained to need the lowest per-pupil expenditure based on the weighting in each of the three groups of weights.

Furthermore, Clearwater had the highest per-pupil expenditure and when the researcher weighted the per-pupil expenditure as a result of the student enrollment subgroup categories the weighted per-pupil expenditure confirmed Clearwater as needing the highest per-pupil expenditure in each of the three groups of weights.

Figure 13:  
*High School Level Per Pupil Expenditures*



After weighing the per-pupil expenditures of each high school based on the three weighting groups, the researcher examined the inadequacies of per-pupil funding at each school. The discrepancies in the actual per-pupil expenditures versus each weight group were examined using the a priori guidelines. The results are displayed in Table 8. The discrepancies ranged from slight to notable across the three weight groups. Clearwater and Queen Lake had the highest inadequacy concerns among the high school level.

Table 8  
*Discrepancies in Actual PPE versus Weighted PPE Based on the A Priori Suggestions at the High School Level*

High School	Full Weighted	Half Weighted	Quarter Weighted
Clearwater	Notable	Slight	Slight
Queen Lake	Notable	Slight	Slight
Elk Creek	Moderate	Slight	-

### **Research Question 2**

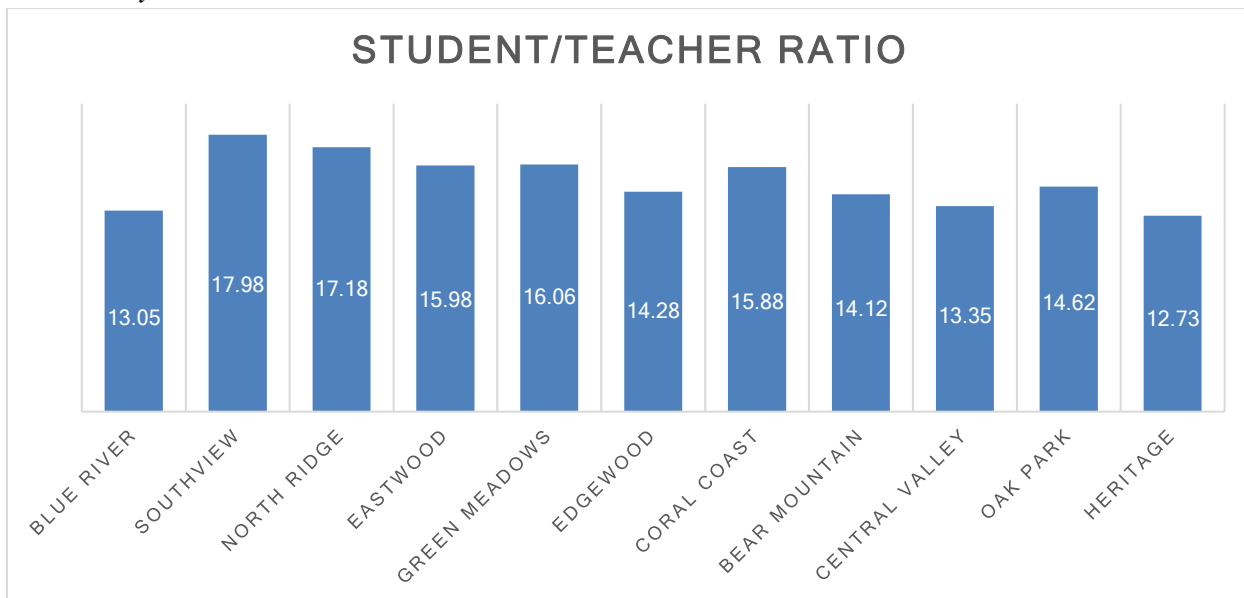
The second question of this study included: Is there a difference in teacher quality at the elementary school level? middle school level? high school level? In order for the researcher to examine any differences in teacher quality, data were collected on student/teacher ratio, teacher level or attainment, teacher licensure and experience, and average teacher salary. The researcher collected available data from the state department of education school report cards for each school. However, the state department of education did not have data on teacher licensure and experience from the 2018-2019 school year. Therefore, the researcher used the available 2019-2020 data on teacher licensure and experience. The researcher assumed the data collected from the 2019-2020 school year would be comparable to the data of the 2018-2019 school year.

#### **Elementary School Level**

The researcher collected data on the student/teacher ratio to determine teacher equity. The results of the student/teacher ratio at the elementary school level are displayed in Figure 14. The student/teacher ratio at the elementary level ranged from 12.73 to 17.98 students per teacher. Southview and North Ridge had the highest student/teacher ratio with over 17 students per teacher. While Blue River, Central Valley, and Heritage had the lowest student/teacher ratio with under 14 students per teacher.



Figure 14:  
*Elementary School Level Student/Teacher Ratio*

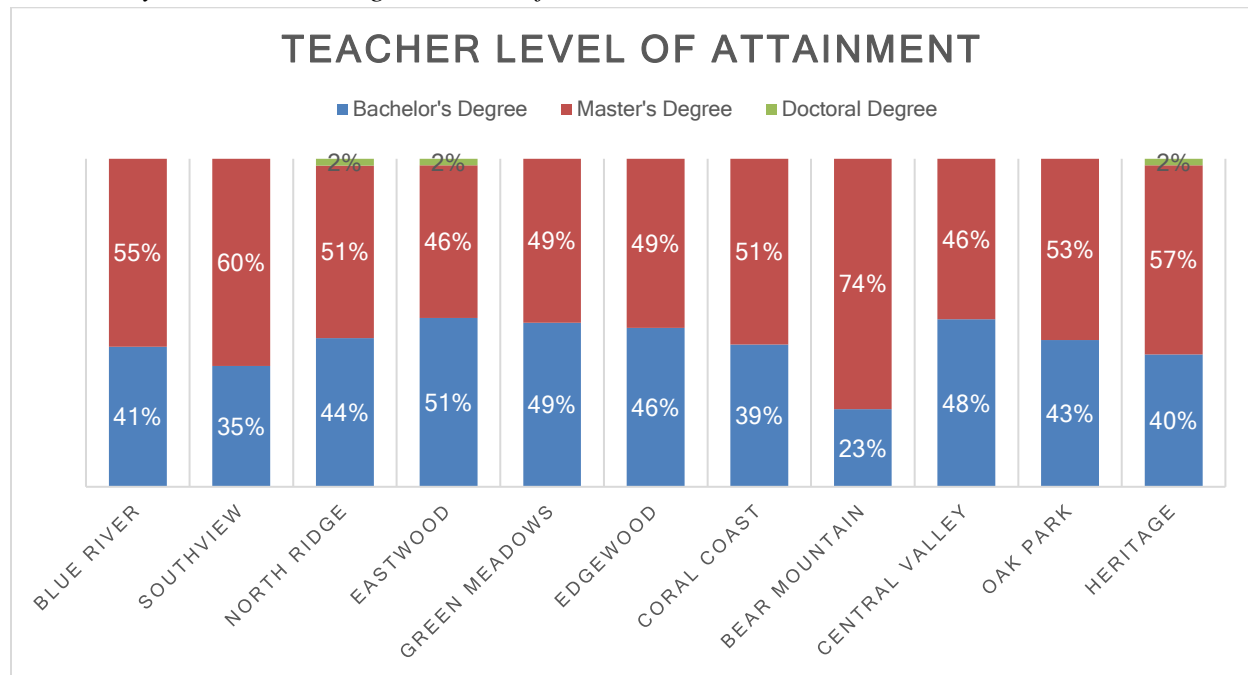


Next, the researcher examined the teacher level of attainment at each school. The results of the teacher level of attainment at the elementary level are displayed in Figure 15. The researcher assumed that not all attainment levels were reported on the state department of education school report cards due to each school's percentages not adding to 100%. Of the data collected, North Ridge, Eastwood, and Heritage are the only elementary schools having reported teachers who earned a Doctorate. Bear Mountain and Southview had the highest reported teachers having earned a Master's.

After investigating the teacher attainment level, the researcher examined teacher licensure and experience, specifically focusing on the percentage of all teachers who were teaching with a provisional license, the percentage of special education teachers who were teaching with a provisional license, the number of inexperienced teachers, having less than one year of experience, and the percentage of all teachers who were teaching outside of their

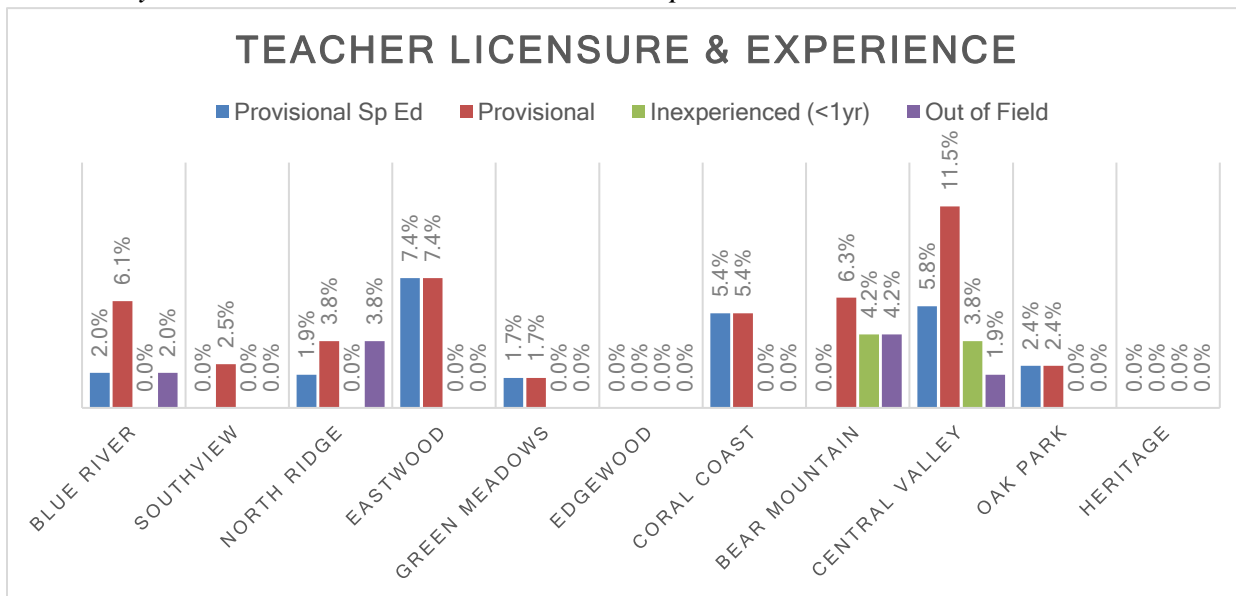
certification field. The results of the teacher licensure and experience at the elementary school level are displayed in Figure 16.

Figure 15:  
*Elementary School Level Highest Level of Education*



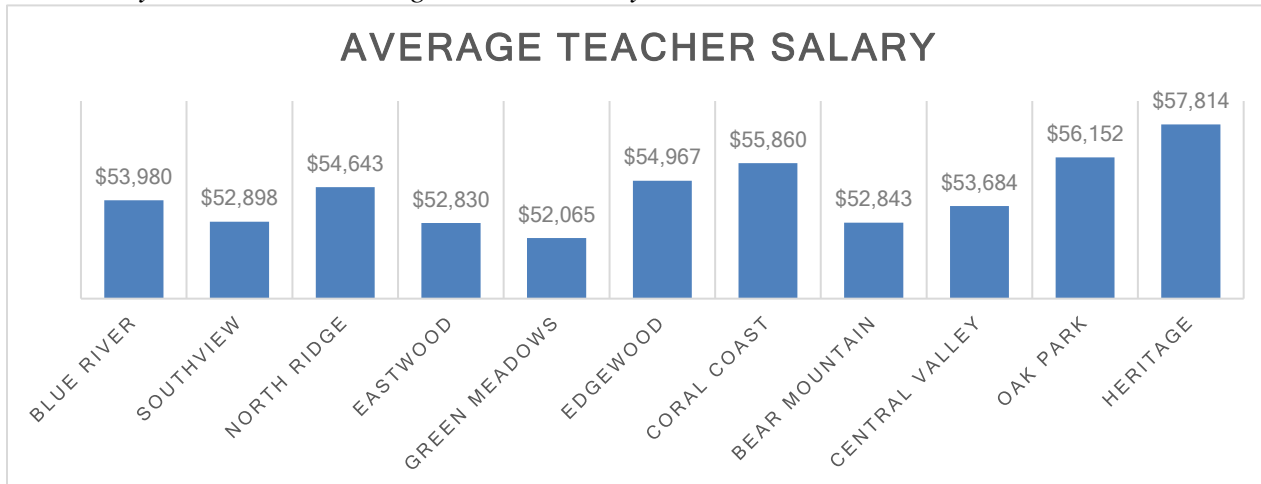
Central Valley and Eastwood had the highest percentage of all teachers and special education teachers who were teaching with a provisional license. Central Valley and Bear Mountain were the only two elementary schools with inexperienced teachers having less than one year of teaching experience. Bear Mountain had the highest percentage of teachers, 4.2%, teaching outside of their certification. Subsequently, the researcher collectively examined teacher licensure and experience. Overall, Heritage and Edgewood had reported 0.0% of the teachers as inexperienced, teaching outside of their certification field, or teaching with a provisional license. On the other hand, Central Valley had the highest collective percentage, 23%, of inexperienced teachers, teachers teaching outside of their certification, and teachers with a provisional license.

Figure 16:  
*Elementary School Level Teacher Licensure and Experience*



The average teacher salary at the elementary school level ranged from \$52,065 to \$57,814. The  $\Delta$  of the elementary school with the lowest average teacher salary and the highest average teacher salary was \$5,749. The results of the average teacher salary at the elementary school level are displayed in Figure 17. Heritage had the highest average teacher salary of more than \$57,000. While Bear Mountain, Green Meadows, Eastwood, and Southview had the lowest average teacher salary of less than \$53,000.

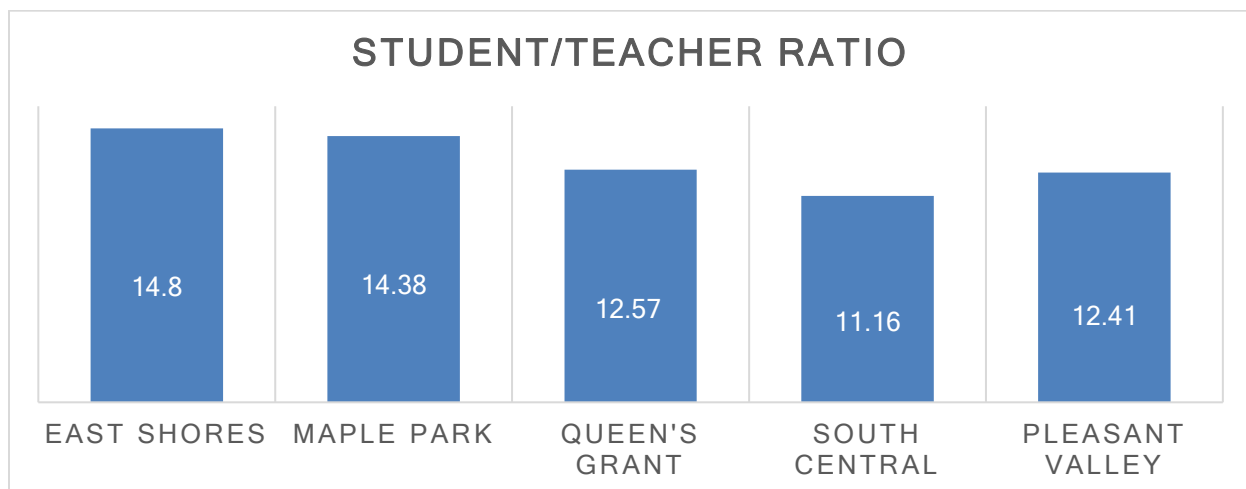
Figure 17:  
*Elementary School Level Average Teacher Salary*



## Middle School Level

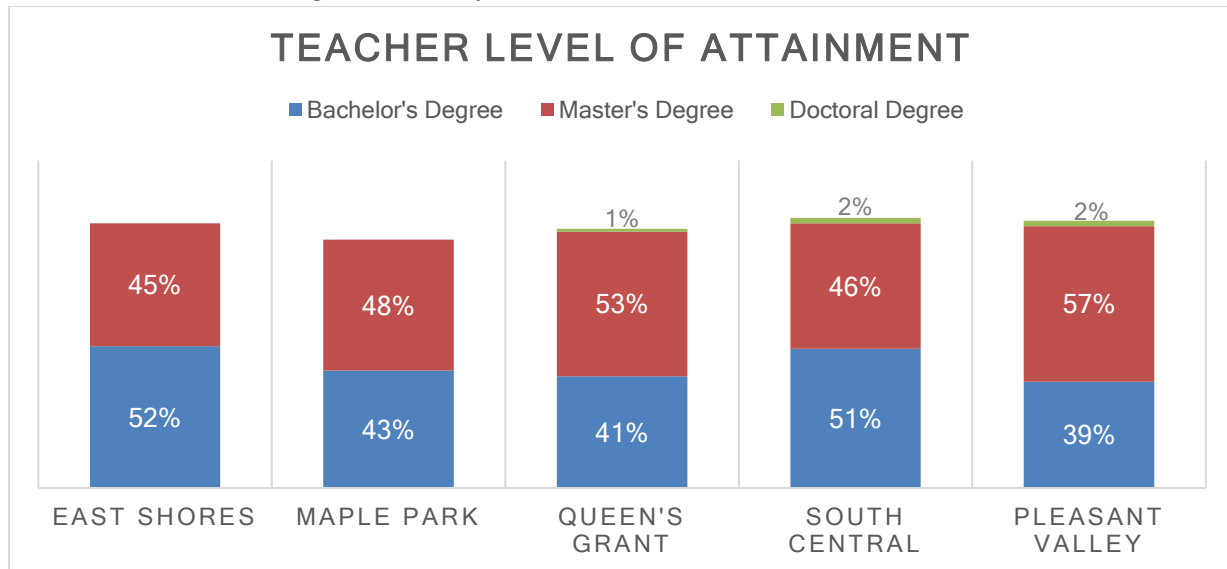
At the middle school level, the student/teacher ratio ranged from 11.16 to 14.8 students per teacher. The results of the student/teacher ratio at the middle school level are displayed in Figure 18. East Shores and Maple Park had the highest student/teacher ratio with over 14 students per teacher. While South Central had the lowest student/teacher ratio with under 12 students per teacher.

Figure 18:  
*Middle School Level Student/Teacher Ratio*



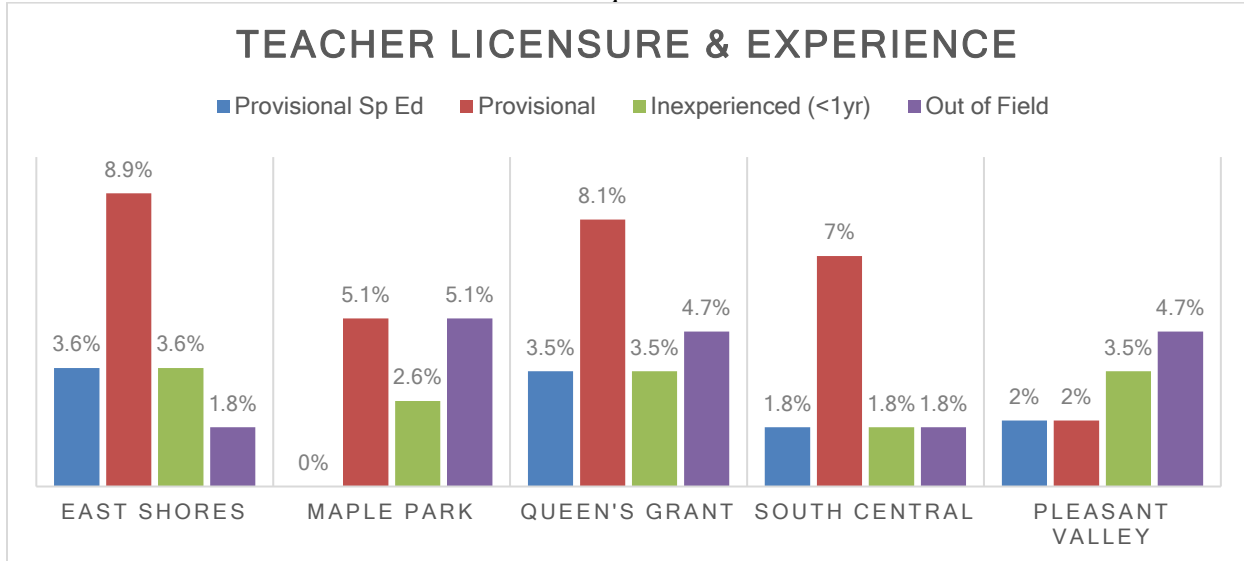
The results of the teacher level of attainment at the middle school level are displayed in Figure 19. The researcher assumed that not all attainment levels were reported on the state department of education school report cards due to each school's percentages not adding to 100%. Of the data collected, Queen's Grant, South Central, and Pleasant Valley are the only middle schools having reported teachers who earned a Doctorate. Queen's Grant and Pleasant Valley had the highest reported teachers having earned a Master's.

Figure 19:  
*Middle School Level Highest Level of Education*



The researcher examined, teacher licensure and experience, the results of the middle school level are displayed in Figure 20. East Shores and Queen's Grant had the highest percentage of all teachers and special education teachers who were teaching with a provisional license. East Shores had the highest percentage of inexperienced teachers having less than one year of teaching experience. Maple Park had the highest percentage of teachers, 5.1%, teaching outside of their certification field. The researcher collectively examined teacher licensure and experience. Overall, Pleasant Valley collectively had the lowest percentage of the teachers as inexperienced, teaching outside of their certification field, or teaching with a provisional license. On the other hand, Queen's Grant had the highest collective percentage, 19.8% of inexperienced teachers, teachers teaching outside of their certification, and teachers with a provisional license.

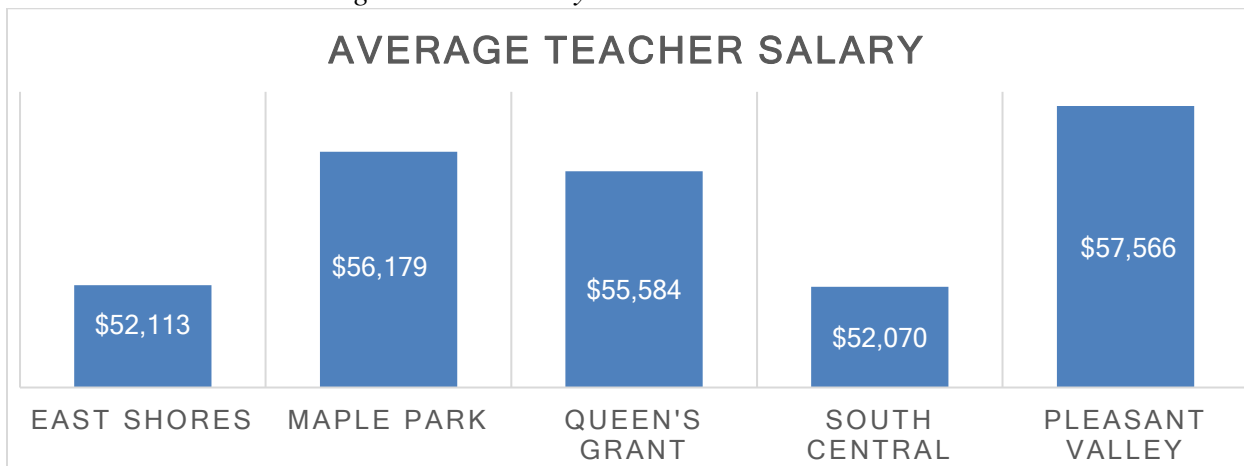
Figure 20:  
Middle School Level Teacher Licensure and Experience



The average teacher salary at the middle school level ranged from \$52,113 to \$57,566.

The  $\Delta$  of the middle school with the lowest average teacher salary and the highest average teacher salary was \$5,453. The results of the average teacher salary at the middle school level are displayed in Figure 21. Pleasant Valley had the highest average teacher salary of more than \$57,000. While South Central and East Shores had the lowest average teacher salary of less than \$53,000.

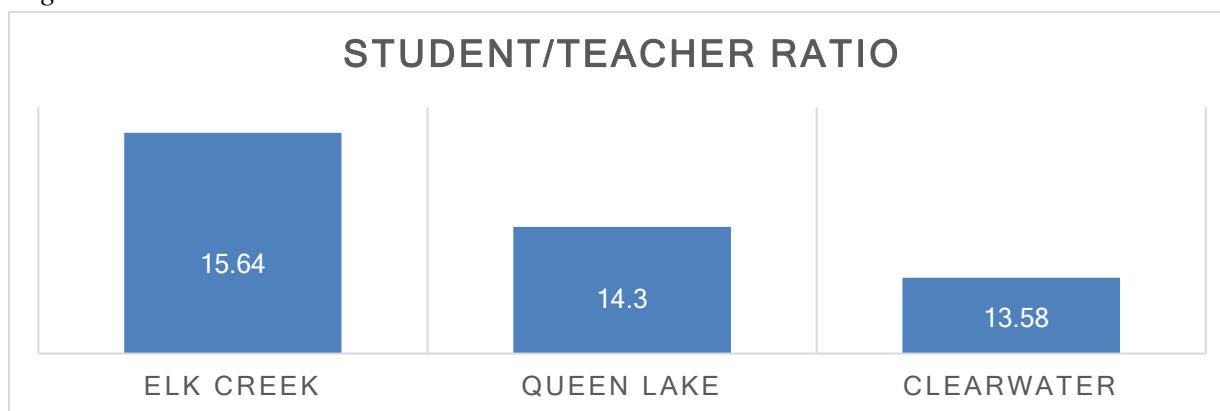
Figure 21:  
Middle School Level Average Teacher Salary



## High School Level

At the high school level, the student/teacher ratio ranged from 13.58 to 15.64 students per teacher. The results of the student/teacher ratio at the high school level are displayed in Figure 22. Elk Creek had the highest student/teacher ratio with 15.64 students per teacher. While Clearwater had the lowest student/teacher ratio with under 13.58 students per teacher.

Figure 22:  
*High School Level Student/Teacher Ratio*

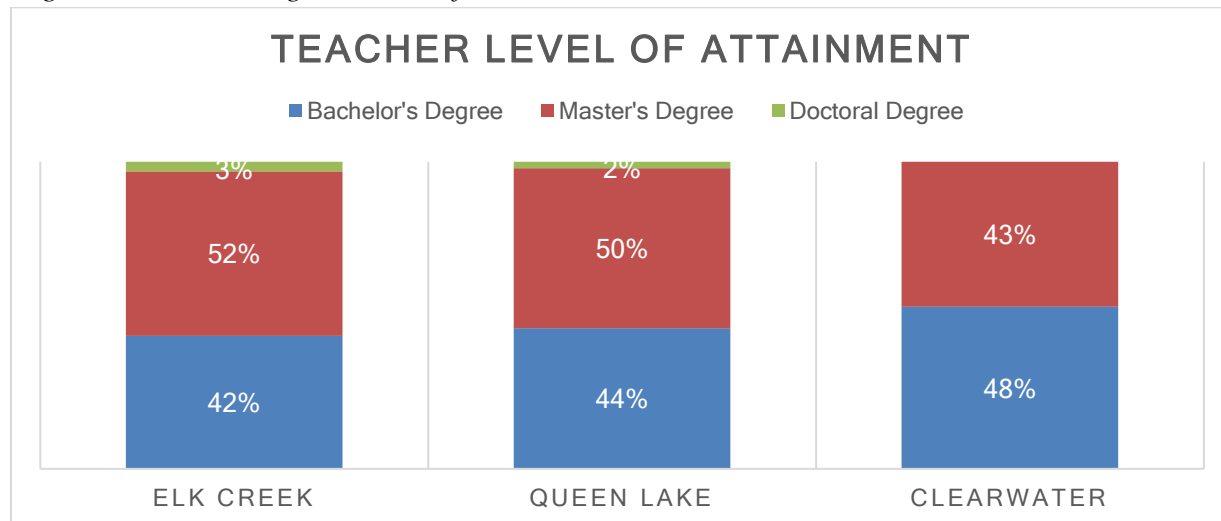


The results of the teacher level of attainment at the high school level are displayed in Figure 23. The researcher assumed that not all attainment levels were reported on the state department of education school report cards due to each school's percentages not adding to 100%. Of the data collected, Clearwater was the only high school to report not to have any teachers who earned a Doctorate. Queen Lake and Elk Creek had the highest reported teachers having earned a Master's.

The researcher examined, teacher licensure and experience, the results of the high school level are displayed in Figure 24. Elk Creek had the highest percentage of all teachers and special education teachers who were teaching with a provisional license. Otherwise, the three high

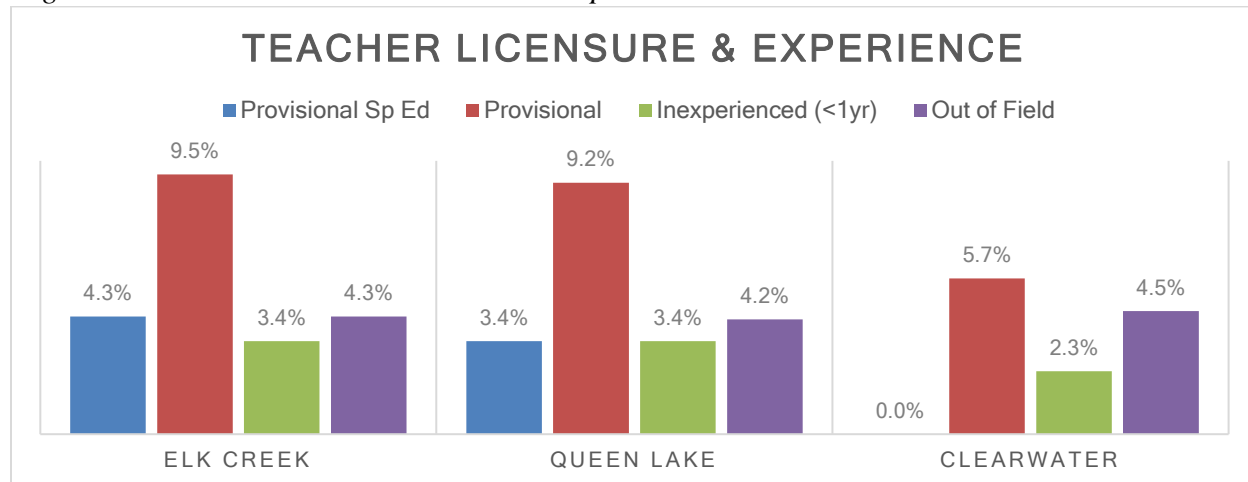
schools had similar percentages of inexperienced teachers having less than one year of teaching experience and teachers who were teaching outside of their certification field.

Figure 23:  
*High School Level Highest Level of Education*



The researcher collectively examined teacher licensure and experience. Overall, Clearwater had collectively the lowest percentage of the teachers as inexperienced, teaching outside of their certification field, or teaching with a provisional license. On the other hand, Elk Creek and Queen Lake had the highest collective percentages, of inexperienced teachers, teachers teaching outside of their certification, and teachers with a provisional license.

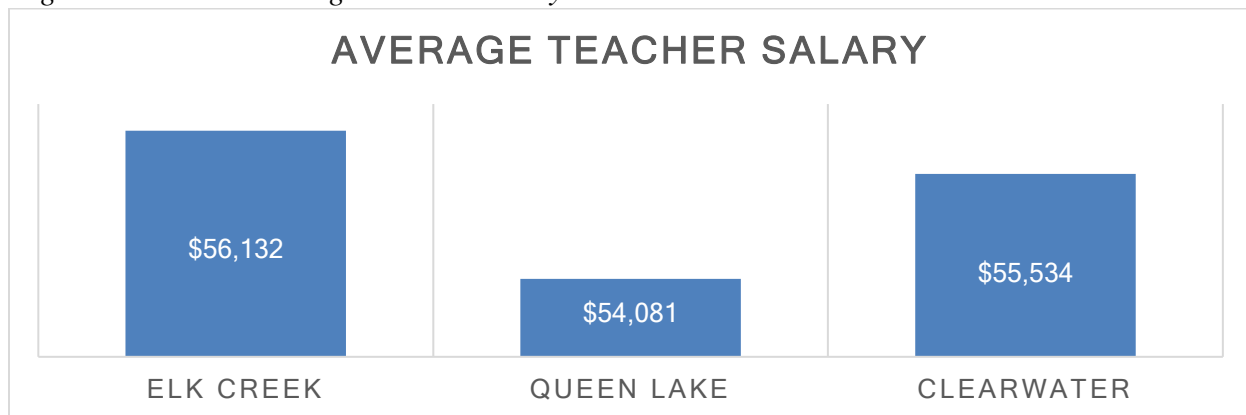
Figure 24:  
*High School Level Teacher Licensure and Experience*





The average teacher salary at the high school level ranged from \$54,081 to \$56,132. The  $\Delta$  of the high school with the lowest average teacher salary and the highest average teacher salary was \$2,051. The results of the average teacher salary at the high school level are displayed in Figure 25. Elk Creek had the highest average teacher salary of more than \$56,000. While Queen Lake had the lowest average teacher salary of \$54,081.

Figure 25:  
*High School Level Average Teacher Salary*



### Research Question 3

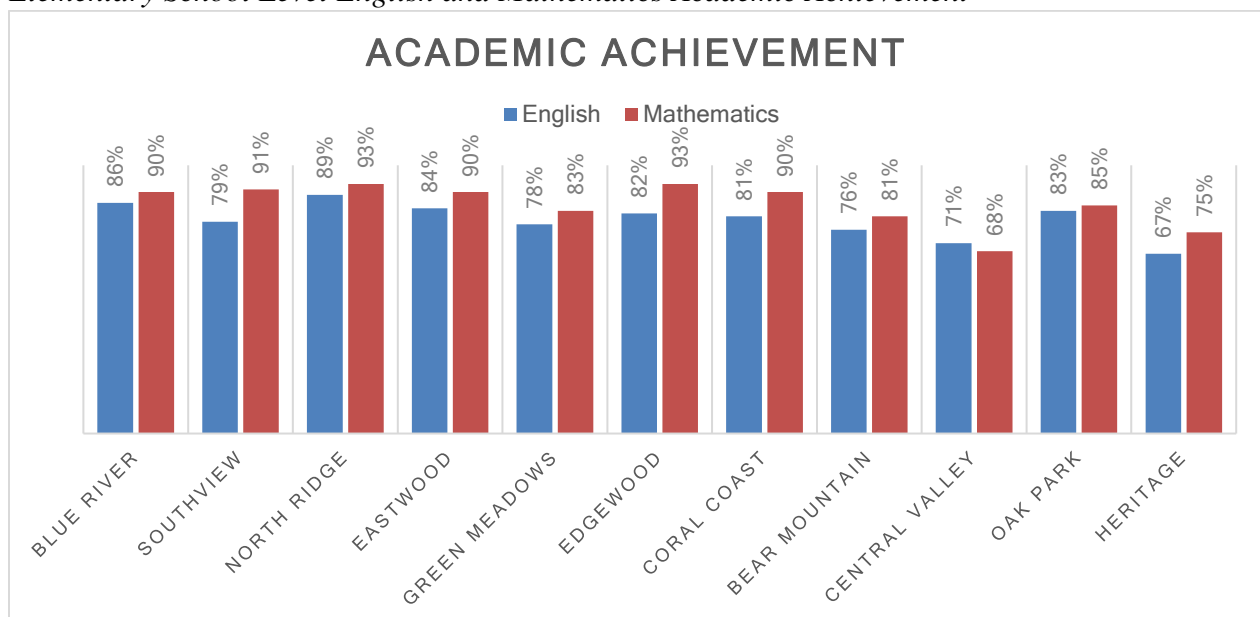
The third and final question of this study included: What is the association between funding and academic achievement at the elementary school level? middle school level? high school level? In order for the researcher to examine any associations between funding and academic achievement, data were collected on English and mathematics state assessment pass rates. Additionally, for the high school level, the researcher collected college and career readiness data, specifically focusing on graduation rates, dropout rates, and advanced program enrollment. The researcher collected available data from the state department of education school report cards for each school. The state department of education school report cards utilized a combined rate to evaluate academic achievement in English and mathematics at the elementary and middle schools. The combined rate included students who passed state

assessments in English and mathematics and non-passing students who showed significant improvement, including non-passing English learners making progress toward English. For high schools, the combined rate used to evaluate academic achievement in English included students who pass state assessments and English learners making progress toward English. Mathematics academic achievement at the high school was evaluated based on the percentage of students who passed the end-of-course assessments in mathematics.

### Elementary School Level

English and mathematics academic achievement as reported by the state department of education for the elementary school level can be found in Figure 26. Central Valley and Heritage had the lowest academic achievement in both English and mathematics at the elementary school level. Additionally, Heritage had the highest per-pupil expenditure of \$13,267 and Central Valley had the third-highest per-pupil expenditure of \$10,848. On the other hand, North Ridge had the highest academic achievement in both English and mathematics and had the third-lowest per-pupil expenditure of \$9,105.

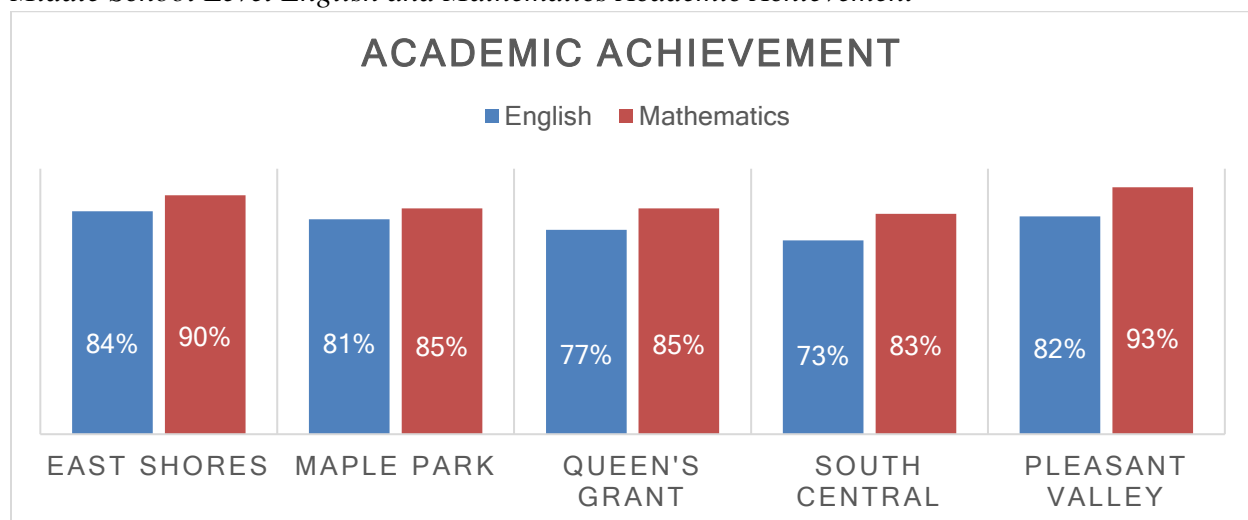
Figure 26:  
*Elementary School Level English and Mathematics Academic Achievement*



### Middle School Level

At the middle school level, South Central had the lowest academic achievement in both English and mathematics. Additionally, South Central had the second-highest per-pupil expenditure of \$11,371. Pleasant Valley had both the highest academic achievement in English and the highest per-pupil expenditure of \$11,739. East Shores had the highest academic achievement in mathematics and had the lowest per-pupil expenditure of \$9,306. English and mathematic academic achievement as reported by the state department of education for the middle school level can be found in Figure 27.

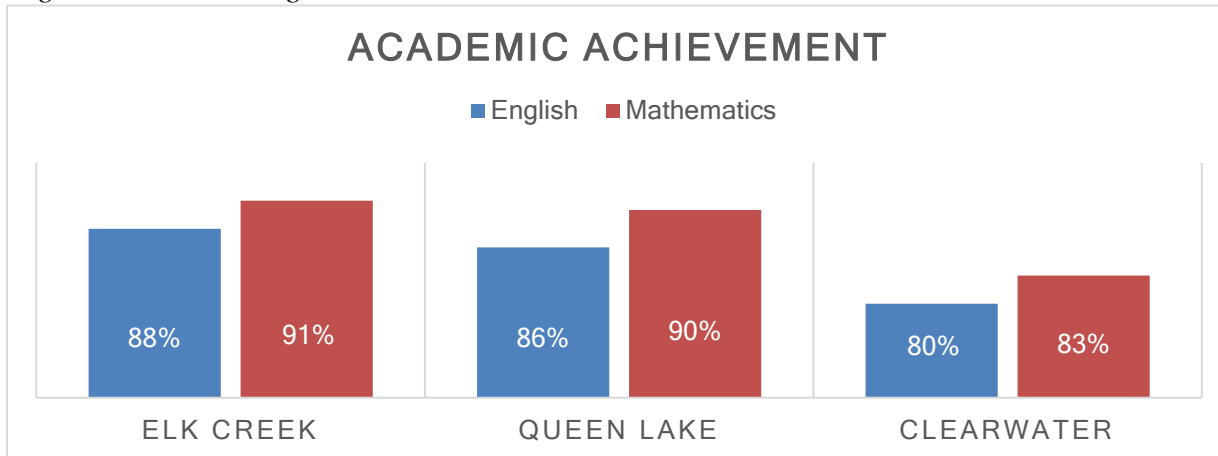
Figure 27:  
*Middle School Level English and Mathematics Academic Achievement*



### High School Level

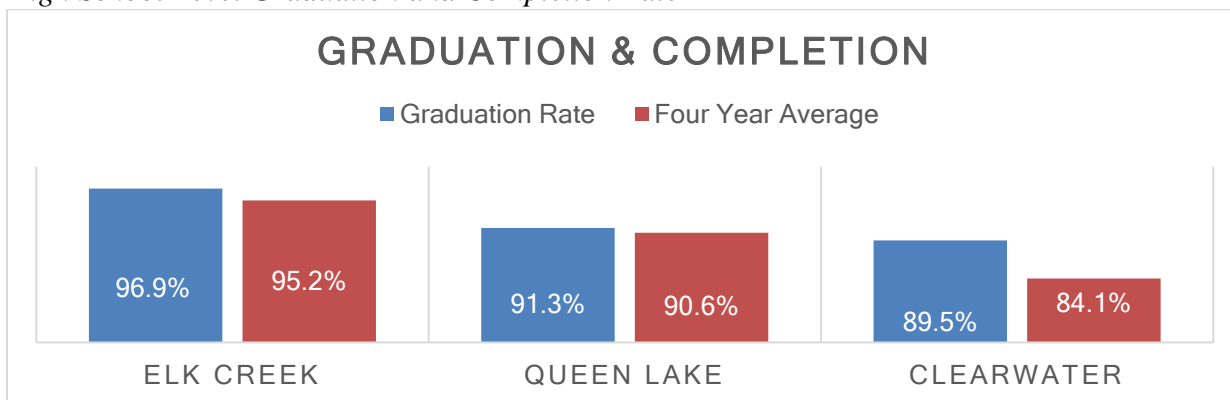
English and mathematic academic achievement as reported by the state department of education for the high school level can be found in Figure 28. Clearwater had the lowest academic achievement in both English and mathematics at the high school level. Also, Clearwater had the highest per-pupil expenditure of \$10,985. Elk Creek had the highest academic achievement in both English and mathematics and had the lowest per-pupil expenditure of \$10,286.

Figure 28:  
*High School Level English and Mathematics Academic Achievement*



At the high school level, the researcher examined additional college and career readiness data, specifically focusing on graduation and dropout rates. The state’s on-time graduation rate was based on four years of longitudinal student-level data. The formula recognized some students with disabilities and English learners were allowed more than the traditional four years to earn a diploma to still be counted as an “on-time” graduate. Each high school’s graduation and completion results are displayed in Figure 29.

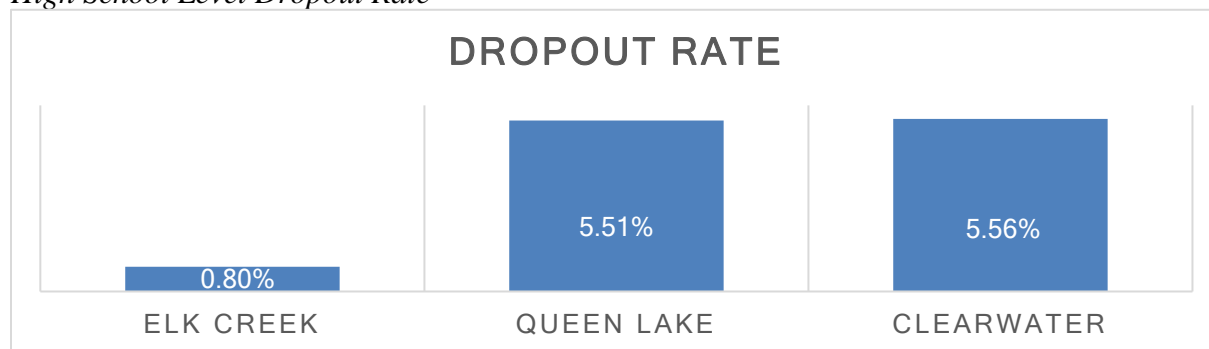
Figure 29:  
*High School Level Graduation and Completion Rate*



The high school’s four-year dropout rate was based on performance during the most recent year. The high school dropout rate of each high school can be found in Figure 30. Of the three high schools, Clearwater had the lowest graduation rate of 89.5% and the highest dropout

rate of 5.56%. Elk Creek has the highest graduation rate of 96.9% and the lowest dropout rate of 0.80%.

Figure 30:  
*High School Level Dropout Rate*



### Summary

The results of the data analysis for this quantitative study were explained in a narrative format including figures as evidence throughout this chapter. A comprehensive review of descriptive data was given as each research question was answered. The researcher examined the findings of each research question through an a priori lens. The researcher's assumptions suggested a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable. The first research question was created to examine any inequities in resource allocation of per-pupil expenditures at the elementary school level, middle school level, and high school level. The researcher examined the per-pupil expenditures at each school and also calculated the cents per dollar spent per pupil. According to the a priori lens created, the researcher found several slight differences and a few moderate differences among elementary schools spending when looking at the actual cents per dollar spent per pupil. At the middle school level when examining actual cents per dollar spent per pupil, the researcher noted a few slight differences. While at the high school level there were no distinguished differences when examining actual cents per dollar spent per pupil.

Additionally, the researcher used Verstegen's (2008) weighting recommendations for specific student enrollment subgroup categories and created three weight groups to compare per-pupil expenditures and uncover any inequities. When examining the difference in per-pupil expenditures with Verstegen's (2008) weighting of specific student enrollment subgroup categories of students with disabilities, students eligible for free or reduced-price lunch, and English learners, the researcher found several disparities. In each of the three groups of weights, the researcher found moderate and notable differences at the elementary school level, slight and moderate differences at the middle school level, and slight differences at the high school level. After examining the weighted per-pupil expenditures in each of the weight groups, the researcher exposed several inequities. At the elementary school, Bear Mountain and Central Valley had a higher per-pupil expenditure than Oak Park. Furthermore, at the middle school level, Pleasant Valley no longer had the highest per-pupil expenditure. South Central became the middle school with the highest per-pupil expenditure.

The second research question was created to examine any inequities in teacher quality across schools at the elementary school level, middle school level, and high school level. The researcher studied teacher licensure and experience, average teacher salaries, student to teacher ratios, and teacher attainment to compare teacher quality at each school. At the elementary school level, the school with the highest per-pupil expenditure and highest percentages of students eligible for free and reduced-price lunch, Heritage, had the highest average teacher salary, lowest student to teacher ratio, and had 0.0% of the teachers teaching with a provisional license, inexperienced teachers, and teachers teaching outside of their certification area. However, this was not the case for two other similar high-poverty schools, Bear Mountain and Central Valley. These two schools had among the lowest average teacher salaries and the

highest percentage of all teachers and special education teachers teaching with a provisional license and teachers teaching outside of their certification area. These two schools were also the only two schools to have inexperienced teachers at the elementary school level.

At the middle school level, Pleasant Valley, the only low-poverty middle school, had the highest per-pupil expenditure, the lowest percentage of students eligible to receive free or reduced-price lunch, and was the school with the highest average teacher salary. It also collectively had the lowest percentage of the teachers as inexperienced, teaching outside of their certification field, or teaching with a provisional license. While the only high-poverty middle school, South Central, had the highest percentage of students eligible to receive free or reduced-price lunch, the lowest average teacher salary, and the lowest percentage of teachers who earned a Masters or Doctorate. At the high school level, Elk Creek, the only low-poverty high school, had the highest average teacher salary and the highest percentage of teachers who earned a Master's or Doctorate. Contrarily, Elk Creek also had the highest student to teacher ratio and the highest percentage of all teachers and special education teachers teaching with a provisional license.

The third and final research question was created to examine if there was any association between funding and academic achievement across schools at the elementary school level, middle school level, and high school level. In order to answer this question, the researcher studied the English and mathematic academic achievement rates as reported by the state department of education for the elementary school level and middle school level. At the high school level, the English and mathematic academic achievement rates as reported by the state department of education were used in addition to college and career readiness data, specifically focusing on graduation and dropout rates. The researcher found across all school levels, the

schools with the lowest academic achievement rates were the high-poverty schools in need of the highest per-pupil expenditures. Additionally, at the high school level, the school with the lowest academic achievement, Clearwater, also had the lowest graduation rate and highest dropout rate.

After examining all three research questions, the researcher collectively found the most inequities at the middle school level and the least inequities at the high school level.

Furthermore, the data analysis for this quantitative study revealed results worthy of future investigation and provide implications for school district resources allocation practices. Chapter 5 will discuss the meaning of these findings in detail, the limitations, the delimitations, and recommendations for further research.



## Chapter Five: Conclusions

In this chapter, the researcher discussed the findings, limitations, and assumptions of the study and provided recommendations for future research. The purpose of this study was to measure the intradistrict distribution of educational resources of one mid-Atlantic school district through an equity audit. This quantitative study utilized an a priori lens designed by the researcher and analyzed the following research questions guiding this study.

*RQ1:* Is there a difference in resource allocation of per-pupil funding at the elementary school level? middle school level? high school level?

*RQ2:* Is there a difference in teacher quality at the elementary school level? middle school level? high school level?

*RQ3:* What is the association between funding and academic achievement at the elementary school level? middle school level? high school level?

The researcher's a priori guideline suggested a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable. This study aimed to add to the body of literature by addressing the gap in research related to intradistrict equity and adequacy of educational funding. The researcher's findings of this study are presented in this chapter separated by school level. Each research question is answered within the school level findings.

### **Elementary School Level**

At the elementary school level, the researcher found slight, moderate, and notable differences in resource allocation of per-pupil funding addressing the first research question. The total per-pupil expenditures at each of the 11 individual schools ranged from \$8,731 to \$13,267 with a  $\Delta$  of \$4,536. Heritage had the highest per-pupil expenditure followed by Oak Park with the second-highest per-pupil expenditure. In order to further examine any differences

in resource allocation of per-pupil funding, the researcher broke down the per-pupil expenditures into actual cents per dollar spent at each elementary school and found the  $\Delta$  of cents per dollar ranged from \$0.16 to \$0.34. Figure 5 illuminated these per-pupil spending disparities at the elementary school level.

After examining the per-pupil expenditures and cents per dollar at the elementary school level, the researcher utilized the a priori guidelines. The a priori guidelines designed by the researcher suggested there were slight and moderate differences in per-pupil spending at several elementary schools. Heritage, having the highest per-pupil expenditures, had a moderate difference in funding with five other elementary schools as well as a slight difference in funding with the remaining five other elementary schools. Furthermore, the researcher used the student enrollment subgroup category weighting groups and found even more resource allocation discrepancies. These adjusted per-pupil expenditures based on the weighting groups were presented in Figure 7.

Table 9  
*Elementary School Level Per Pupil Expenditures Ranking Highest to Lowest*

Actual PPE	Full Weighted	Half Weighted	Quarter Weighted
Heritage	Heritage	Heritage	Heritage
Oak Park	Central Valley	Central Valley	Central Valley
Central Valley	Bear Mountain	Bear Mountain	Bear Mountain
Bear Mountain	Oak Park	Oak Park	Oak Park
Coral Coast	Coral Coast	Coral Coast	Coral Coast
Edgewood	Edgewood	Edgewood	Edgewood
Green Meadows	Green Meadows	Green Meadows	Green Meadows
Eastwood	Eastwood	Eastwood	Eastwood
North Ridge	Southview	Southview	North Ridge
Southview	Blue River	North Ridge	Southview
Blue River	North Ridge	Blue River	Blue River

When the researcher weighted the per-pupil expenditures based on student enrollment subgroup categories, the funding affected the top four schools. Heritage remained the neediest school in all three weighting groups. This affirmed to the researcher, Heritage had the greatest lack of funding. However, once weighted, Central Valley and Bear Mountain had a greater need than Oak Park in all three weighting groups. This confirmed Central Valley and Bear Mountain required more per-pupil funding than Oak Park. The data showed Heritage, Central Valley, and Bear Mountain should have been similarly funded based on the student enrollment subgroup categories. Furthermore, when weighted in the first and second weight groups, Southview displayed a need for higher per-pupil funding than North Ridge. The adjusted per-pupil expenditures of the elementary schools ranked based on need are displayed in Table 9.

Table 10

*Discrepancies Between Per Pupil Expenditures at the Elementary School Level*

Elementary School	Slight	Moderate	Notable
Full Weighted	Central Valley Bear Mountain	Oak Park Coral Coast Edgewood Green Meadows	Eastwood North Ridge South River Blue River
Half Weighted	Bear Mountain Central Valley Oak Park	Eastwood Green Meadows Edgewood Coral Coast	Blue River Southview North Ridge
Quarter Weighted	Central Valley Oak Park Bear Mountain	Blue River Southview North Ridge Eastwood Green Meadows Edgewood Coral Coast	-

After weighting the per-pupil expenditures, the researcher found slight, moderate, and notable differences in per-pupil funding among the elementary schools when using the a priori guidelines. The results are displayed in Table 10. Using the weighting groups allowed the

researcher to uncover a number of inequities in per-pupil spending. Notable discrepancies were prominent in the first and second weighting groups. Whereas, moderate differences were common in the third weighting group. All elementary school level variations in per-pupil expenditures based on weighted student enrollment subgroup categories are displayed in Table 11.

When addressing the second research question, the researcher found slight and moderate differences in teacher quality across the elementary school level when examining teacher licensure and experience, average teacher salaries, student to teacher ratios, and teacher attainment. Bear Mountain had the highest percentage of teachers earning at least a Master's degree. The researcher found a slight difference in six schools and a moderate difference in four schools. Central Valley had the lowest percentage of teachers earning at least a Master's degree. The researcher assumed since Bear Mountain had the highest percentage of teachers earning at least a Master's, it would have had one of the highest average teacher salaries. Contrarily, Bear Mountain had one of the lowest average teacher salaries at the elementary school level. Overall, the researcher did not discover much variation in average teacher salaries at the elementary school level. There was a slight disparity between the highest average teacher salary at Heritage and the lowest average teacher salary at Green Meadows.

Heritage had the lowest student/teacher ratio while Southview and North Ridge had the highest student/teacher ratio. The researcher discovered a slight difference in student/teacher ratio at six schools and a moderate difference in student/teacher ratio at two schools. Lastly, Heritage and Eastwood had 0.0% of all teachers and special education teachers teaching with a provisional license. Additionally, Heritage and Eastwood had 0.0% of their teachers who were inexperienced or teaching outside of their certification area. The researcher uncovered a slight

Table 11:  
*Elementary School Level Variations in Per Pupil Expenditures Based on Weighted Student Enrollment Subgroup Categories*

School	Actual PPE	Cents Per Dollar	Full Weighted PPE	Cents Per Dollar	Δ	Half Weighted PPE	Cents Per Dollar	Δ	Quarter Weighted PPE	Cents Per Dollar	Δ
Blue River	\$8,731	\$0.66	\$11,197	\$0.52	\$2,466	\$9,964	\$0.57	\$1,233	\$9,348	\$0.61	\$617
Southview	\$8,867	\$0.67	\$11,625	\$0.54	\$2,758	\$10,239	\$0.59	\$1,372	\$9,556	\$0.63	\$689
North Ridge	\$9,105	\$0.69	\$11,082	\$0.52	\$1,977	\$10,093	\$0.58	\$988	\$9,599	\$0.63	\$494
Eastwood	\$9,234	\$0.70	\$12,280	\$0.57	\$3,046	\$10,757	\$0.62	\$1,523	\$9,995	\$0.65	\$761
Green Meadows	\$9,645	\$0.73	\$13,542	\$0.63	\$3,897	\$11,593	\$0.67	\$1,948	\$10,619	\$0.69	\$974
Edgewood	\$10,291	\$0.78	\$13,703	\$0.64	\$3,412	\$11,997	\$0.69	\$1,706	\$11,144	\$0.73	\$853
Coral Coast	\$10,446	\$0.79	\$14,280	\$0.67	\$3,834	\$12,363	\$0.71	\$1,917	\$11,405	\$0.75	\$959
Bear Mountain	\$10,806	\$0.81	\$16,834	\$0.79	\$6,028	\$13,820	\$0.80	\$3,014	\$12,313	\$0.81	\$1,507
Central Valley	\$10,848	\$0.82	\$17,632	\$0.82	\$6,784	\$14,240	\$0.82	\$3,392	\$12,544	\$0.82	\$1,696
Oak Park	\$11,156	\$0.84	\$15,230	\$0.71	\$4,074	\$13,193	\$0.76	\$2,037	\$12,175	\$0.80	\$1,019
Heritage	\$13,267	\$1.00	\$21,394	\$1.00	\$8,127	\$17,330	\$1.00	\$4,063	\$15,281	\$1.00	\$2,014

difference in the percentage of all teachers and special education teachers teaching with a provisional at three elementary schools. There was no difference found based on the a priori guidelines with inexperienced teachers or teachers teaching outside of their certification area.

Furthermore, the researcher found an association between funding and academic achievement at the elementary school level when addressing the third research question. The four high-poverty elementary schools, Heritage, Bear Mountain, Central Valley, and Green Meadows, had the lowest academic achievement percentages. These four schools also had the largest student enrollment populations of subgroup categories. Additionally, three of those four schools were identified in research question one as needing the highest per-pupil expenditures across all three weight groups. On the other hand, the two schools, North Ridge and Blue River, with the highest academic achievement percentages when identified in research question one as needing the lowest per-pupil expenditures according to the first and second weight groups. These two schools were also the only two non-Title I elementary schools in the district. Moreover, these two schools also had the smallest student enrollment populations of subgroup categories. One of the two schools was identified as the only low-poverty school in the district.

When examining the three research questions for the elementary school level, the researcher found slight, moderate, and notable differences when utilizing the a priori guidelines for this study. The researcher assumed the high-poverty schools with similar student enrollment subgroup categories would have similar per-pupil expenditures. Additionally, the researcher assumed the one low-poverty school with the lowest student enrollment subgroup category would have had the lowest per-pupil expenditures. This was not the case for either assumption. However, when the researcher weighted the student enrollment subgroup categories the assumptions reflected accurately based on the needs of the schools in all three weight groups.

The four high-poverty schools had the greatest  $\Delta$  in funding discrepancies. While on the other hand, the low-poverty school had the smallest  $\Delta$  in funding discrepancies. It looked as if the district had well intentions of focusing the per-pupil funding needs on Heritage. Unfortunately, they missed the mark when it came to Bear Mountain and Central Valley. The researcher's findings exposed a number of inequities and inadequacies of per-pupil distribution at the elementary school level.

### **Middle School Level**

Addressing the first research question, the researcher found slight and moderate differences in resource allocation of per-pupil funding at the middle school level. The total per-pupil expenditures at each of the 5 individual middle schools ranged from \$9,306 to \$11,739 with a  $\Delta$  of \$2,433. Pleasant Valley had the highest per-pupil expenditure, followed by South Central. In order to further examine the variation in total per-pupil expenditures, the researcher calculated the actual cents per dollar spent at each middle school and found a  $\Delta$  of cents per dollar ranged from \$0.03 to \$0.21. The results for the middle school level are displayed in Figure 8.

After examining the per-pupil expenditures and cents per dollar at the middle school level, the researcher utilized the a priori guidelines. The a priori guidelines designed by the researcher suggested there were slight differences in per-pupil spending at a few middle schools. Pleasant Valley had a slight difference in funding with two other middle schools. Furthermore, the researcher utilized the student enrollment subgroup category weighting groups and found more resource allocation disparities. The middle school per-pupil expenditures were adjusted based on the three weighting groups. These expenditure variations were presented in Figure 10.

Table 12  
*Middle School Level Per Pupil Expenditure Ranking Highest to Lowest*

Actual PPE	Full Weighted	Half Weighted	Quarter Weighted
Pleasant Valley	South Central	South Central	South Central
South Central	Queen's Grant	Queen's Grant	Pleasant Valley
Queen's Grant	Maple Park	Pleasant Valley	Queen's Grant
Maple Park	Pleasant Valley	Maple Park	Maple Park
East Shores	East Shores	East Shores	East Shores

Once the researcher weighted the per-pupil expenditures according to the student enrollment categories, the adjusted funding affected Pleasant Valley the greatest. Pleasant Valley no longer had the highest per-pupil expenditures and as the weighting groups increased the need decreased. This confirmed Pleasant Valley was receiving more per-pupil expenditures than its needier counterparts. South Central revealed needing the highest amount of funding in all three weighting groups. The middle schools ranked as a result of the adjusted per-pupil expenditures are displayed in Table 12.

Table 13  
*Discrepancies Between Per Pupil Expenditures at the Middle School Level*

Middle School	Slight	Moderate	Notable
Full Weighted	Maple Park Queen's Grant Pleasant Valley	East Shores	-
Half Weighted	Maple Park Pleasant Valley	East Shores	-
Quarter Weighted	Maple Park East Shores	-	-

After weighting the per-pupil expenditures, the researcher found slight and moderate differences in per-pupil funding across the middle schools when utilizing the a priori guidelines. The results are displayed in Table 13. Utilizing the three weighting groups illuminated funding



disparities among the middle schools. Moderate disparities were discovered in the first and second weighting groups. While slight differences were found in the third weighting group. All middle school level variations in per-pupil expenditures based on weighted student enrollment subgroup categories are displayed in Table 14.

The second research question examined differences in teacher quality across the middle school level. Slight differences were found in teacher quality when examining teacher licensure and experience, average teacher salaries, student to teacher ratios, and teacher attainment. The researcher discovered a slight difference in teacher attainment at three middle schools. Pleasant Valley had the highest percentage of teachers earning at least a Master's degree. As well as the highest average teacher salary at the middle school level. Overall, there was a slight variation between the middle school with the highest average teacher salary and the lowest average teacher salary.

South Central had the lowest student/teacher ratio while Maple Park had the highest student/teacher ratio. When examining the student/teacher ratio, the researcher discovered a slight difference between three schools and a moderate difference at one school. Lastly, Pleasant Valley had the lowest percentage of all teachers and special education teachers teaching with a provisional license while East Shores had the highest percentage. Additionally, Pleasant Valley and Queen's Grant had the highest number of inexperienced teachers and teachers teaching outside of their certification area while South Central had the lowest percentage. However, the researcher found no discrepancies in teacher licensure and experience based on the a priori guidelines.

Table 14:

*Middle School Level Variations in Per Pupil Expenditures Based on Weighted Student Enrollment Subgroup Categories*

<b>School</b>	<b>PPE</b>	<b>Cents Per Dollar</b>	<b>Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>	<b>Half Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>	<b>Quarter Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>
East Shores	\$9,306	\$0.79	\$11,936	\$0.67	\$2,630	\$10,621	\$0.73	\$1,315	\$9963	\$0.77	\$657
Maple Park	\$10,391	\$0.89	\$14,516	\$0.82	\$4,125	\$12,453	\$0.86	\$2,062	\$11422	\$0.88	\$1,031
Queen's Grant	\$10,753	\$0.92	\$15,680	\$0.89	\$4,927	\$13,217	\$0.91	\$2,464	\$11985	\$0.93	\$1,232
South Central	\$11,371	\$0.97	\$17,685	\$1.00	\$6,314	\$14,528	\$1.00	\$3,157	\$12949	\$1.00	\$1,578
Pleasant Valley	\$11,739	\$1.00	\$14,307	\$0.81	\$2,568	\$13,023	\$0.90	\$1,284	\$12381	\$0.96	\$642

Furthermore, the researcher found an association between funding and academic achievement at the middle school level when addressing the third research question. South Central had the lowest academic achievement percentages and was the only high-poverty middle school. South Central also had the largest student enrollment population of subgroup categories and was identified in research question one as needing the highest per-pupil expenditures across all three weight groups. While Pleasant Valley had the highest academic achievement percentages and the smallest student enrollment population of subgroup categories. Additionally, Pleasant Valley was identified as the only low-poverty middle school in the district.

When examining the three research questions for the middle school level, the researcher found slight and moderate differences when utilizing the a priori guidelines for this study. The researcher assumed the school with the lowest student enrollment subgroup category would have had the least per-pupil expenditures. In this case, it was the exact opposite. Pleasant Valley had the lowest need but received the highest per-pupil expenditures, had the highest average teacher salary, and had the highest academic achievement percentages. The researcher's finding illuminated various inequities and inadequacies of per-pupil distribution at the middle school level.

### **High School Level**

Addressing the first research question, the researcher found slight differences in resource allocation of per-pupil funding at the high school level. The total per-pupil expenditures at each of the 3 individual high schools ranged from \$10,286 to \$10,985 with a  $\Delta$  of \$699. Clearwater had the highest per-pupil expenditure, followed by Queen Lake. In order to further examine the variation in total per-pupil expenditures, the researcher calculated the actual cents per dollar

spent at each high school and found a  $\Delta$  of cents per dollar ranged from \$0.04 to \$0.06. The results for the high school level are displayed in Figure 11.

The researcher utilized the a priori guidelines when examining the per-pupil expenditures and cents per dollar at the high school level. The a priori guidelines designed by the researcher suggested there were slight differences in per-pupil spending at the high school level. Slight differences in per-pupil funding remained when the researcher applied the student enrollment subgroup category weighting groups. The high school per-pupil expenditures were adjusted based on the three weighting groups and the results were presented in Figure 13.

When the researcher weighted the per-pupil expenditures based on the student enrollment categories, Clearwater remained to need the most per-pupil expenditures as Elk Creek remained needing the least. However, what did vary, was the amount of per-pupil expenditures needed based on the student enrollment subgroup categories. Elk Creek has a smaller student enrollment population of the subgroup categories, while Clearwater and Queen Lake have a higher student enrollment population of the subgroup categories. Thus, the  $\Delta$  of the actual per-pupil expenditures and the needed per-pupil expenditures for the first group were notable for both Clearwater and Queen Lake. While the  $\Delta$  of actual per-pupil expenditures and the needed per-pupil expenditures for the second and third weight groups were slight. The high schools ranked as a result of the adjusted per-pupil expenditures are displayed in Table 15.

Table 15  
*High School Level Per Pupil Expenditure Ranking Highest to Lowest*

Actual PPE	Full Weighted	Half Weighted	Quarter Weighted
Clearwater	Clearwater	Clearwater	Clearwater
Queen Lake	Queen Lake	Queen Lake	Queen Lake
Elk Creek	Elk Creek	Elk Creek	Elk Creek

The researcher found only slight differences in per-pupil funding across the high school level after weighting the per-pupil expenditures when using the a priori guidelines. The results are displayed in Table 16. Utilizing the three weighting groups illuminated funding disparities among the high schools. Slight differences were found in all three weighting groups. All high school level weighted student enrollment subgroup category variations in per-pupil expenditures were displayed in Table 17.

Table 16  
*Discrepancies Between Per Pupil Expenditures at the High School Level*

High School	Slight	Moderate	Notable
Full Weighted	Elk Creek	-	-
Half Weighted	Elk Creek	-	-
Quarter Weighted	Elk Creek	-	-

Teacher quality differences at the high school level were examined by the second research question. The researcher found slight differences in teacher quality when examining teacher licensure and experience, average teacher salaries, student to teacher ratios, and teacher attainment. Elk Creek had the highest percentage of teachers earning at least a Master's degree while Clearwater had the least percentage. The researcher discovered a slight difference in teacher attainment at the high school level between Elk Creek and Clearwater. Elk Creek had the highest average teacher salary, while Queen Lake had the lowest average teacher salary. However, no disparities in average teacher salary were found according to the a priori guidelines at the high school level.

Clearwater had the lowest student/teacher ratio while Elk Creek had the highest student/teacher ratio. A slight difference in the student/teacher ratio was found between Clearwater and Elk Creek. Furthermore, Clearwater had the lowest percentage of all teachers and special education teachers with a provisional license whereas Elk Creek had the highest

Table 17:

*High School Level Variations in Per Pupil Expenditures Based on Weighted Student Enrollment Subgroup Categories*

<b>School</b>	<b>PPE</b>	<b>Cents Per Dollar</b>	<b>Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>	<b>Half Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>	<b>Quarter Weighted PPE</b>	<b>Cents Per Dollar</b>	<b>Δ</b>
Elk Creek	\$10,286	\$0.94	\$12,948	\$0.82	\$2,662	11617	0.87	\$1,331	10951	0.90	\$665
Queen Lake	\$10,513	\$0.96	\$14,739	\$0.93	\$4,226	12626	0.94	\$2,113	11569	0.95	\$1,056
Clearwater	\$10,985	\$1.00	\$15,827	\$1.00	\$4,842	13406	1.00	\$2,421	12196	1.00	\$1,211

percentage. Furthermore, Elk Creek had the highest number of inexperienced teachers and teachers teaching outside of their certification area while Clearwater had the lowest percentage. However, the researcher found no discrepancies in teacher licensure and experience based on the a priori guidelines.

Furthermore, the researcher found an association between funding and academic achievement at the high school level when addressing the third research question. Clearwater had the lowest academic achievement percentages at the high school level. Clearwater also had the largest enrollment population of subgroup categories and was identified in research question one as needing the highest per-pupil expenditures across all three weight groups. Furthermore, Clearwater had the highest dropout rate and the lowest graduation rate. On the other hand, Elk Creek had the highest academic achievement percentages and the smallest student enrollment population of subgroup categories. Elk Creek was identified in research question one as needing the lowest per-pupil expenditures across all three weight groups and was identified as the only low-poverty high school in the district. Moreover, Elk Creek had the lowest dropout rate and the highest graduation rate.

When examining the three research questions for the high school level, the researcher found slight differences when utilizing the a priori guidelines for this study. The district funded the three high schools with slight variation. However, the researcher assumed there would have been a larger disparity at the low-poverty school. Based on need, Queen's Lake and Clearwater had the greatest  $\Delta$  in funding discrepancies. While on the other hand, Elk Creek school had the smallest  $\Delta$  in funding discrepancies. The researcher's finding showcased several inequities and inadequacies of per-pupil distribution at the high school level.

### **District Recommendations**

In order to ensure intradistrict equity across the school levels, the district should consider inspecting the individual school per-pupil expenditures to determine whether or not funds are dispersed fittingly to warrant growth of academic achievement, particularly examining those schools with high per-pupil expenditures and low academic achievement. Additionally, the district should consider examining the student enrollment subgroup categories at each school to ensure per-pupil expenditures are dispersed across school levels equitably. Weighting student enrollment subgroup categories for individual schools will assist the district in ranking schools based on need. Once individual schools are ranked based on need the district should consider making equitable decisions regarding the allocation of fiscal resources. Moreover, the district should consider exploring the distribution of staffing resources across school levels, to ensure the inexperienced teachers, teachers teaching outside of their certification, and provisional licensed teachers are not staffed at the neediest schools. Additionally, the district should consider adjusting accordingly to increase teacher salaries to have more experienced teachers at the needier schools. Lastly, the district should consider examining the amount of money suggested to educate those student enrollment subgroup category populations to ensure they receive adequate funding per-pupil. Specific recommendations for the elementary school level, middle school level, and high school level in the district follow.

#### **Elementary School Level**

The researcher found slight, moderate, and notable disparities at the elementary school level. To improve intradistrict equity across the elementary schools the researcher has the following recommendations for the district to consider. The district should consider focusing specifically on the neediest schools, Heritage, Central Valley, Bear Mountain, and Green



Meadows. The district prioritized Heritage and appears to be making strides in the right direction, as Heritage was the school with the greatest need and received the highest per-pupil expenditures. Unfortunately, this was not the case for Central Valley, Bear Mountain, and Green Meadows. These three schools had notable and moderate discrepancies when utilizing the researcher's a priori lens. Additionally, the district needs to consider further examining how resources are being dispersed within those needy schools as these schools had the lowest academic achievement rates.

Furthermore, the district should consider focusing on teacher quality. Specifically looking at reducing the number of inexperienced teachers, teachers teaching outside of their certification, and provisionally licensed teachers at both Central Valley and Bear Mountain. The district should consider examining the voluntary transfer policy in addition to increasing teacher salaries. Adding stipends or increasing the base salary at those neediest schools would assist with incentivizing and retaining high-quality experienced teachers coming to and staying at high-needs schools to increase student academic achievement. Examining the district's voluntary transfer policy would prevent teachers from transferring from the neediest schools, thus leaving those schools with high teacher turnover rates.

Lastly, the district must take time to examine how per-pupil expenditures are allocated at the individual school level. Heritage had the highest per-pupil expenditures, yet it had the lowest academic achievement rate. This should signal the district to further examine where the resources are being allocated to optimize opportunities for student academic achievement. The four neediest schools, Heritage, Central Valley, Bear Mountain, and Green Meadows had the lowest academic achievement rates among the elementary school level and the district would

need to be intentional with how and where resources are allocated to increase student academic achievement.

### **Middle School Level**

When examining per-pupil expenditure through the a priori lens, there was less variance in per-pupil expenditures at the middle school level than at the elementary school level.

Although there was less variance, the researcher still found slight, moderate, and notable disparities at the middle school level. As a result of these variations, the researcher has the following recommendations for the district to consider to improve intradistrict equity across the middle school level. The district would benefit from focusing on the needier middle schools, South Central, Queen's Grant, and Maple Park. These three schools had the highest student enrollment subgroup categories population and the lowest student academic achievement. Additionally, these three schools had moderate and notable discrepancies when utilizing the researcher's a priori guidelines.

The district should consider prioritizing per-pupil expenditures to target those neediest schools to provide additional resources and support to increase student academic achievement. Providing those needier schools additional resources could level the playing field for disadvantaged students as identified in the student enrollment subgroup categories. Additionally, the district should be deliberate with how resources are to be allocated within the individual schools in order to focus on improving academic achievement. Therefore, it is recommended the district identifies where specific funds and resources are to be allocated. Additional resources must not be just allocated without a specific plan in place.

Furthermore, the district should consider examining teacher quality. It is recommended that the district looks at reducing the percentage of provisionally licensed and inexperienced

teachers, in addition to reducing the percentage of teachers teaching outside of their certification. One way for the district to attract and retain high-quality teachers would be to increase base salaries or provide stipends for teachers at those needier schools. Increasing base salaries or providing stipends could incentivize teaching at schools with large percentages of disadvantaged and at-risk students. The district should consider examining its voluntary transfer policy and making any necessary adjusts to reduce the number of teachers transfer out of those needier schools to reduce and prevent high teacher turnover.

### **High School Level**

The high school level had the least variance in per-pupil expenditures across all school levels when utilizing the researcher's a priori guidelines. The researcher found slight disparities in per-pupil expenditures at the high school level. This was surprising as the researcher discovered the schools served vastly different student enrollment subgroup category populations when the researcher further examined the high schools. The researcher expected to see a greater variance in per-pupil expenditures rather than similar funding to all high schools as a result. However, this was not the case and in order to improve intradistrict equity across the high schools, the researcher made the following recommendations for the district to consider.

The district would benefit from focusing on the two needier high schools, Clearwater and Queen Lake. The two needier high schools had the lowest achievement rates and graduation rates, in addition to the highest dropout rates. It is recommended the district should consider not only providing more per-pupil expenditures and resources to these needier high schools but also be intentional on how the expenditures and resources are allocated to increase academic achievement and graduation rates. The district would need to be deliberate about how and where

fiscal resources are allocated across schools to be vigilant in improving academic achievement, graduation rates, and reducing the dropout rates for these schools.

Furthermore, the researcher suggests the district consider examining teacher quality. The district should consider reducing the number of provisionally licensed teachers, inexperienced teachers, and teachers teaching outside of their certification. Additionally, the district should consider implanting policies that ensure high-quality teachers are teaching at those needier schools. Reducing the number of provisional, inexperienced, and teachers teaching outside of their certification would provide a higher quality education for students who need it the most. Furthermore, the district should consider increasing teacher's base salaries or providing stipends to those teachers at the needier schools serving the higher student enrollment subgroup category populations. Increasing teacher salaries or providing stipends for teachers at the needier schools would also assist with recruiting and retaining high-quality teachers. Lastly, the district should consider examining its voluntary transfer policy to include limitations for teachers transferring from those needier schools.

### **Limitations, Delimitations, and Assumptions**

Despite this study's findings, several limitations and delimitations need to be addressed to fully appreciate the depth of the results. First, the district chosen for this study had a small sample size of only nineteen schools. Furthermore, when looking at each school level, there were only three high schools. Due to the relatively small sample size, some inequities may have remained hidden. Determining funding inequities across a small sample size are more difficult than those with a large sample size. Having a larger sample size allows the researcher to compare and examine a variety of variables with a more accurate measure and also the

identification of outliers that could skew data of a small sample as well as provide a smaller margin of error.

The elementary school level had the largest sample size and revealed the most inequities and inadequacies. The high school level had the smallest sample size and presented the least inequities and inadequacies. Additionally, hidden inequities within schools or among specific populations of students were unknown. Hidden inequities such as access to high-quality teaching, academic rigor, personalized time and attention, and quality of instructional resources were unable to be accounted for. Additionally, household incomes, parent involvement, and accessibility to school supplies play a role in student success and could not be accounted for thus remain hidden.

Even though ESSA required school districts to report school-specific data on the school report card, not all data were readily accessible. Not all data were found on the school report card nor were all data available for the 2018-2019 school year. Specific student-level data were also unavailable, which left the researcher to stack student enrollment subgroup category weight groups. Moreover, the researcher was unable to identify the breakdown of school-specific categorical spending. This left the researcher to assume all schools across each level spent their school level funding similarly.

There were also a few delimitations the researcher needed to consider when conducting this research study. First, since no other research study of its kind had been conducted to date, the researcher created a set of suggested a priori guidelines to measure equity and adequacy. Unfortunately, being that the a priori guidelines were created by the researcher, they are not yet vetted. Thus, the a priori guidelines serve as suggestions as there was no baseline for what was considered to be a slight, moderate, or notable disparity.

### **Recommendations for Future Research**

The study's findings, limitations, and delimitations provided points of reference for recommendations for future research to expand upon this study. For this study, the sample size contained only nineteen schools across all levels in the school district leaving as little as 3 schools to be compared. Further research may consider increasing the sample size by examining larger school districts with more schools at each level. This would give the study a larger sample size to examine intradistrict inequities and inadequacies.

Additionally, future research may consider including school-level student-specific data. This would allow the study to focus on the specific needs of each school and uncover any inequities and inadequacies among similar student populations. Also, unfortunately, the data for gifted and talented students were not publicly available for the researcher to examine. Future research including the percentage of gifted and talented student populations would help examine further inequities among student enrollment subgroup populations.

Furthermore, further research may consider examining specific school-level spending. Money matters to student achievement, sometimes. As a consequence, more recent work has shifted from the question of whether money matters to how money may promote achievement through the purchase of specific resources (Owings & Kaplan, 2010). School districts make the fiscal inequities between high-poverty and low-poverty schools worse by the ways they choose to spend the funds they do have. This shows true in this study, as the schools with some of the highest per-pupil spending, have the lowest academic achievement. Thus, the researcher recommends further research to examine the breakdown of per-pupil spending to determine where the funds are being spent. This will further guide how resource allocation can improve academic achievement.

Lastly, the a priori lens guidelines were designed by the researcher. The guidelines for the a priori lens suggest a 10% difference as slight, a 25% difference as moderate, and a 40% difference as notable. The researcher recommends further research to examine these a priori guidelines. Since there was no other research study like this to date the a priori guidelines were not able to be vetted in practice warranting further research. Further research may reveal the a priori guidelines need to be adjusted to accurately measure inequities across schools.

## Conclusion

Unfortunately, dollars do not tell the whole story. Previous research demonstrates students eligible to receive free or reduced-price lunch, students with disabilities, and English learners require more resources to educate. Although existing literature shares no consensus regarding exactly how much more, Verstegen's suggestions are a good starting point. One issue is clear, the importance to bridge the gaps of intradistrict inequity and inadequacy. Inequity and inadequacy in school funding must be quantified for all students, especially those in greatest need, to have access to the resources necessary to achieve academically. The days of Alpha and Omega intradistrict funding cannot continue in meeting all students' needs (Owings and Kaplan, 2010). Consequently, intradistrict resource allocation is a key factor in ensuring fiscal equity. Utilizing the a priori guidelines, the researcher's findings of this study did reveal slight, moderate, and notable differences in allocation disparities, teacher quality, and an association between funding and academic achievement among the elementary school level, middle school level, and high school level.



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