LOCAL GOVERNMENT SCHOOL FUNDING AND STUDENT ACHIEVEMENT IN

VIRGINIA SCHOOL DIVISIONS: A CORRELATIONAL RESEARCH DESIGN

by

Stanley Lee Schoppe, Jr.

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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APPROVED BY:

Meredith Park Ed.D, Committee Chair

Monica Huband Ed.D, Committee Member

ABSTRACT

This study examined the correlation between school division graduation rates and the percentage of expenditures above the required local effort (PEARLE) for all 133 school divisions located within Virginia in the fiscal years 2015–2018. This study aimed to discover whether increased local government school funding beyond the required local effort had a significant impact on the terminal completion of student achievement in the form of on-time graduation rates. The researcher conducted the study using a correlational bivariate data analysis. Convenience sampling was utilized to attain needed data for the study by collecting funding and graduation rate archived data for each of the 133 school divisions from the Virginia Department of Education website. The researcher calculated z scores and eliminated outliers by comparing z-score calculations to scatter plots. The researcher looked for the classic cigar shape. After eliminating identified outliers, the researcher implemented the correlational research design utilizing Pearson's correlation coefficient and analyzed PEARLE and on-time graduation rates using a ratio scale to measure the potential correlation between PEARLE and on-time graduation rates. The researcher failed to reject the null hypothesis for each fiscal year. Recommendations for future research include conducting the same study for fiscal year 2021 and beyond due to the elimination of the required local effort requirement and perform the same study both before and after COVID-19 in other states to compare to Virginia as each state collects the same data due to the passing of the Graduation Counts Compact.

Keywords: average daily membership, level of funding, local composite index, local per-pupil expenditures, graduation rates, required local effort, standards of quality

Copyright Page

Dedication

I would like to dedicate this manuscript to God and his Son, my personal Savior, Jesus Christ. I am so honored and humbled to have completed my terminal degree at the Lord's university, the largest Christian university in the world, who lives by the motto "Not I But Christ." Next, I would like to dedicate this dissertation to my beautiful wife, Barbara, and beautiful daughter, Dori, who have encouraged me to never give up during my entire journey. They have genuinely supported me and accepted the schedule sacrifices I had to make to officially earn the title I always dreamed of as a young child to attain, Dr. Stanley Lee Schoppe, Jr.

I would also like to thank God for providing me with the most incredible parents in the universe. My mom, Ellen, always taught me right from wrong. My dad, Stanley Sr., is my role model, and I am so thankful for his teachings and the work ethic he instilled within me at a young age. He is my hero, and I give him credit for giving me the tools necessary to become the man I am today. I am very blessed to have such a wonderful Christian family who loves one another, encourages one another, and puts their full faith and trust in God to love and serve him as we live our lives as born-again Christians pointing others to the cross in the hopes of producing salvation for others in this world.

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Next, I would like to acknowledge my education mentor, Dr. Kevin Newman, Superintendent of Manassas City Public Schools, who helped me recognize the need for and importance of studying school funding and student achievement in the state of Virginia. Finally, I would like to acknowledge my boss, Joe Parker, Partner/Owner of Parker Farms, and Accounting Manager Rhonda Kelsey for encouraging me to complete my dissertation journey even after a career change and helping me understand the impact my lessons learned from earning a doctorate in education can have in my current career field and society as a whole. Thank you all again for the encouragement, love, and guidance necessary to complete my dissertation journey!

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ACT   American College Testing

ADM   Average Daily Membership

ASR   Annual School Report

CARES   Coronavirus Aid, Relief, and Economic Security

CCLC   21st Century Community Learning Centers

CDC   Centers for Disease Control and Prevention

CEP   Community Eligibility Program

COVID-19   Coronavirus Disease 2019

DLAS   Division of Legislative Automated Systems

ELL   English Language Learners

ESSA   Every Student Succeeds Act

LCI   Local Composite Index

NCLB   No Child Left Behind

NEA   National Education Association

OMEGA   Online Management of Education Grant Awards

PEARLE   Percentage of Expenditures Above Required Local Effort

RLE   Required Local Effort

RTI   Response to Intervention

SAT   Scholastic Assessment Test

SOL   Standards of Learning

SOQ   Standards of Quality

VDOE   Virginia Department of Education

VTSS   Virginia Tiered Systems of Supports

CHAPTER ONE: INTRODUCTION

Overview

This study explores the correlation between school division locality funding and graduation rates. It analyzes the potential relationship between school system local funding in the form of the percentage of expenditures above the required local effort (PEARLE) and student achievement, as measured by graduation rates. The research focuses on the four-year historical potential relationship between local school funding and achievement of all 133 Virginia school divisions (Virginia Department of Education, n.d.h). This chapter discusses the driving forces behind the funding of public schools in Virginia, presents the problem and purpose statement for the study, explains the significance of the funding study, defines the research question, and presents key terms important for readers to understand when reading about the research and its results.

Background

Federal, state, and local funds provide Virginia school divisions with the financial resources necessary to meet the state standards of quality. These state education standards are the blueprints for educators to follow. They ensure students have the proper tools required to achieve the state's outlined objectives and competencies, signifying mastery of specific coursework. The standards also assist in providing for stakeholders' equitable needs by helping them mold students into model citizens prepared to perform successfully in jobs after graduation (Lin & Couch, 2014; Lou et al., 2018). State funding typically offers the most considerable amount of funding for school divisions and is based on the average daily student membership of a respective school division versus actual student enrollment (Lin & Couch, 2014; Lou et al., 2018). The average daily membership formula is calculated based on the average daily student attendance beginning on the first day of school through the last day of March (Virginia

Department of Education, 2017b). The calculation divides student attendance by the number of days in the current school year to determine the number of entitlement dollars received by the state school systems for a designated fiscal year (Virginia Department of Education, 2017b). Local funding also provides a significant portion of school revenue and is driven by the local composite index. This funding model asserts that the higher the index, the less the state will fund its school systems, requiring specific Virginia local county governments to deliver additional funding toward any deficiency funding caused by the change in the local composite index (Virginia Department of Education, 2017b).

Historically, the state has had an enormous responsibility for ensuring sufficient funding of school systems; however, recently, there has been an increased shift of responsibility to localities to provide needed funding for their respective school divisions and oversee the "finance and operations to their local school districts" (Kreisman & Steinberg, 2019, p. 118). The extra burden placed on localities to provide additional funding increases each locality's required local effort, which is a locality's obligation to finance its respective school division to assist with meeting the standards of quality set forth by the state (Lou et al., 2018; Virginia Department of Education, 2019). Relationships established and sustained, whether positive or negative, between school divisions and their respective localities determine the amount of funding school divisions receive; however, each local government must at least fund its required local effort (Lou et al., 2018; Virginia Department of Education, n.d.b). The fiscal capacity of the state and its localities has recently been improving steadily, moving in the right direction after the Great Recession (Owings & Kaplan, 2019). Therefore, it is possible to provide extra funding to assist with increasing graduation rates, assuming school systems can effectively and efficiently align fiscal resources to produce students who can master the standards of quality, which is school divisions'

established objectives for assessing student mastery in the subjects of math, science, history, and reading (Instructional Programs Supporting the Standards of Learning and Other Educational Objectives, 2019). Upon achieving these stated objectives, each graduating student receives approval from the Virginia Department of Education, stating their accomplishment of high school graduate to productive citizen (Black, 2017).

School funding sources across the nation have shown, on average, that school budgets are composed of of state tax dollars (56%), followed by local dollars (35%), and finally, federal dollars (9%; Lin & Couch, 2014; Lou et al., 2018). Each of these funding sources is critical for school systems to maximize their potential for student achievement (Lin & Couch, 2014; Lou et al., 2018). State tax dollars for school divisions in Virginia are controlled by each school division's average daily membership (Virginia Department of Education, n.d.c). The large percentage of state dollars supporting education is a result of the Every Student Succeeds Act, which replaced the No Child Left Behind Act of 2002 (Black, 2017). The change in legislation resulted in the reduction of the role of the federal government in providing funding and support to school systems in Virginia. This new legislation places an increased responsibility on states to ensure students' and stakeholders' equitable needs are met (Black, 2017; Fletcher et al., 2018). The Every Student Succeeds Act increased transparency for stakeholders in Virginia regarding funding and student achievement reporting. The new school report card tool assists parents and other stakeholders by offering easy-to-read, detailed data showing how funds are spent across each school division and the individual student results by grade level (Klein, 2018a). The Every Student Succeeds Act also forces school systems to allocate specific received funding equitably across each school within the school division to ensure each school receives adequate funds to help all students achieve their very best (Klein, 2018a).

In many states, research has been conducted on the relationship between school funding and student achievement. These studies have produced mixed results regarding the impact of increased school funding on student achievement (Lin & Couch, 2014; Ray & Lao, 2019). Measured variables significantly impact student achievement; for example, research has identified strong positive effects of family income and teacher salaries on SAT scores (Lin & Couch, 2014) and minimal positive results for achievement on high-stakes state assessments for economically disadvantaged students (Ray & Lao, 2019). The measure of school funding on student achievement often centers on test scores; however, it has been demonstrated that "test scores are imperfect measures of students' true knowledge, and research suggests that they can fail to predict later-life outcomes, such as adult wages" (Bjorklund-Young, 2017, p. 4). Some students are proven to be poor test takers who cannot properly display their knowledge and understanding of critical concepts due to possible test anxiety (Lin & Couch, 2014). Therefore, graduation rates serve as a more robust measure of student success due to their finality. They are often the ultimate goal of students as they move toward becoming productive citizens in society (Neymotin, 2010).

The next generation must work hard to become prepared for continuously changing jobs driven by technological advancement amid the challenges presented by reduced state and federal funding. These factors a substantial burden on each locality to do their part toward helping students receive the resources necessary to achieve their absolute best (Black, 2017). The reduction of federal funding available for school systems became even more evident as the No Child Left Behind Act was replaced by the Every Student Succeeds Act (Heise, 2017). This change places a higher level of accountability and responsibility for funding on the state and local governments, suggesting an even higher level of importance of positive relationships

between local governments and their respective school systems to meet the equitable needs of students and fellow stakeholders (Heise, 2017).

In research exploring the relationship between local funding and student achievement, governmental tax restrictions have shown adverse effects on student performance as they have "increased pupil-teacher ratios and reduced starting salaries for teachers" (Sander, 1999, p. 224). Other studies have inversely echoed same results as school systems have acquired effective teachers with strong pedagogy. The hard work of these highly dedicated educators has led to positive student achievement on testing assessments, including SAT scores and state standard high-stakes assessments (Elliott, 1998; Lin & Couch, 2014; Sander, 1999). Some studies support providing extra funding to school divisions based on poor performance so the schools may use the funds to attempt to change negative findings into positive results (Carlson & Lavertu, 2018).

Additionally, research has been conducted on the potential positive impact utilizing a model of weighted student funding already used in countries such as the Netherlands could have for public schools in the United States (Ladd & Fiske, 2011). This model has helped many school systems by ensuring those school divisions with a larger percentage of struggling students receive additional funding to meet their equitable needs (Ladd & Fiske, 2011). Therefore, school systems in the United States located in areas of poverty with large populations of students qualifying for free or reduced-priced meals would receive extra funds to ensure the availability of additional resources, including adequate technological hardware and software and educator human capital required to duplicate the quality of education received in wealthy populated areas with low numbers of students enrolled in the free or reduced-price meal programs, thus producing equal-quality schooling throughout the United States (Ladd & Fiske, 2011).

The weighted student funding model also presents a potential solution for school systems with many English language learners (Ramirez et al., 2014). Historical research in finance has provided vital data supporting the need for future studies to assess whether specific local governments are providing for the equitable best interest of students due when they only supply the required local effort to their respective school divisions (Ladd & Fiske, 2011; Ramirez et al., 2014). By utilizing the local government perspective to assess the weighted student model, it can be determined whether the required local effort truly considers specific student needs and not just the average of students' general population. The latter does not fully provide for students' equitable best interest and is not adequate to maximize graduation rates.

Human capital theory serves as the theoretical framework for this study. The approach promotes utilizing education to help humans implement what they have learned to achieve excellent productivity and maximize earning potential (Galiakberova, 2019; Marginson, 2017; Mincer, 1958). Human capital theory drives other theories, including equity and adequacy theories, by providing support for the idea that individuals can attain and implement the resources necessary to accomplish established goals and objectives essential for achieving economic growth (Peers, 2015). In the United States, the ultimate goal of education is for students to graduate on time and attain their desired career outcomes (Waynor et al., 2018). The human capital theory recognizes teachers as the primary source of help for students to maximize their potential. Thus, concentrating on teacher experience and assuring teachers have adequate professional development opportunities increase teacher human capital, ensuring their growth and quality, as well as creating a trickledown effect to produce positive student growth (Ost, 2014). High-quality professional development helps teachers hone their craft, strengthen their

instructional abilities, provide students with equitable best interest, and meet their needs with fidelity (Seraphin et al., 2017).

Research has found that using test scores to measure academic achievement could lead to biased results. Therefore, these forms of assessments are not the most effective measurement for student achievement, as these forms allow for student guessing and do not measure actual application of learned knowledge (Jackson et al., 2016; Nicoletti & Rabe, 2017). The potential bias of these assessments establishes on-time graduation rates as a more effective method for measuring student achievement. It serves as the terminal approval, signaling students have officially achieved the requirements outlined in the curriculum (Jackson et al., 2016; Nicoletti & Rabe, 2017).

With the influence of equity and adequacy in education, human capital theory supports a well-developed, positive relationship between local governments and their respective school divisions (Carlson & Lavertu, 2018; Sheldon, 2007). This form of investment alongside state funding is vital for increasing student success as measured by graduation rates. Adequate state and local funding ensures students' ability to attain the appropriate resources to enhance the skills they will need to succeed after high school (Carlson & Lavertu, 2018; Sheldon, 2007). These funding sources are more effective than federal funding. Fewer restrictions are placed on school systems for spending state and local dollars, which immensely helps struggling school systems looking to increase student achievement (Carlson & Lavertu, 2018; Sheldon, 2007). As legislation has moved from No Child Left Behind to the Every Student Succeeds Act, federal funding has declined tremendously. The federal government has placed an immense amount of responsibility on state governments to meet the needs of educating students (Heise, 2017). Thus,

utilizing human capital theory to support student resource equity and adequacy to maximize their potential is highly dependent on state and local government funds (Heise, 2017).

Ensuring adequate school funding for meeting students' equitable needs is critical, as "education is a major contributor to a community's economic health" (Owings & Kaplan, 2004, p. 10). Many stakeholders view maximizing local dollars for education as an investment in student success with the hopes of producing on-time graduation and students who become contributing citizens within their communities. As localities consider providing dollars beyond the required local effort, this is the return on investment most individuals and groups expect. The relationship between local funding levels and student achievement can be measured, providing unbiased results for school system effectiveness in meeting equity and adequacy for the tested 133 Virginia school divisions (Ray & Lao, 2019). The relationship between the variables of received local funding and graduation rates is critical. Without funding, graduation rates drop (Jackson et al., 2016; Nicoletti & Rabe, 2017). Human capital theory serves as the driving force for analyzing student achievement's potential increase as measured by graduation rates. Graduation is the terminal approval used to assess whether each graduate is genuinely ready to success as a productive model citizen (Jackson et al., 2016; Nicoletti & Rabe, 2017).

Problem Statement

Previous research has analyzed the role of funding in meeting students' academic needs, most specifically at-risk youth and disadvantaged students, through small class sizes and a focus on strong test scores (Clark et al., 2017). However, this analysis of proper funding and student achievement has not been the most effective. Tests as a measure of student achievement are relatively imperfect when compared to an ultimate culmination of student achievement in the form of on-time graduation rates (Bjorklund-Young, 2017; Jackson et al., 2016; Nicoletti &

Rabe, 2017). Scholars have studied the impact of extra funding on student achievement for disadvantaged pupils in Texas and Georgia (Kreisman & Steinberg, 2019; Ray & Lao, 2019). The scholars analyzed the effects state-specific school funding formulas have on student achievement in the form of test scores, graduation rates, dropout rates, and college enrollment (Kreisman & Steinberg, 2019; Ray & Lao, 2019). The researchers found a positive correlation between school funding and student achievement and stated the importance of teacher quality for student achievement. They also found that educational funding played an essential role in teacher quality and called for future research on the impact of funding on student achievement in other states as well (Kreisman & Steinberg, 2019; Ray & Lao, 2019).

Recently, Virginia has celebrated an increase in graduation rates, as "more than nine out of ten students who entered the ninth grade in 2014 earned a diploma within four years" (Virginia Department of Education, 2018b, para 1). Recent innovative research has proposed rewarding school systems achieving this type of success by providing monetary bonuses to educators involved in their schools' success and sanctions to school systems not meeting the mark (BenDavid-Hadar, 2018). This method would increase localities' confidence in their respective school divisions to perform their due diligence to receive even more local funds for assisting students. This way, schools would attain the most up-to-date resources, helping students achieve success beyond graduation.

Research has been conducted throughout the United States on the effects of school funding on graduation rates (Neher et al., 2017). However, in the current decade, difficulties have arisen due to the lack of consistency and standardization among states (Neher et al., 2017). In 2005, governors from all 50 states signed the Graduation Counts Compact, establishing consistency in the calculation of received funding compared to graduation rates (Neher et al.,

2017). The signing of the Graduation Counts Compact resulted in reliable annual reporting requirements and proper collection and analysis of data by local governments and school divisions (Neher et al., 2017). However, it was not until the 2010–2011 school year that school systems and their localities were able to truly benefit from the data collection, as they were required to work through the presented challenges incurred through the full implementation of the rigorous process to attain the relevant and reliable data.

Lack of significant available research in Virginia places at the forefront the need to understand the effects of each school locality's required local effort and whether extra funding and support lead students to graduate. Previous research has called for studies analyzing the impact of funding on graduation rates, which will help address the research gap (Clark et al., 2017). On-time graduation serves as the ultimate culmination of student learning and is often overlooked in researching student achievement (Bjorklund-Young, 2017; Jackson et al., 2016; Nicoletti & Rabe, 2017). School systems in Virginia receive funding above the required local effort; however, more research needs to be done to show whether a relationship between school systems having a larger PEARLE leads to increased graduation rates. The problem is that currently, there is no definitive research providing results for the effects funding has on graduation rates for the 133 Virginia school divisions.

Purpose Statement

The purpose of this quantitative correlational research is to analyze the potential relationship between local government funding and student achievement for Virginia public school divisions. In this study, the researcher measures local government funding in the form of PEARLE, the rate of dollars given by localities to their respective school systems beyond the obligation of funding for assisting with meeting the standards of quality set forth by the state of

Virginia (Virginia Department of Education, n.d.c). The achievement is measured in the form of

on-time graduation rates determined based on the average number of students who receive an

approved diploma by the Virginia Board of Education within four years of entering ninth grade

(Virginia Department of Education, 2019e). This study examines graduation rates and PEARLE

for the 133 Virginia school divisions (Virginia Department of Education, 2019f). Data from four

fiscal years ranging from 2015 to 2018 were analyzed (Virginia Department of Education, n.d.g).

Data on the required local effort and actual locality-provided funding were obtained from the

Virginia Department of Education and were released ex post facto (Virginia Department of

Education, 2019d).

The population of the 133 Virginia school divisions used in the study vary significantly in

size (large differences among average daily membership), location (rural versus urban), and

monies received for state and local funding (based on average daily membership, local composite

index, and required local effort; Virginia Department of Education, n.d.h). These factors will not

eliminate any respective school division's inclusion within the convenience sample (Virginia

Department of Education, n.d.h). All 133 school divisions are represented in the researcher's

study because all four fiscal years of archived data are publicly available through the Virginia

Department of Education.

This study analyzes the current political environment and how it drives the amount of

funding needed to provide for the equitable best interest of students by ensuring school divisions

have the required financial resources necessary to adequately meet student and individual

stakeholder needs (Lin & Couch, 2014; Lou et al., 2018). Teaching students the importance of

school attendance plays a significant role in student success both in school and after graduation

(Rocque et al., 2016). Because of these factors, graduation rates have become a critical

measurement device for ensuring student achievement and adequate preparation for success after high school. This study attempts to verify the assumption of the relationship between increased school funding measured in the form of PEARLE and increased graduation rates.

Significance of the Study

This study focuses on school systems in Virginia, as there is a wealth of data and lack of research; as well as current data showing "Virginia provides low-income students with 14 to 19 percent more than other students, which is about half the 29 percent other states give on average" (Llovio, 2016, para 2). This study is critical to the field of education and specifically to public school divisions in Virginia due to the recent increase in many school divisions' local composite index across the most recent 2018–2020 biennium projection (Virginia Department of Education, n.d.b). The increase in the local composite index, combined with reduced state funding and the continual decrease of available federal funding, has caused school divisions to rely on their local governments to fill in the gap of lost funding (Black, 2017). Research results provide a blueprint for other states, allowing other researchers to replicate the study to see if a similar relationship between local funding and graduation rates per the nationally agreed-upon formula stated in the Graduation Counts Compact is found in their states (Neher et al., 2017). The results from this study could point fellow researchers in a different direction, as they may wish to focus on federal and state funding rather than local funding as a variable for study. Other areas of potential future research include student achievement measurements in other forms such as test scores, the ability of students to find a job after graduation, or ease of acceptance into college or trade school.

Local funding is received in varying amounts. Studying different funding categories in Virginia can help address the research gap by determining whether increased funding leads to higher student achievement. The study of school funding in support of student achievement can

potentially help the economy in the long run. This study is critical since education "has a synergistic effect on the economy" (Owings & Kaplan, 2004, p. 10). High-quality education promotes an increase in productive citizens caring for their respective communities, thereby assisting in the decline of the need for social programs driven by public assistance, which drain community economic resources (Owings & Kaplan, 2004). Understanding the potential impact increased local funding has on graduation rates provides a blueprint of data for future researchers to test different areas to see if similar results are attained. These results could help school systems and localities develop positive relationships and ensure school systems receive adequate local funding to meet students' and stakeholders' equitable needs, especially in Virginia.

Local governments want to ensure each local dollar provided is indeed needed. They want to ensure their money supports the actual goal, graduation, rather than an ineffective variable such as test scores, which is an imperfect measure of success. Local governments want to eliminate wasteful spending (Jackson et al., 2016; Nicoletti & Rabe, 2017). Therefore, this study's intended outcome is to effectively utilize current research data to present findings that will build positive relationships between localities and their respective school divisions (Jackson et al., 2016; Nicoletti & Rabe, 2017). The youth in every school system serve as the next generation for carrying forward each locality's progress toward growth and success.

Research Question

This quantitative study implements correlational bivariate data analysis to provide research findings to the following research question:

RQ1: What is the relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015) through fiscal year 2018 (July 1 to June 30, 2018)?

Definitions

1. *Annual school report* – A school system's yearly fiscal year financial report due every
   year by September 15 that summarizes data regarding all revenues received and
   expenditures disbursed (Annual Report, 2019).

2. *Average daily membership* – A school system's state funding formula determined by
   the current school year's average daily student attendance based on the first day of school
   until the last March school day. It is calculated by dividing student attendance by the
   number of days in the current school year (Virginia Department of Education, 2017b).

3. *Every Student Succeeds Act* – Updated legislation to No Child Left Behind that sets
   standards for school system accountability for meeting all students' equitable needs by
   placing more power in the hands of the state government versus federal government
   (Heise, 2017).

4. *Local composite index* – A school system's ability to meet per-pupil expenditures in
   accordance with the standards of quality. Local governments provide approximately 45%
   of per-pupil costs, whereas state governments offer approximately 55% (Virginia
   Department of Education, n.d.a).

5. *Local per pupil expenditures* – The number of local dollars spent per child in each school
   located within a school division (Lou et al., 2018).

6. *No Child Left Behind* – Legislation that placed more power in the federal
   government's hands for setting school system accountability standards for meeting all
   students' equitable needs (Heise, 2017).

7. *On-time graduation rates* – On-time graduation rates for Virginia are determined based
   on the number of students who receive an approved diploma by the Virginia Board of

Education within four years of entering the ninth grade (Virginia Department of
Education, 2019).

8. *Percentage of expenditures above the required local effort (PEARLE)* – The rate of
    dollars given by localities to their respective school system beyond the obligation of
    funding for assisting with meeting the standards of quality set forth by Virginia (Virginia
    Department of Education, 2018a).

9. *Required local effort* – A locality's obligation of funding to their respective school
    division for assisting with meeting the standards of quality set forth by Virginia (Virginia
    Department of Education, 2019).

10. *Standards of quality-* Virginia school divisions' established objectives for assessing
    student mastery in the subjects of math, science, history, and reading (Instructional
    Programs Supporting the Standards of Learning and Other Educational Objectives, 2019).

CHAPTER TWO: LITERATURE REVIEW

Overview

This study explains, analyzes, and applies the human capital theory to test the adequacy of how local governments provide funding to Virginia school divisions, discuss how student achievement is determined, and provide an overview of the effects of legislation on school funding. The study focuses solely on money received in a school system's general fund. It does not include funds received through school activities such as parent-teacher associations, athletic programs, and student councils. Also, since school cafeterias are self-sustained and utterly independent of the general fund, monies spent on school cafeterias do not play a part in this study (Virginia Department of Education, n.d.f). This chapter discusses and analyzes the applied theoretical framework and related literature supporting the need for the researcher's study on a potential relationship between PEARLE and on-time graduation rates for Virginia school systems.

Theoretical Framework

The theoretical framework for this study is human capital theory. This theory is the study of humans as a resource, implementing the knowledge gained to achieve productivity, maximizing earning potential (Galiakberova, 2019; Marginson, 2017; Mincer, 1958). Human capital theory was founded and applied by Jacob Mincer. He developed the Mincer earnings function, which shows a positive relationship between individuals' earnings and their educational schooling and experience (Galiakberova, 2019; Mincer, 1958). Theodore Schultz also served as a pioneer in creating the human capital theory due to his applied focus on testing the hypothesis in the United States and many developing countries across the world (Galiakberova, 2019; Schultz, 1961). According to these theorists, human capital is measured by the rate of return from K-12

schooling, including optimal production in the post-schooling period (college, trade school, or workforce), and wages received (Robinson, 2015).

Human Capital Theory Background

Human capital theory refers to the necessary skills and knowledge obtained from school and on-the-job training. These resources provide students the opportunity to succeed at their acquired jobs (Becker, 1962; Weiss, 2015). However, the theory did not have an education focus until the 1950s, when lawmakers began to realize the theory's power to assist society in economic growth and poverty reduction (Holden & Biddle, 2017). As this occurred, Schultz took Mincer's findings to a higher level by validating education as the sole human capital factor that maximizes economic growth and eliminating poverty (Galiakberova, 2019; Schultz, 1961).

Other significant theorists who have applied the theory to real-world problems include Gary Becker and Adam Smith (Holden & Biddle, 2017). Both theorists used the concept from an economic perspective, as did Jacob Mincer and Theodore Schultz, to assess whether individuals with increased education levels would earn a higher income. Both theorists found that, typically, workers' income rate decreased as they got older; however, their overall take-home pay increased as they aged due to having finally paid off debts from education after high school (Becker, 1962). All the theorists agreed that the sacrifice of attaining more knowledge, thereby increasing human capital, increases income, assuming what is learned through higher education is tied directly to the appropriate skills necessary to perform specialized tasks (Becker, 1962; Holden & Biddle, 2017; Mincer, 1958).

Human capital theory's ideology aligns heavily with the availability of physical resources needed for individuals to achieve direct economic growth. The approach promotes a culture built on maximizing available resources to support the overall goals and objectives established for

meeting a specific cause (Peers, 2015). The World Bank, an organization that provides resources to countries in need of human and physical resources, conducted a study measuring the human capital of 195 countries from 1990 to 2016 (Lim et al., 2018). Outcomes showed an overall lack of human capital ventures in low- and middle-income countries, thereby displaying a lack of support in assisting with growth in these countries (Lim et al., 2018). The United States, on the other hand, had substantial investment in and attainment of human capital in 1990, ranking sixth out of 195 countries, but fell to 27th in 2016 due to lack of educational attainment for its citizens (Lim et al., 2018).

Human Capital Theory in Relation to Student Achievement

Teachers' experience, education, and salary drive their effectiveness for student outcomes and play a significant role in students' ability to achieve their maximum potential (Robinson, 2015). Research has shown a correlation between teacher experience and student growth; teachers are the major source for meeting student needs and increasing the human capital quality for individuals entering the workforce in the future (Ost, 2014). Content-specific professional development allows teachers to enhance their instructional strategies, hone their craft, and implement evidence-based practices with fidelity, thus increasing student learning and growth (Seraphin et al., 2017). Studies of high-quality professional development serve as a best practice for growing educators' performance, thereby raising the quality of human capital resources and allowing students to maximize their growth potential and achieve their absolute best (Seraphin et al., 2017). The opposite holds true as well. As quality human capital decreases, student achievement also decreases, causing a lack of confidence among critical local school system stakeholders, who provide less school funding above their required local effort (Lim et al., 2018).

The adverse effect of insufficient funding causes school systems to adhere to the Every Student Succeeds Act mandates, the state governments' attempt to implement evidence-based reforms for struggling school systems (Adler-Greene, 2019). Based on this act, the federal government chose to put more decision-making regarding school policies in the hands of the state government. Also, legislators increased the difficulty for school systems to receive federal dollars by making federal grants more competitive and placed extra responsibility on school administrators to show sufficient need to qualify for federal funds (Adler-Greene, 2019; Ray & Lao, 2019).

The federal government's desire to move on from No Child Left Behind prompted the creation of a model where state and local governments provide the largest percentage of funding for school systems (Black, 2017). This move also obliged school systems to become more accountable to both state and local governments. When providing monetary support, state and local governments expect higher student achievement, measured by items such as test scores and on-time graduation rates (Adler-Greene, 2019). In a 2015 study from the Center on Budget and Policy Priorities, 29 states reported a decrease in per-pupil funding over seven years from 2008 to 2015 (Parsons & Saffer, 2018). The deficiency in funding has prevented many school systems from delivering their very best to meet student instructional needs and fulfill operational needs to provide students the best atmosphere for learning and growth (Parsons & Saffer, 2018).

Human capital theory drives student success and ensures educators have the tools to maximize student achievement, which leads to positive career outcomes (Waynor et al., 2018). Since evaluating test scores can produce biased results, on-time graduation rates, which show that students have officially attained the required knowledge necessary to become model citizens, serve as the best indicator of student achievement (Houck & Kurtz, 2010; Jackson et al.,

2016; Nicoletti & Rabe, 2017). Local governments understand their students' needs better than state or federal governments because they must continuously take stakeholder support and opinions into consideration as they make decisions. Human capital theory plays a significant role in how interventions are implemented to improve struggling school districts. However, under the Every Student Succeeds Act, neither federal nor local governments can enforce mandates, thereby placing more substantial decision-making power in the hands of the state government (Egalite et al., 2017).

Virginia school divisions are expected to meet the standards of quality with assistance from the state government (Salmon, 2010). School systems are evaluated using a report card model showing overall student achievement, which influences on-time graduation rates and whether graduates from each school division are prepared set to enter the military, college, or the workforce after graduation. The standards of quality set high-level curriculum parameters and require students to meet state mandates by applying higher-order thinking skills to learn rigorous content taught by highly qualified educators (Gartland & Strosnider, 2017). A teacher's goal is to ensure their students reach their maximum potential. Achievement occurs when equity is produced, ensuring every student has the tools necessary to attain their absolute best (Waynor et al., 2018).

Each state dollar given to a designated school system, determined by average daily membership, alongside local and federal dollars, enables the division to acquire the human capital necessary to provide for the equitable best interest of students by helping them meet high-level benchmarks (Gartland & Strosnider, 2017; Salmon, 2010). Federal dollars are produced in the form of grants applied for and acquired by each school system (Salmon, 2010). Local

funding is influenced by each specific locality's required local effort (Virginia Department of Education, 2019).

The local composite index measures a school system's capacity to support the necessary costs of achieving the standards of quality objectives set forth by the state government (Virginia Department of Education, n.d.a). As a school division's local composite index increases, the state provides less funding, putting a more significant strain on the local government to provide the resources necessary for meeting student needs (Virginia Department of Education, n.d.a, n.d.b, n.d.c, 2019). Human capital theory is pertinent to PEARLE and the impact it has on on-time graduation rates. Many sources have designated quality educators as an essential part of human capital. However, without proper funding, school systems will fail to reach this goal (Ost, 2014; Robinson, 2015).

Human Capital Theory in Relation to PEARLE

Analysis of the amount of PEARLE funding produced for Virginia school divisions may provide data supporting a more substantial influence of human capital theory than the current high-quality educator. Recent data show all localities in Virginia currently provide funding above the required local effort; however, some localities offer a much more considerable amount above the threshold than others (Virginia Department of Education, 2018a). School systems' desire to achieve on-time graduation rates is crucial. This desire makes motivates school systems to cultivate positive relationships with their respective localities so the localities will provide proper funding to be used alongside available state and federal funds (Fletcher et al., 2018; Parsons & Saffer, 2018).

Human capital plays a significant role in student achievement at school. The idea serves as a critical predictor of whether a high school student will graduate on time or drop out

(Kearney & Levine, 2016). Parental influence and academic accomplishments motivate students to achieve their very best in school, especially in low socioeconomic areas where the majority of families are in the bottom or middle tier of earned income distribution (Cabus & Witte, 2016; Kearney & Levine, 2016; Von Simson, 2015). Some students living in poverty struggle in school due to their inability to attain the daily nutrition needed to focus during school and achieve their very best. This disadvantage sometimes causes students to act out and not give their absolute best, thus calling educators to respond through implementation of behavioral and academic interventions.

Examples of educator-led interventions include high expectations, superior teaching with excellent classroom management, and presentation of useful feedback, allowing students to reflect on their personal academic growth and identify their needs for achievement (Gannicott, 2017; Kearney & Levine, 2016). When effectively utilized in the field of education and beyond, human capital theory has created success in society by assisting in transforming high school graduates into model, productive citizens (Li et al., 2017). This transformation, alongside the reception of vital quality education, has helped produce exceptional laborers who utilize both physical and mental skills and resources to help respective communities move forward on their quest to maximize earning potential and growth for their citizens (Li et al., 2017).

Related Literature

Effects of Adequate Funding

Current literature has revealed that increased funding is tied to higher student achievement in the form of on-time graduation rates (National Education Association, 2018). Increased funding, however, has only been credited for a secondary impact on student achievement, while human capital, including high-quality teachers, has been viewed as the

primary cause of growth in student achievement (National Education Association, 2018). Supporters of this argument measure teacher quality by qualifications and effectiveness, noting a positive trend toward student success both before and after graduation when students are supported by high-quality teachers who meet each student's equitable needs (Gerritsen et al., 2016; Lee, 2018).

The literature supports the views of educators who seek increased funding. It serves as an essential source of information regarding on-time graduation rates. However, it gives more credit to specific human capital-driven programs, such as dropout prevention, pre-K, college preparation, and retention of high-quality teachers (Corrales et al., 2017; Gerritsen et al., 2016; Lee, 2018). The individuals leading these programs support students as they grow beyond graduation, eager to seek knowledge, increase earnings, and become productive citizens (Neymotin, 2010; Seraphin et al., 2017).

In the United States, each state is responsible for ensuring adequate funding for all school divisions (Ray & Lao, 2019). Property taxes play the most considerable role in supporting localities with funds necessary to meet or surpass the required local effort responsibility to provide for its school system's needs, including funds required to meet per-pupil expenditures (Ray & Lao, 2019). Research has shown positive effects on student achievement as adequate state and local revenue funds driven by property taxes have allowed school systems to attain the resources necessary to help students achieve success on standardized tests, including the ACT and SAT (Lin & Couch, 2014). The same positive effect of funding has been found in relation to on-time graduation rates (Lin & Couch, 2014). Research shows that both state and local tax dollars play a major role in student achievement; however, federal tax revenue dollars have not made as strong of an impact due to a continuous decrease in the availability of these funds and

the increased competitiveness among school divisions to attain the limited funds available (Ray & Lao, 2019).

Federal tax dollars available for meeting student equity have comprised, at times, less than 10% of the overall resources implemented for meeting student needs (Lin & Couch, 2014). The transition in federal legislation from No Child Left Behind to the Every Student Succeeds Act, which places a more significant amount of support for school systems in the hands of the state and local government, has served as a major cause of the decrease in the availability of federal funds (Black, 2017; Lin & Couch, 2014). However, research has shown test scores to be an imperfect measure of student achievement due to the weakness of solely examining a snapshot of student attainment versus the overall achievement of a milestone in the form of high school on-time graduation (Bjorklund-Young, 2017). Studies have also shown that student grades and high school on-time graduation rates are a better predictor of on-time college graduation rates than standardized testing. These achievements take students much longer to accomplish than a one- to two-day assessment (Galla et al., 2019).

Other significant state and local funding components include a percentage of adjusted gross income and retail sales (Virginia Department of Education, n.d.a). School systems place an enormous value on these funds due to the lack of restrictions on how the funds must be spent compared to other forms of funding, which may state how and when allocated funds must be spent (Virginia Department of Education, n.d.c). The state government provides school systems with 55% of their funds and requires localities to fund the remaining 45% (Virginia Department of Education, n.d.b). However, many localities fund their school systems well beyond their required local match due to the desire to invest in the community and create successful citizens

who are ready to give back to their local community (Neymotin, 2010; Virginia Department of Education, 2018a).

Localities that decide to provide funds beyond the required local effort display an act of confidence in their community's schools. This confidence results in additional resources for students (Lin & Couch, 2014). These added resources often come in the form of human capital, allowing for an increased number of educators in schools, which drives down the student-teacher ratio, creating smaller class sizes. Utilizing lower-paid paraeducators increases the average teacher salary since fewer teachers are utilized to provide student instruction (Chang et al., 2019; Lin & Couch, 2014). With the presence of paraeducators, middle and high school teachers can take advantage of opportunities during the school day to earn extra dollars by teaching an additional course rather than having a planning block or period built into their schedule. The extra teaching opportunities give a smaller pool of teachers the option to conduct specific after-school programs, delivering extra help to students in the form of tutoring and additional enrichment opportunities for growth and mastery of educational concepts (Chang et al., 2019; Lin & Couch, 2014).

Effects of School Quality and Student-Teacher Relationships

Some researchers argue the importance of including school quality as a component of human capital theory (Galla et al., 2019; Hanushek, 2013; Machin & Salvanes, 2015). Although students may graduate on time and/or earn a particular test score on a standardized test, these scholars view the actual cognitive skills developed as the primary assessment for potential student success beyond high school (Galla et al., 2019; Hanushek, 2013; Machin & Salvanes, 2015). These researchers do not view student achievement as a one-size-fits-all assessment, realizing some schools provide more value than others. They argue school quality should be a

part of the application of the human capital theory because cognitive skills gained from high-quality instruction by high-quality teachers will lead to new individuals entering the workforce, driving economic growth and income earning potential (Galla et al., 2019; Hanushek, 2013; Machin & Salvanes, 2015).

High school on-time graduation rates serve as a predictor for student success beyond high school: entering the workforce or trade school or graduating on time from college (Gewertz, 2019; Johnson & Stage, 2018). Researchers have studied the importance of quality education in addition to student engagement as a major factor for assisting students with the ability to graduate on time and attain success beyond high school (Gewertz, 2019; Johnson & Stage, 2018). However, some research has shown a pessimistic outlook for engaging all students, thus limiting the amount of success in the form of on-time graduation rates (Joo & Kim, 2016; Vallee, 2017). This research is critical to analyze, due to evidence that the relationship between students and teachers is a significant aspect in school systems' ability to attain and retain the most influential factor in student achievement, high-quality educators (Spilt et al., 2011). When relationships are built and sustained, teachers can provide differentiated instruction to meet student needs (Richardson, 2019; Spilt et al., 2011).

Human capital theory is built upon the relationship between teachers and students. Students and teachers work together so students can graduate on time and receive a high-quality education and the tools necessary to earn a sufficient income (Richardson, 2019; Rodríguez & Yáñez, 2019). Researchers have discovered the importance of producing not just a high quantity of graduates but quality, on-time graduates. Also, teacher autonomy is critical when assisting students in reaching their maximum potential. They must be permitted to build relationships and

implement differentiated instruction (Richardson, 2019; Rodríguez & Yáñez, 2019; Spilt et al., 2011).

Human Capital and Academic Intervention Resources

State, followed by local, funds are the main providers of the human capital resources necessary to meet the equitable needs of students by providing high-quality faculty with the knowledge base of ensuring student preferred learning styles are met (Roorda et al., 2011; Virginia Department of Education, n.d.a, n.d.b, n.d.c, 2019; Zoghi, 2017). Because available federal funds have continued to decline, the remaining funds have become highly coveted, creating stiff competition. Therefore, many school systems hire a grant writer to stay informed as to what grants are available to their school division and apply for desired grants using the Online Management of Education Grant Awards with the assistance of the Virginia Department of Education (Stokes, 2012).

Also, interventions can effectively utilize human capital resources. Federal funds have been utilized efficiently and effectively in many states through the implementation of tiered systems of supports. Behavioral and academic interventions maximize overall student growth, as do specialized, intense interventions for students who required additional support (Eagle et al., 2015; Harrington et al., 2016). The implementation of interventions, in addition to the hiring of well-trained teachers versed in the different learning styles, gives school systems the best outlook in graduating students on time and ready to achieve success after high school (Bontchev et al., 2018; Eagle et al., 2015; Harrington et al., 2016; Stokes, 2012).

Virginia Tiered Systems of Supports (2020) has served as a potent vehicle for meeting student equitable needs both at the elementary and secondary levels. Meeting student equitable needs can only occur with buy-in from all critical stakeholders, including administrators,

teachers, parents, community members, and, most notably, the students themselves (Hunter et al., 2015). Teachers and paraeducators work with individual students daily and know their students' academic needs better than any other stakeholder (Harrington et al., 2016). Some students have more robust needs than others. Therefore educators must work together to find out how to meet the equitable needs of students, whether it be through additional more rigorous academic or behavioral interventions utilizing effective differentiated instruction or providing even more stringent forms of interventions promoted by more one-on-one intense academic and/or behavioral supports between educators, parents, and the respective students (Eagle et al., 2015; Harrington et al., 2015; Hunter et al., 2015). Virginia Tiered Systems of Supports (2020) align with human capital theory by ensuring student equitable needs are met with fidelity, thereby showing student knowledge gained aligns with the curriculum in each course taken and the tools necessary to achieve success in life after high school.

The Response to Intervention Action Network (2020) ensures students receive the tools and resources necessary to achieve success by ensuring teachers receive adequate professional development and can deliver high-quality instruction to students and utilize intentional and differentiated ongoing formative and summative assessments, continuously tracking students' progress toward achieving success in an environment conducive to student learning and fidelity. In addition to sufficient classroom supplies to engage students in meaningful interactive lessons, educators must also receive the pedagogy tools needed to effectively teach well-documented lessons. Students must also receive essential tools to gain the ability to think critically and apply the skills learned in school to graduate on-time and become prepared to attain continuous success in an ever-changing work environment (RTI Action Network, 2020).

A strong labor market serves as a force against the probability of on-time graduation attainment and graduation in general for those students struggling in school, especially students who are contemplating dropping out (Von Simson, 2015). Researchers have explained how a weak labor market causes lower wages for lower-skilled workers, which encourages students to work hard and aspire to obtain higher-paying jobs. To do so, they must finish school, thus lowering the student dropout rate (Von Simson, 2015).

Another component of human capital theory is the educational level of parents who have children enrolled in school at the secondary level (Cabus & Witte, 2016; Von Simson, 2015). Students whose parents dropped out of high school are more likely to follow their parents' path if they struggle in school or feel a lack of support from their educators (Cabus & Witte, 2016; Von Simson, 2015). Student attrition also increases when students are retained in grade school (Cabus & Witte, 2016). When students are taken away from their closest peers and placed in courses with younger students, they tend to develop a negative attitude toward school and potentially increase their truancy behavior, which often leads to dropping out (Cabus & Witte, 2016). A strong labor market makes this unfortunate trend of student dropout more robust because students whose parents graduated from high school or college, especially alongside a weak labor market, have a higher probability of attaining the terminal measurement of success: graduating on time (Cabus & Witte, 2016; Von Simson, 2015).

Effects of Inadequate Funding

Previous studies have shown the effects of funds' inadequacy on student achievement (Cheryan et al., 2014; Chiu & Khoo, 2005). Experts found the design of classrooms and lighting of school buildings played a significant role in student success (Cheryan et al., 2014). School buildings without proper lighting, plumbing, and temperature regulation have negatively affected

student performance in United States schools, according to previous studies by the National Center for Educational Statistics (Cheryan et al., 2014).

Initially, schools were built to less stringent standards, whereas now school systems hire architects to provide blueprints with student needs in mind, ensuring students have access to an environment with adequate thermal, visual, and ergonomic comfort (Naddeo et al., 2018; Tatiana et al., 2018). After all, students spend on average 11,700 hours of their lives in these buildings (Cheryan et al., 2014; Naddeo et al., 2018; Tatiana et al., 2018). Modernization costs millions of dollars, but it has been identified as a vital part of the quest to maximize student achievement. However, modernization of facilities is not as significant as the implementation of human capital driven by the teachers in each building (Martorell et al., 2016).

Stakeholder influence has played a significant role in the politics of building a bridge between requested and received funds from respective governments. Unlike schools in the United States, Chinese schools have suffered from the inadequate reception of funds due to internal privilege student bias, in which certain groups of individuals have influenced entitlement distributors to provide funds to students not based on equity and need, but instead explicitly based on their family's power (Chiu & Khoo, 2005). Still, students in many school systems in the United States suffer from the effects of external bias, in which localities place a more substantial value on other parts of their city or town, such as police departments and public works (Chiu & Khoo, 2005; Nicoletti & Rabe, 2017).

Successful school districts thrive with stakeholder support when resources are distributed equitably with students' success in mind (Owings & Kaplan, 2019). The expectation of support places local governments and other critical stakeholders in the difficult position of actively meeting the heightened need for school fiscal resources (Maher et al., 2020). These important

resources have become even more critical due to the many uncertainties and unexpected expenses tied to meeting the requirements set forth by the Centers for Disease Control and Prevention to keep students safe during school operations as America and other countries continue to adjust to and fight the coronavirus disease 2019 (COVID-19) pandemic (Khoo & Lantos, 2020; Maher et al., 2020).

Effects of COVID-19 and CARES Act Funding on School Systems

The COVID-19 pandemic has affected Virginia public school divisions, as it has caused the removal of the required local effort entitlement obligation for each school division from their specific locality for at least the fiscal year 2021 budget and possibly going forward into upcoming fiscal year budgets (Virginia General Assembly, 2020). These changes may present an issue for school divisions as they strive to meet their maintenance of effort requirements regarding special education. To remain in compliance for maintenance of effort, school divisions must exceed spending of the local and state entitlement dollars used toward their special education programs compared to the previous fiscal year (Maintenance of Effort Requirements, 2017).

Federal dollars may not be included in the maintenance of effort calculation (Maintenance of Effort Requirements, 2017). Should a particular school division not meet their maintenance of effort, it may be required to reimburse state/local dollars to the respective contributor as punishment (Maintenance of Effort Requirements, 2017). Many school systems in Virginia expect local funding to decrease due to the waiving of the local effort requirement, thereby allowing local governments to choose to provide less funding to their respective school divisions and use the funds for other departments, presenting school divisions with more

difficulty in meeting the maintenance of effort requirement (Maintenance of Effort

Requirements, 2017; Virginia General Assembly, 2020).

Research has continued to support the theory that human capital resources serve as the

primary influence on student achievement, while funding serves as the secondary factor

(National Education Association, 2018). However, sufficient resources cannot be attained and

sustained for students' equitable best interests without proper legislation (Black, 2017; Strange,

2003). Government decisions ensure all funding sources—federal, state, and local

governments—do their part to deliver the funding needed to support student success (Black,

2017; Strange, 2003). Another source to consider for the fiscal year 2021 is the Coronavirus Aid,

Relief, and Economic Security (CARES) Act (Welch, 2020). Even though a school system's

average daily membership numbers are uncertain, CARES Act funding provides a potential

source for future studies of the effects of school funding and on-time graduation rates (Welch,

2020).

Human capital theory has been heavily utilized since COVID-19 forced Virginia school

systems to close their doors in mid-March 2020 (Virginia Department of Education, n.d.d, n.d.e,

n.d.f). During this time, student learning took place entirely online. The future of the structure of

public education is still uncertain. However, answers have begun to emerge with a phased

reopening of schools in fall 2020 (Virginia Department of Education, n.d.d, n.d.e, n.d.f). School

superintendents and other key stakeholders are concerned about how average daily membership

will be calculated since not all students will attend school daily. Due to the elimination of the

required local effort, state funding has already decreased. If the average daily membership

decreases, key stakeholders are left with many questions about how school systems will function

post-COVID-19 (Virginia Department of Education, n.d.d, n.d.e, n.d.f; Virginia General Assembly, 2020).

Previous studies have shown positive outcomes between properly nourished students and their ability to achieve their maximum potential (Murnane, 2013). In the fight against hunger, human capital is at work in the form of transportation and school nutrition workers alongside the non-profit company No Kid Hungry Virginia, which develops and implements systems to ensure students have the opportunity to receive meals through deliveries and emergency food distribution centers at school division sites (Lane, 2020). The hard work of these essential workers, alongside their administrator and teacher colleagues, continues to provide indispensable instruction and guidance for students, as more "than 450,000 kids in Virginia rely on the free and reduced-price meals they receive at school" (Lane, 2020, para. 7).

Virginia was in the top 10 of American states for offering the best equitable pre-K-12 education for students in 2019. The 133 Virginia school superintendents and their respective school boards and localities have worked tirelessly to maintain this ranking. They have taken advantage of guidance from the Virginia Department of Education to ensure students have the access needed to perform their absolute best in remote locations (U.S. News & World Report, n.d.).

During the difficult times of COVID-19 in the fiscal year 2020, students were exempted from taking Virginia Standards of Learning (SOL) tests for measuring student growth and achievement by the federal government (WHSV Newsroom, 2020). However, based on their terminal grades, students who completed all their requirements became a statistic in the on-time graduation rate category, providing another argument for the importance of measuring student achievement in the form of on-time graduation rates rather than student test scores, which are

potentially skewed due to guessing (U.S. News & World Report, n.d.). As implementation of research and findings are replicated beyond the fiscal year 2018, researchers who choose to analyze test scores as a measurement of student achievement when comparing to school funding will suffer from a lack of available research due to students being exempt from SOL tests in the fiscal year 2020 and possibly continuing to be exempt moving forward (Virginia General Assembly, 2020).

Effects of Tax Expenditure Limits and Politics

Some states have been affected by tax expenditure limits due to a downswing in the economy, which has reduced local governments' autonomy to provide adequate funding to their respective school systems (Davis et al., 2016). This lack of school funding was found not to cause a significant decrease in student achievement measured in the form of test scores, as this type of assessment has served as an imperfect strategy for assessing student growth and achievement (Jackson et al., 2016; Nicoletti & Rabe, 2017). However, research has shown evidence of a significant adverse effect on the resources available to meet students' equitable needs, including funds used for hiring educators and providing professional development to keep staff up to date on key research-based practices (Davis et al., 2016). The reduction in the number of available resources proves detrimental to school systems' overall goal: graduating high-quality students ready to succeed after high school (Davis et al., 2016).

Other research involving student achievement and academic results in the form of test scores also found an insignificant relationship between these factors and increased funding but found a positive impact on overall student educational growth when funding dollars were used on targeted interventions to meet individual student equitable needs (Gannicott, 2016). The researchers also discovered the importance of funding initiatives to support students' sense of

belonging and comradery due to the formation of targeted student interventions. This is a factor in the overall promotion of student success (Chang et al., 2019).

Caring, highly qualified educators serve as the human capital necessary for creating an educational environment that encourages belongingness and comradery through the offering of peer tutoring while holding students accountable for their individual learning. These programs help both the tutor and the learner develop a sense of academic pride in a well-established educational learning community (Chang et al., 2019). Research also shows student growth when educators collaborate to meet student needs (Vangrieken et al., 2017). Some educators view this research best practice as a threat to their autonomy and control over their classrooms. In contrast, others view it as an opportunity to utilize instructional time to provide extra aid for students needing additional support, thereby implementing the concept of equity (Chang et al., 2019; Vangrieken et al., 2017).

At times, school systems hire content specialists to help students who are deficient in certain areas, paying educators for work outside of regular working hours by implementing specialized intervention programs (Robinson, 2015). These specialized supports can place substantial tension on a school system's budget, at times requiring local and federal grants to cover the extra funding. The existence of these programs supports the positive effect of increased state, local, and federal funding on overall student achievement when measured in the form of the ultimate milestone of on-time graduation rates, thus reinforcing the importance of implementing substantial human capital resources (Robinson, 2015).

Many times, young people feel as if they must search beyond their hometown or home country to apply learned skills from colleges or trade schools due to the incurring of major monetary expenses from these upper-level institutions (Han et al., 2015). As tax expenditure

limits are imposed, localities and school systems both often suffer from budget cuts to personnel and related services, which hinders the relationship between the two governmental entities (Jimenez, 2017). These cuts can cause relationships to deteriorate, depressing the confidence in a community's ability to promote student growth (Davis et al., 2016; Jimenez, 2017). When localities receive less money from taxes, their ability to provide adequate dollars for school systems is compromised. The cuts in dollars received also prevent localities and their respective school systems from creating and sometimes sustaining necessary positions for running the localities and school systems efficiently and effectively (Davis et al., 2016; Jimenez, 2017).Research has shown a trend in colleges providing students with grant opportunities rather than loan opportunities; in so doing, they limit or eliminate potential debt after graduation and allow graduates to move forward in their career and lifestyle without having to fear prior monetary commitments (Gershenfeld et al., 2019). This movement provides graduates with greater flexibility to decide their next steps after graduation, including where they want to reside and work, without having the restriction of searching for and attaining the most massive salary possible due to the responsibility of paying back student loans (Gershenfeld et al., 2019; Han et al., 2015). Without debt, college graduates have more of an option to return to their home community and apply the human capital gained from their higher education as they strive to make their local community more productive (Davis et al., 2016; Jimenez, 2017). Many times, students who are able to return to their hometown after graduating college and enter the education field are able to make a significant impact in their community's school system due to having sustained prior relationships and fully understanding the established culture within their community. This could lead to increased graduation rates and students reaching their maximum potential due to individuals familiar with the area serving as leaders in their community and

striving to assist future generations in becoming productive citizens after high school (Davis et al., 2016; Jimenez, 2017).

A review of the literature shows a gap in in research on the relationship between local funding and graduation rates, driven by the lack of rapport between school boards and local governments. Local governments must provide at least the required local effort based on Virginia's local composite index, which determines the amount the state will pay toward public education and the amount the locality is required to fund (Virginia Department of Education, n.d.a, n.d.b, n.d.c, 2019). Public opinion drives how school boards vote to spend resources on meeting student equitable needs (Carruba-Rogel et al., 2019). Citizens also drive many funding conversations between local governments and school boards as elected officials vote on how much funding to provide a school district. Funding decisions can play a crucial role in whether a particular elected official will or will not be re-elected (Schueler & West, 2016). Currently, localities of school divisions in Virginia strongly consider this fact as each locality provides dollars beyond the required local effort (Virginia Department of Education, 2018a).

Some localities provide school divisions with level funding from year to year, where the amount of local funding stays consistent, assuming the amount of funding stays above the required local effort (Virginia Department of Education, 2015, 2016, 2017a, 2018a). Other localities increase funding year to year based on needs presented by key stakeholders. Actions of localities and school systems for meeting students' equitable needs continue to flow because elected officials consider the opinion of the public (Schueler & West, 2016).

Even though the Virginia General Assembly (2020) has waived the required local effort requirement, a supportive town/county council can indeed find ways to ensure the COVID-19 pandemic does not affect available dollars to provide students with the best, most equitable

education possible (Dzigbede et al., 2020; Khoo & Lantos, 2020). The average age of people living in a particular area occasionally influences funding of school divisions by localities (Reback, 2015). As individuals get older, many times, their overall preferences will change, causing less funding for schools in both rural and urban areas where the primary focus is on retirement instead of community growth (Reback, 2015).

Literature overall has failed to provide data regarding the relationship between school boards and local officials as they decide on the amount of funding available to meet students' equitable needs. Literature has also failed to provide adequate data concerning student achievement based on high school on-time graduation rates because it has primarily focused on high school student achievement in the form of test scores and college/university graduation rates (Houck & Kurtz, 2010; Jackson et al., 2016; Nicoletti & Rabe, 2017; Winters, 2016). Understanding the relationship between school boards and localities regarding proper funding for maximizing student achievement in the form of high school on-time graduation rates is a true investment in the youth of Virginia school divisions.

Research pertaining to the current youth attending Virginia school divisions is crucial, considering "nearly one in five American high school students does not graduate from high school on time, if ever" (Zaff et al., 2016, p. 447). The research will provide necessary data for use when considering whether specific localities are doing their best to ensure that equitable student needs are being met and quality education is maximized. Again, the relationship between school boards and their localities is significant, as school boards only attain funds distributed from federal, state, and local governments, and localities serve as the most flexible source of funding for school systems (Black, 2017; Strange, 2003).

Programs Supporting On-Time Graduation Rates

On-time graduation rates serve as a strong indicator for young adults' outcomes, including financial self-sufficiency and upstanding members of their communities (Zaff et al., 2016). The practical application of human capital theory by key stakeholders helps prevent student dropouts by reducing risk factors such as drug and alcohol use and negative aspirations toward achieving success (Zaff et al., 2016). These factors are counterproductive toward supporting educators in their quest to perform their best in leading their students toward attaining their goals and achieving success. A major factor in supporting student on-time graduation rates is the promotion of health and well-being by key school division stakeholders. Many of these stakeholders are tasked with encouraging students to eat healthy meals, as adequate nutrition has helped students achieve their best in school (Murnane, 2013).

School systems with many students living qualifying for free or reduced-price meals through the Community Eligibility Program can offer free breakfast and lunch to all students within the school division (Murnane, 2013; Virginia Department of Education, n.d.f). Funding received from cafeteria programs, including the National School Lunch Program, Afterschool Snack Program, and Fresh Fruits and Vegetables Program, is separate from a school system's general fund due to the requirement of each school cafeteria to maintain sustainability (Virginia Department of Education, n.d.f). Therefore, even though money received from school food service programs is not directly tied to state, local, and federal funding, the impact school meals have on student achievement is indeed an outside factor that helps students to achieve their best and graduate on time (Virginia Department of Education, n.d.f; Murnane, 2013).

Federally aided programs, including Title I and 21st Century Community Learning Centers, have provided additional supports to students beyond the regular school day to learn life

skills as well as receive remediation and homework help with the intent of helping students to achieve their best and graduate on time (Klein, 2018b). Federal funds are presented to school divisions in the form of competitive grants, placing an enormous burden on school divisions to either complete intense grant paperwork in-house or obtain assistance from outside sources to complete the paperwork, which can sometimes be accomplished through community partnerships. Respective school divisions must provide for students' equitable best interest, actively using allowable funds to increase student achievement through remediation opportunities (Klein, 2018b). Community partnerships enable school divisions to utilize community resources by using community stakeholders to come into classrooms and work alongside educators to provide rigorous, relevant, and reliable instruction for students (Gartland & Strosnider, 2017). The intention of all stakeholders involved in children's education should be to direct students toward success by teaching them a strong work ethic in collaboration with excellent productivity to maximize their earning potential (Galiakberova, 2019).

Rural school communities in Virginia have the asset of the farm-to-school program, which allows students to plant gardens and learn how fruits and vegetables are grown and processed, with the end goal of cooking and preparing them to eat (Lyson, 2016). This program enables students to learn and participate in the cycle of food production, allowing them to attain work skills before finishing high school that will serve as an asset after graduation and serving as an engaging way for students to achieve success in school (Gartland & Strosnider, 2017; Lyson, 2016). The 21st Century Community Learning Centers program, coupled with summer end-of-school-year special education programs, provides students with opportunities to continue receiving meals throughout the summer. These programs also play a major role in providing students with ample continued instruction to ensure they can practice the skills learned during the

school year and are better prepared to enter the next grade level (Klein, 2018b; Virginia

Department of Education, n.d.f). Key stakeholders must continue to work diligently through all

parts of the year, continually providing relevant, reliable, and rigorous instruction for students

with the resources provided to provide for the equitable best interest of students, assisting them

to achieve their very best, graduate on time, and become prepared for many jobs yet to be created

due to continuous changes in technology (Black, 2017; Fletcher et al., 2018; Gartland &

Strosnider, 2017).

Administrator Effects on Student Achievement

School systems, like any other organization, are analyzed from the top down. As school

board members, superintendents, principals, and directors effectively influence key stakeholders

to take ownership of their role in helping students to achieve success, a precedent becomes set

for these stakeholders to ensure students can attain and utilize the necessary resources to move

through school system ranks with the ultimate goal of graduating high school on time (Owings &

Kaplan, 2019). Implementation of human capital theory among the leaders is vital for ensuring

school divisions can establish and rally around a mission to guide students to success both during

school and after graduation, creating young people who are eager to make a positive impact in

their community, thus continuing the cycle of established and sustained growth for community

stakeholders and their peers (Holden & Biddle, 2017; Liu & Bellibas, 2018; Owings & Kaplan,

2019).

School divisions in Virginia must find the balance between leadership autonomy, job

satisfaction, and funding for resources utilized by administrators and other key stakeholders (Liu

& Bellibas, 2018). During the difficult times presented by COVID-19, school systems are

charged with the extra task of maintaining consistency among staff by eliminating attrition and

providing the necessary resources to keep staff engaged and motivated to perform their best toward equitably helping students reach their goals (Liu & Bellibas, 2018; Maher et al., 2020). Many Virginia school divisions struggle with attaining and retaining dedicated staff (Carver-Thomas & Darling-Hammond, 2019). Many administrators have become disgruntled and left certain school divisions due to the political divisiveness amongst key stakeholders. The departure of administrators gradually trickles down to teachers and other vital educators, causing their loyalty and sustainability also to diminish, whether that means these key educators move to a different school division or leave the education profession altogether (Carver-Thomas & Darling-Hammond, 2019).

As Virginia and the rest of the United States contend with inconsistency in life due to the recent COVID-19 pandemic, quality administrators are needed more than ever. Students must have consistent, caring educators who meet their equitable best interests during a time of change and struggle. Leaders must have the ability to build and sustain relationships among key stakeholders and show effective educator appreciation to attain and maintain high-quality educators, thus reducing teacher attrition (Carver-Thomas & Darling-Hammond, 2019; Maher et al., 2020).

Administrators drive effective implementation of human capital theory. They serve as role models for the educators they lead, as well as the rest of the stakeholders responsible for student learning and achievement (Maher et al., 2020). As these administrators show effective leadership, the effect trickles down to the educators they lead, creating an environment and culture filled with individuals who put student needs first. The solidly built relationships allow all educators involved to motivate one another and embrace the comradery, encouraging one another to perform their very best. They can meet student needs with a strong focus on figuring

out the best way to provide rigorous, relevant, and reliable instruction during difficult times in the field of education (Gartland & Strosnider, 2017; Maher et al., 2020).

Financial Inequities of Virginia School Systems

Finance inequities within specific counties, as well as the state of Virginia as a whole, have created a struggle for Virginia school systems to seek and retain highly qualified educators (Baker & Weber, 2016). The average teacher salary in Virginia was close to $10,000.00 less than the national average in the fiscal year 2018 (Will, 2019). This inequity has caused many Virginia teachers to seek work in lower-paying counties to attain the three to five years of experience required in order to advance into administration positions, move to higher-paying school divisions, or leave the state entirely to teach in a higher-paying state.

Virginia school divisions have continuously advocated with their respective local government to attain the maximum dollars possible to meet the needs of their school divisions (Virginia Department of Education, n.d.c). Funds are budgeted by pooling revenues from state and local governments and allocating funds to expenses for instruction, operations and maintenance, technology, and the school board (Owings & Kaplan, 2019; Virginia Department of Education, n.d.c). Federal funds are allocated separately from state and local funds. They are typically competitive, as school divisions are required to display a strong need and provide an action plan showing how they will maximize the use of the dollars available from the designated grant (Owings & Kaplan, 2004). Also, federal funds roll over in a school systems' budget for three years, whereas state and local funds are yearly funds that are returned to the local and/or state government if they are not spent within the year (Owings & Kaplan, 2019). Food service programs are self-sufficient and thus are not dependent upon federal, state, and local funding like the other functions of the school division (Virginia Department of Education, n.d.f). As school

divisions budget based on expected revenues, typically, 75% to 80% of funds are budgeted toward instruction and the personnel needed to sustain school programs that provide for the equitable best interest of students (Virginia Department of Education, n.d.c).

The downturn in the economy due to COVID-19 has negatively affected Virginia school systems with the elimination of the required local effort (Virginia General Assembly, 2020). CARES Act funding has provided a temporary fix for school systems. However, the dollars received are no longer guaranteed, forcing school systems to utilize the funding for nonrecurring expenses (Welch, 2020). As many localities have cut school system budgets due to the elimination of the required local effort, school systems in dire need of extra personnel to maximize continued growth toward student achievement have been hindered in their ability to obtain the human capital necessary for fulfilling recurring expenses. Therefore, even though CARES Act funding is available for Virginia school systems, this type of funding is not conducive for school systems to use to provide human capital to achieve the goals and objectives stated in their mission (Galiakberova, 2019; Welch, 2020).

Before the COVID-19 pandemic, the current governor of Virginia advocated and the Virginia General Assembly strived to provide teacher raises during each budget biennium (Virginia Department of Education, n.d.b). They ruled that school systems had to give a raise of a certain percentage to teachers over the course of the biennium to be eligible to receive compensation supplement funding (Virginia Department of Education, n.d.c). These teacher raises were intended to motivate these educators to stay in the profession, thus combating the teacher shortage. Teacher burnout due to lack of administrative support, which creates a burdensome work environment and culture, and dissatisfaction with compensation have been the root causes of the teacher shortage for many content areas (Keese, 2018). Sadly, the COVID-19

pandemic has caused Virginia legislators to move backward in their quest to implement human capital theory, to sustain education as a respectably compensated profession, and to reward educators for their hard work in providing willpower and motivation for students to achieve their absolute best (Keese, 2018; Welch, 2020).

Summary

This study analyzes the potential relationship between PEARLE and student achievement in the form of on-time graduation rates in secondary education. The application of human capital theory is critical. It provides the conceptual framework for assessing whether school systems in Virginia are receiving adequate local funding to complement federal and state funding in meeting their goals and objectives in providing for the equitable best interest of students. The study focuses on Virginia school divisions' ability to meet students' equitable needs by hiring, sustaining, and professionally developing high-quality educators willing to strive to ensure students graduate on time and are prepared to attain success in college, the military, or careers.

Relationships between local governments and school boards are critical because locality funding serves as the most flexible funding source for schools, as state funding is driven by average daily membership, and a substantial decrease in federal funds has caused competitiveness among school systems to acquire adequate federal dollars to implement specific programs needed to enhance school initiatives and provide intensive supports for students requiring extra assistance (Black, 2017; Heise, 2017, Lin & Couch, 2014; Virginia Department of Education, n.d.b). The researcher hopes to use the findings from this research comparing ex post facto data from the past four fiscal years of actual funding received to the required local effort driven by the local composite index of all 133 conveniently selected school divisions in Virginia. The researcher then assesses if localities within the state provide their specific school

system with adequate funds for maximizing their on-time graduation rates and student growth potential (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). The literature shows a gap in data available for school boards in Virginia and other states facing similar funding issues along with their fellow stakeholders to support their claim for obtaining additional local funds. These funds are required to mold students into model citizens eager to attain success after high school and make their community an even better place to live.

The researcher plans to lay the groundwork for key school system stakeholders to utilize in future conversations of school division operations during the uncertainties around needs and funding due to the ever-increasing COVID-19 pandemic. Currently, school systems are unsure about federal, state, and local funding sources since the required local effort has been waived for the fiscal year 2021, and the Virginia Department of Education is unsure how average daily membership will be calculated if parents require their children to attend school online fully (Virginia General Assembly, 2020). Even as critical stakeholders in Virginia continue to self-quarantine, school division administrators have been working on presenting their back-to-school plans for approval by their school boards. Since average daily membership, the main driver behind the largest school funding source, has created uncertainty around state funds, school divisions have been forced to track funds even more heavily to ensure their respective school division does not overspend the allotment provided in their budget (Virginia Department of Education, n.d.c).

The researcher understands school systems are under pressure to assure stakeholders that all students will be safe as they get the best possible education (Dzigbede et al., 2020; Khoo & Lantos, 2020). Therefore, the researcher wants to provide data that can be used by school systems to have conversations that can potentially prevent localities from reducing funds due to

reduced average daily membership (Virginia General Assembly, 2020). Even though the required local effort has been waived, reduced average daily membership can negatively affect normal operations (Virginia General Assembly, 2020). If a reduced average daily membership occurs, thereby reducing money available for state funding, school systems will be forced to have additional conversations with their localities to attain the resources necessary to effectively and efficiently operate to meet the equitable needs of all students within the respective school division.

CHAPTER THREE: METHODS

Overview

The researcher analyzed the potential correlation between school funding, measured by the PEARLE produced by localities in Virginia, and student achievement in the form of graduation rates for school divisions in Virginia. The purpose of this study is to answer the question of whether there is a relationship between PEARLE and graduation rates. This chapter discusses the research design, research question, hypothesis, participants and setting, instrumentation, procedures, and data analysis the researcher used to conduct the study.

Design

The researcher used a correlational research design to complete the study (Gall et al., 2007). This was the best design to use due to the analysis of the direction of two variables and their potential positive, inverse, or lack of relationship (Gall et al., 2007; Rovai et al., 2013). The correlational research design allowed the researcher to analyze a relatively large amount of data from all 133 school divisions in the state of Virginia (Gall et al., 2007; Warner, 2013). Also, the study provided the opportunity to measure the degree of relationship among stated variables, and each variable can be measured "at the same point in time or at different points in time" (Gall et al., 2007, p. 337) so the researcher could analyze relationships between the data at different points in time over the course of four fiscal years (Gall et al., 2007; Warner, 2013).

The study analyzed the potential significance of PEARLE as it relates to graduation rates. The study only included the school divisions' actual funding, utilizing convenience sampling of archived data from the Virginia Department of Education website. The research did not take into account the amount requested by school systems during preliminary budgetary conversations compared to what they actually received. The school funding variable measured in the form of

PEARLE and the student achievement variable measured in the form of graduation rates were assessed for a potential relationship.

Due to the requirement for each school division's superintendent to verify the data published in state documents, validity and reliability of ex post facto data were ensured by the correlational research design. Both variables, PEARLE and graduation rates, were tested for a potential relationship based on direction and magnitude (Gall et al., 2007; Rovai et al., 2013). The researcher used quantitative methodology to support the significance of the potential relationship between the variables of PEARLE and Virginia school division graduation rates in the fiscal years 2015, 2016, 2017, and 2018 (Ray & Lao, 2019). A quantitative methodology was the best form of study for this research because studies aligning the relationship between local government school funding and student achievement for all school divisions in Virginia has never been conducted. The researcher plans to publish results once they are attained to provide a starting point for school administrators, school boards, and local governments to discuss the amount of necessary funding to assist all students with reaching their highest potential based on having their equitable needs met.

Research Question

This study addressed the following research question: What is the relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015) through fiscal year 2018 (July 1 to June 30, 2018)?

Hypothesis

The null hypotheses for this study are:

$H_0$1: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015).

H$_0$2: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2016 (July 1 to June 30, 2016).

H$_0$3: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2017 (July 1 to June 30, 2017)

H$_0$4: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2018 (July 1 to June 30, 2018)

Participants and Setting

The researcher identified Virginia data showing 100% of school divisions received PEARLE for fiscal years 2015, 2016, 2017, and 2018. The researcher viewed this as an opportunity to study the potential relationship between PEARLE and Virginia school division graduation rates. Participants for this study were all 133 Virginia school divisions. The data for the participants were selected using convenience sampling from archived data located on the Virginia Department of Education website, as funding and graduation rate data for all 133 Virginia school divisions for the 2015, 2016, 2017, and 2018 school years were available Gall et al., 2007).

The Virginia Department of Education requires every school division to report graduation rates and financial data once a year (Annual Report, 2019). The collection and publication of this funding and achievement data into two individual documents for public access made the convenience sampling method the best for the researcher to use, due to the researcher being able to analyze an adequate amount of school divisions that provide funding beyond the required local effort. The ex post facto graduation data used for the study was based on graduation rates for 133 school divisions and were compared to PEARLE per fiscal year for 133 school divisions, as each

school division was identified as having received local funding beyond the required local effort

for the fiscal years 2015, 2016, 2017, and 2018.

The sampling was broken into two categories: graduation rates for each of the 133 school

divisions and PEARLE of each school division for each school year beginning with 2015 and

ending with 2018. A Pearson's correlation coefficient was used to analyze the statistical

relationship between graduation rates and PEARLE for 133 school divisions located in Virginia

(Gall et al., 2007; Rovai et al., 2013; Warner, 2013). For this study, the number of participants

sampled was 133, which exceeds the required minimum for a medium effect size. According to

Gall et al. (2007), 66 participants is the required minimum for a medium effect size with a

statistical power of .7 at the .05 alpha level (Gall et al., 2007).

Since some school divisions were more extensive than others and received different

amounts of funding, the researcher utilized the Division of Legislative Automated Systems

(DLAS) to acquire data regarding the required local effort. Since all school divisions were

identified as having received funding above the required local effort for fiscal years 2015

through 2018, the researcher was able to average and compare funding received above the

required local effort for each of the four fiscal years and place each school division into one-third

category groups of higher above average, average, and below average (Virginia Department of

Education, 2015, 2016, 2017a, 2018a, 2019). Since all school divisions in Virginia provide

funding above the required local effort, the researcher was able to analyze the convenience

sample of Virginia school divisions' population to assess the value localities place on the efforts

of their school division, where more extensive funding above the required local effort represents

more substantial value placed on the respective school division by their locality. The researcher

was able to assess the calculated percentage of total dollars each school division receives above

the required local effort and compare school divisions receiving above average funds above the required local effort, average funds above the required local effort, and below average funds above the required local effort.

Instrumentation

The 2015, 2016, 2017, and 2018 DLAS documents, which present all Virginia school divisions' PEARLE and extra dollars received above the required local effort, and Virginia Four-Year Cohort Reports produced by the Virginia Department of Education were used to conduct the study (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). These archived data are extremely reliable, valid, and credible, as each piece of data is verified by the administration of every school division through submission of the annual school report as well as verified by the Virginia Department of Education and each superintendent.

Other researchers have used their state department of education school report cards as a source for their research, using databases for easy identification and analysis of data for school divisions (Houck & Kurtz, 2010). These researchers relied on their respective states' school report card to attain the ex post facto data needed to conduct their research. Another similar study was conducted analyzing potential relationships between school funding and graduation rates (Houck & Kurtz, 2010). Prior researchers have attained consistency within their research and findings by utilizing this form of instrumentation to study the relationship between funding and graduation rates instead of using other output variables such as standardized testing (Houck & Kurtz, 2010). Reliability, validity, and credibility were increased in this study since the researcher used all data on all 133 school divisions, utilizing the convenience sampling method and eliminating the possibility of researcher prejudice and skewed results from the use of random sampling (Gall et al., 2007).

High school graduation rate data are a convenient way for stakeholders to see how their respective school divisions' student achievement compares to other school divisions within the same state. The Virginia Department of Education provides both the DLAS documents and Virginia Four-Year Cohort Reports publicly on its website, and these documents are updated annually based on data received from each school division (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). The accuracy of the ex post facto data ensures the researcher can effectively conduct the study, as each division superintendent is required to verify their respective annual school report and student record data report to ensure graduation rates and funding received are accurately reported to the Virginia Department of Education.

Procedures

The researcher understood not all research involving human subjects actively occurs alongside data collection (Cornell University, n.d.; Gall et al., 2007). Therefore, the researcher first contacted the Liberty University Institutional Review Board to request its approval before moving forward utilizing archived ex post facto data. After obtaining authorization, ex post facto data were collected from the Virginia Department of Education website in the form of the 2015, 2016, 2017, and 2018 DLAS documents and the Virginia Four-Year Cohort Reports (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). Raw data from each studied year's DLAS document are included in Appendix B, and raw data from the Virginia Four-Year Cohort Reports are included in Appendix C.

After compiling the results, the researcher analyzed the collected data from the Virginia Department of Education website, including all of the Virginia school divisions' PEARLE, extra dollars received above the required local effort, and graduation rates (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). School divisions were divided into three categories

by PEARLE (above average funding, average funding, or below average funding) for each of the studied years 2015, 2016, 2017, and 2018 (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). The results were as follows for Virginia school divisions: 58 above average, 8 average, and 64 below average in 2015; 59 above average, 6 average, and 65 below average in 2016; 56 above average, 8 average, and 67 below average in 2017; and 55 above average, 7 average, and 69 below average in 2018. After grouping was completed, the information was entered into the Statistical Package for the Social Sciences, which the researcher used to assess the potential relationship between the variables, graduation rates and PEARLE (Green & Salkind, 2017). These data were stored on a thumb drive and an external hard drive. Both sources were password protected, and backup paper copies were stored in a locked file cabinet.

Data Analysis

The researcher conducted four Pearson product-moment correlations. This analysis supports the validity of the research results, as both variables the researcher correlates "are expressed as continuous scores" (Gall et al., 2007, p. 347). Results presented allowed the researcher to make decision to either reject or fail to reject the null hypothesis as to whether there is a significant relationship between graduation rate and PEARLE for Virginia school divisions in fiscal years 2015, 2016, 2017, and 2018.

The researcher visually screened data for missing data points and incorrect entries. The graduation rates and PEARLE were measured on a ratio scale (Gall et al., 2007). The researcher identified potential outliers utilizing z score calculations. The rule used for z scores states if any data point is above the absolute value of 3.29 either on the positive end or negative end, such data point is considered an outlier and must be removed before continuing the data analysis

process (Green & Salkind, 2017). The researcher conducted assumption testing by creating a

scatterplot for each of the four null hypotheses for fiscal years 2015–2018.

The extreme outliers identified using z scores were compared to the potential outliers

seen on each scatterplot to test the assumption of bivariate outliers, assumption of linearity, and

assumption of bivariate normal distribution (Green & Salkind, 2017). The researcher ran

Pearson's correlation coefficient to test the assumption of bivariate outliers and eliminated any

extreme bivariate outliers. Based on the points on the scatterplot, the researcher either met the

bivariate normality assumption or determined violation of the bivariate normality assumption.

When normality is tested for each variable individually, normality ensures a linear relationship

between variables, whereas violation of the assumption of normality reveals the possibility of a

nonlinear relationship. The researcher then conducted the assumption of linearity test for the

variables. The researcher composed a line of best fit using the same scatterplot between the two

variables. The researcher looked for extreme bivariate outliers, and depending on where the

points on the scatterplot formed a line alongside the line of best fit, the researcher concluded

whether the assumption was met. If the points formed a line alongside the line of best fit, the

assumption was met.

Next, the researcher tested the assumption of bivariate normal distribution. There is

normal distribution if the points of the two variables on the same scatterplot form the classic

cigar shape. Once all assumptions are deemed tenable, the researcher proceeds with the four

Pearson product-moment correlations. The researcher reported findings for the Pearson's

correlation coefficient and effect size. The scale for the Pearson's correlation coefficient ranges

from -1 to 1 (Green & Salkind, 2017). The closer the value is to 1, the stronger the correlation

between graduation rates and PEARLE. A value closer to -1 signifies an inverse relationship

between the two variables. The researcher also assessed the effect size of the correlation. The

researcher concludes a small effect size based on receiving the score 0.10, a medium effect size

for the score 0.30, and a large effect size for the score 0.50 (Green & Salkind, 2017). Once the

assumption of Pearson's correlation is deemed appropriate, the researcher proceeds with

implementing Pearson's correlation analysis using an alpha set of $p < 0.0125$ versus $p < .05$ due

to the need to conduct a Bonferroni Correction to guard against the possibility of experiencing a

Type I error due to four tests being completed during the Pearson's correlation process (Warner,

2013). If the significance from Pearson's correlation coefficient is greater than the p value of

0.0125, the researcher fails to reject the null hypothesis.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this study is to examine the potential positive relationship between school funding in the form of PEARLE and student achievement in the form of on-time graduation rates for all 133 Virginia school divisions. The researcher identified Pearson's correlation coefficient as the tool necessary to analyze the two variables, as both variables are represented in the form of continuous scores (Gall et al., 2007). Four Pearson product-moment correlations were run, one for each of four studied fiscal years: 2015, 2016, 2017, and 2018. The researcher analyzed and studied each fiscal year separately to determine whether to reject or fail to reject each null hypothesis, indicating whether there is a positive relationship between PEARLE and on-time graduation rates for Virginia school divisions.

Research Question

What is the relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015) through fiscal year 2018 (July 1 to June 30, 2018)?

Null Hypotheses

$H_0$1: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015).

$H_0$2: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2016 (July 1 to June 30, 2016).

$H_0$3: There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2017 (July 1 to June 30, 2017).

$H_0$4: There is no significant relationship between graduation rates and PEARLE for

Virginia school divisions in fiscal year 2018 (July 1 to June 30, 2018).

Descriptive Statistics

The researcher created an Excel spreadsheet to calculate the mean PEARLE for each fiscal year: 2015, 2016, 2017, and 2018. After calculating the average, the researcher organized the PEARLE data for each school division for each fiscal year into three groups: above average PEARLE, average PEARLE, and below average PEARLE. The mean was based on a standard deviation of +/- 3, so school divisions within three percentage points above the mean and three percentage points below the mean were placed in the average PEARLE group in order to eliminate the possibility of grouping school divisions in the wrong category due to the potential skewness of the mean calculation. Table 1 presents the average PEARLE for each fiscal year, including the minimum data point, maximum data point, and the number of school systems in the collected archived data.

Table 1

PEARLE Descriptive Statistics by Year

Fiscal year	N	Minimum	Maximum	Mean	*SD*
2015	130	6.99	283.97	77.53	45.00
2016	130	7.69	258.83	82.51	47.03
2017	131	1.12	296.25	81.06	48.28
2018	131	3.69	264.80	84.42	45.00

The researcher utilized convenience sampling to attain the archived data from the Virginia Department of Education website. The researcher visually screened and acquired a large percentage of PEARLE data for Virginia school divisions; data were collected for 130 out of 133 school divisions in fiscal years 2015 and 2016 and 131 out of 133 in fiscal years 2017 and 2018. Three school divisions in 2015 and 2016 and two school divisions in 2017 and 2018 did not fall within the designated threshold set forth by established absolute values of -3.29 to 3.29 (Gall et

al., 2007; Warner, 2013). In order to eliminate the potential risk of the effects of skewed data, the researcher eliminated each of the total 10 data points for fiscal years 2015 through 2018 from the study. The substantial availability of archived data for implementing convenience sampling strengthens the validity and reliability of the study (Gall et al., 2007; Warner, 2013).

Results

The researcher conducted four Pearson product-moment correlations for fiscal years 2015, 2016, 2017, and 2018. In testing the research question, the researcher the developed hypothesis for each fiscal year separately. The researcher calculated z scores for each fiscal year to identify and remove potential extreme outliers that would skew the data (Warner, 2013). Data points greater than the absolute value of 3.29 were eliminated. Next, the researcher created a scatterplot for each fiscal year to double check for extreme outliers. The researcher used these results to test the assumption of bivariate outliers, assumption of linearity, and assumption of bivariate normal distribution for each of the null hypotheses (Green & Salkind, 2017). Listed in the next section are the results for each specific product-moment correlation run to test each hypothesis for the potential positive relationship between PEARLE and on-time graduation rates for Virginia school divisions.

Hypotheses

Null Hypothesis 1

Null Hypotheses 1 states, "There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015)." After calculating z scores for fiscal year 2015, two data pieces were identified as being greater than the absolute value of 3.29 and were therefore classified as extreme outliers and eliminated. The researcher then ran the Pearson product-moment correlation. Figure 1 displays the scatterplot

created by the researcher after running the correlation. Based on the points on the scatterplot, the researcher concluded the bivariate normality assumption was met and did not detect any additional extreme outliers.

Figure 1

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2015
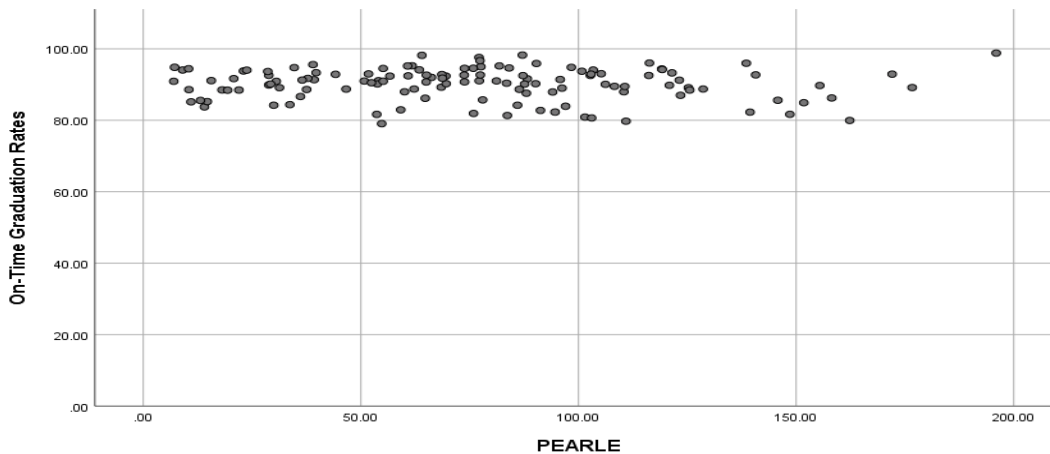
The researcher conducted the assumption of linearity test for fiscal year 2015. As can be seen from the graphs below for both variables, all of the data points form a line along the line of best fit for both PEARLE and on-time graduation rates, signifying the data met the assumption of linearity.

Figure 2

Normal Q-Q Plot of PEARLE for Fiscal Year 2015

Figure 3

Normal Q-Q Plot of On-Time Graduation Rates for Fiscal Year 2015

The researcher then conducted the test for the assumption of bivariate normal distribution. The researcher used a scatterplot (see Figure 4) to look for the classic cigar shape, which was found, indicating the data met the assumption of bivariate normal distribution. The researcher then moved forward in the Pearson product-moment analysis since all assumptions were met.

Figure 4

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2015
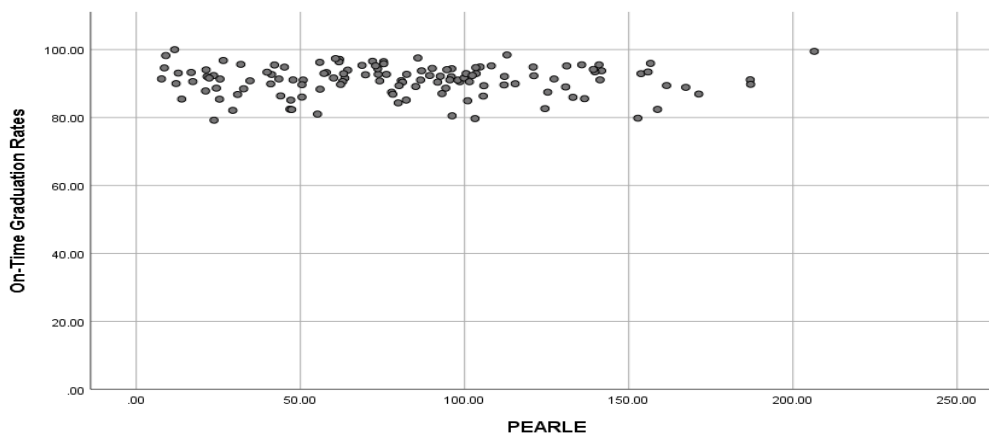
After running the Pearson product-moment correlation, the researcher found the following results regarding the Pearson correlation coefficient and effect size for fiscal year 2015. As shown in Table 2, there was no correlation between PEARLE and on-time graduation rates for fiscal year 2015, $r(128) = -.070$, $p = .431$. The researcher failed to reject the null hypothesis.

Table 2

Fiscal Year 2015 Correlations

	PEARLE	On-time graduation rates
PEARLE		
Pearson's correlation	1	-.070
Sig. (2-tailed)		.431
N	128	128
On-time graduation rates		
Pearson' correlation	-.070	1
Sig. (2-tailed)	.431	
N	128	128

Null Hypothesis 2

Null Hypothesis 2 states, "There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2016 (July 1 to June 30, 2016)." After z scores for fiscal year 2016 were calculated, one piece of data was identified as being greater than the absolute value of 3.29 and was therefore classified as an extreme outlier and eliminated. The researcher then ran the Pearson product-moment correlation. Figure 5 displays the scatterplot created after the correlation was run. Based on the points on the scatterplot, the researcher concluded the bivariate normality assumption was met and did not detect any additional extreme outliers.

Figure 5

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2016
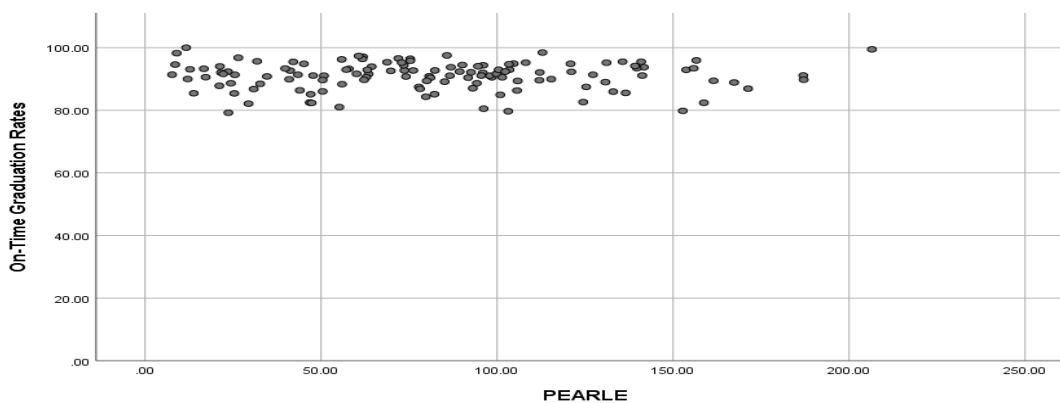
The researcher conducted the assumption of linearity test for fiscal year 2016. As can be seen from Figures 6 and 7, all of the data points form a line along the line of best fit for both PEARLE and on-time graduation rates, signifying the data met the assumption of linearity.

Figure 6

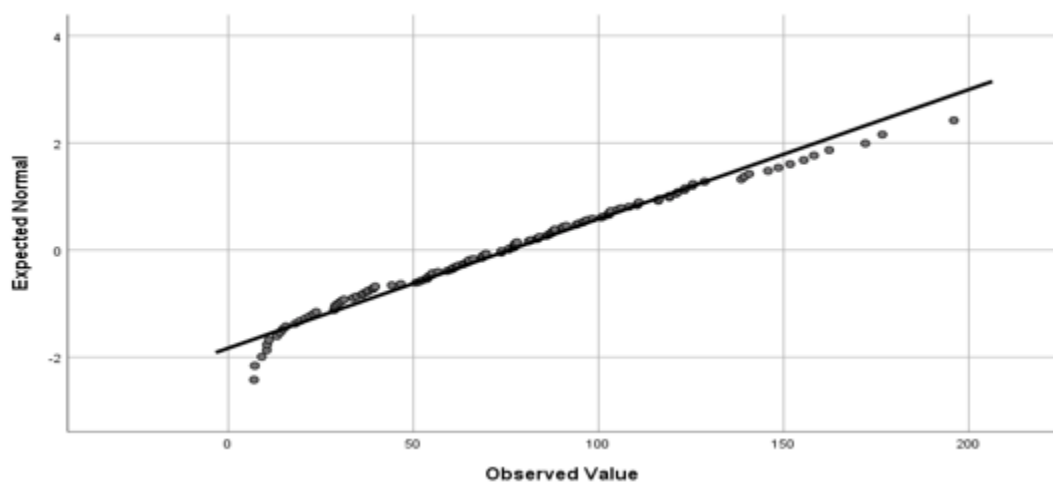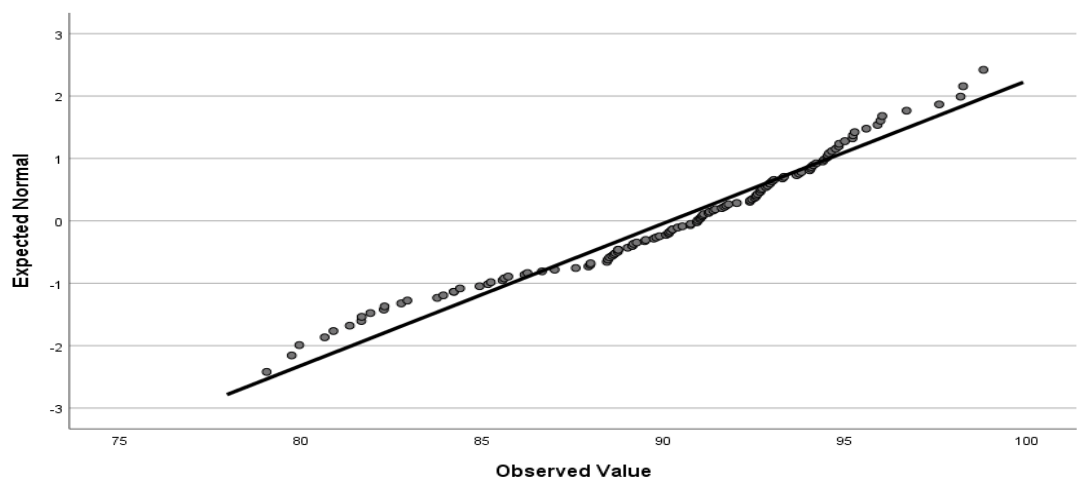*Normal Q-Q Plot of PEARLE for Fiscal Year 2016*

Figure 7

Normal Q-Q Plot of On-Time Graduation Rates for Fiscal Year 2016
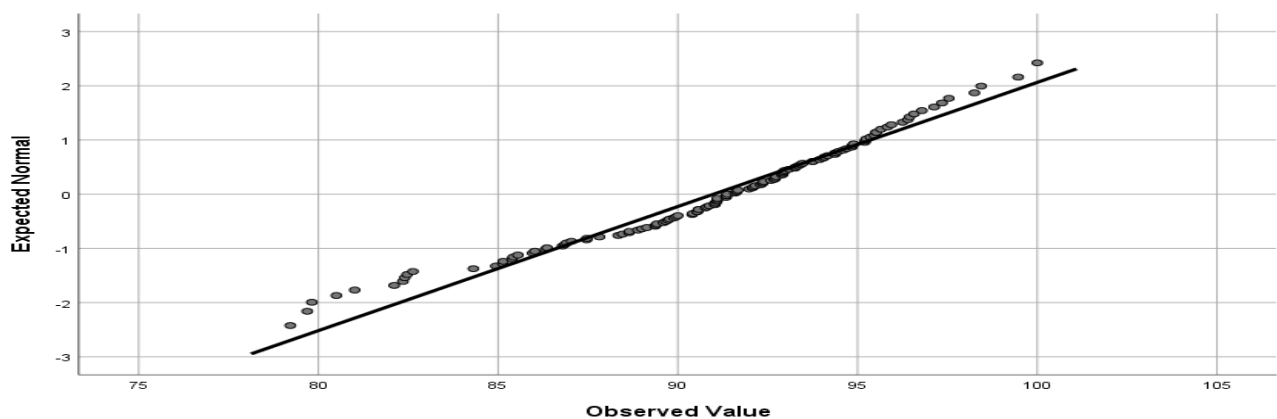
The researcher then conducted the test for the assumption of bivariate normal distribution. The researcher used a scatterplot (see Figure 8) to assess for the classic cigar shape, and declared the data met the assumption of bivariate normal distribution. The researcher then moved forward in the Pearson product-moment analysis since all assumptions were met.

Figure 8

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2016
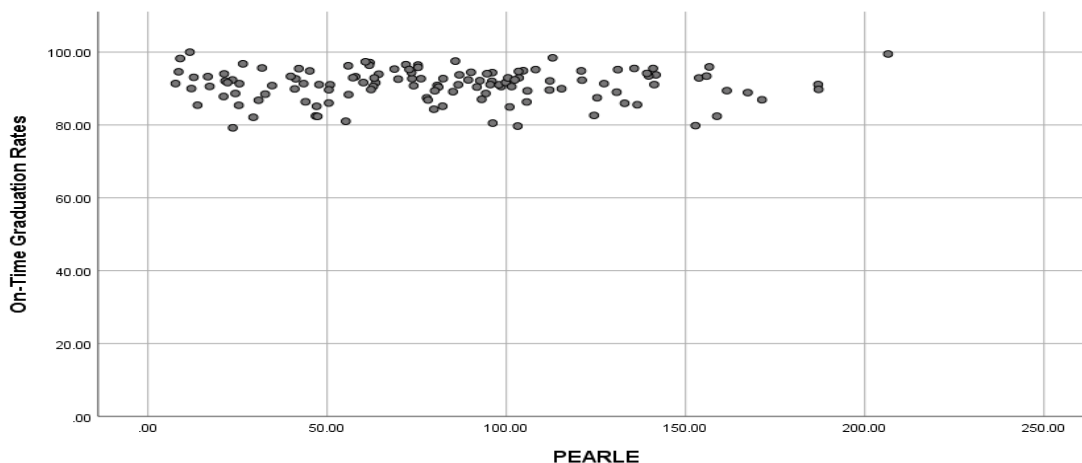
After running the Pearson product-moment correlation, the researcher found the following results regarding the Pearson correlation coefficient and effect size for fiscal year 2016. As seen in Table 3, there was no correlation between PEARLE and on-time graduation rates for fiscal year 2016, $r(129) = -.006$, $p = .947$. The researcher failed to reject the null hypothesis.

**Table 3**

Fiscal Year 2016 Correlations

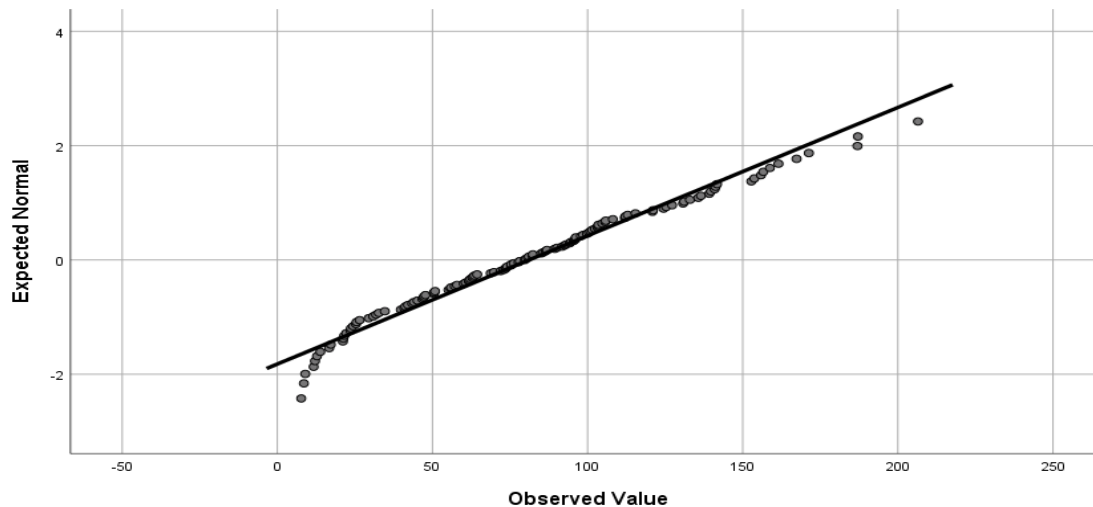|	PEARLE	On-time graduation rates
PEARLE		
Pearson's correlation	1	-.006
Sig. (2-tailed)		.947
N	129	129
On-time graduation rate		
Pearson's correlation	-.006	1
Sig. (2-tailed)	.947	
N	129	129

Null Hypothesis 3

Null Hypothesis 3 states, "There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2017 (July 1 to June 30, 2017)." After the researcher calculated z scores for fiscal year 2017, three data pieces were identified as being greater than the absolute value of 3.29 and were therefore classified as extreme outliers and eliminated. The researcher then ran the Pearson product-moment correlation. Figure 9 displays the scatterplot created after the correlation was run. Based on the points on the scatterplot, the researcher concluded bivariate normality assumption was met and did not detect any additional extreme outliers.

Figure 9

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2017
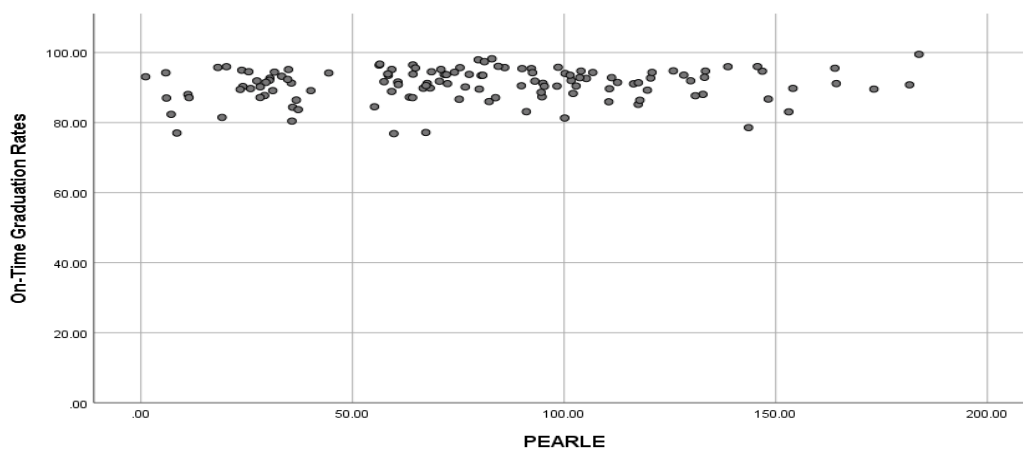

The researcher conducted the assumption of linearity test for fiscal year 2017. As can be seen from Figures 10 and 11, all of the data points form a line along the line of best fit for both PEARLE and on-time graduation rates, signifying the data met the assumption of linearity.

Figure 10

Normal Q-Q Plot of PEARLE for Fiscal Year 2017

Figure 11

Normal Q-Q Plot of On-Time Graduation Rates for Fiscal Year 2017

The researcher then conducted the test for the assumption of bivariate normal

distribution. The researcher used a scatterplot (see Figure 12) to look for the classic cigar shape,

which was found, therefore indicating the data met the assumption of bivariate normal

distribution. The researcher then moved forward in the Pearson product-moment analysis since all assumptions were met.

Figure 12

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2017
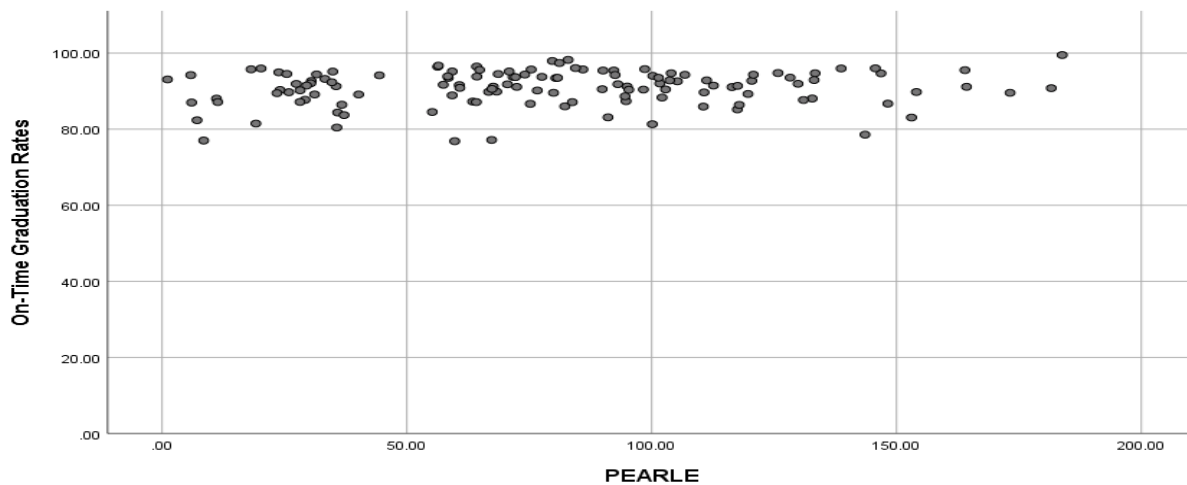
After running the Pearson product-moment correlation, the researcher found the following results regarding the Pearson correlation coefficient and effect size for fiscal year 2017. As seen in Table 4, there was a small positive correlation between PEARLE and on-time graduation rates for fiscal year 2017, $r(128) = .127$, $p = .152$. Due to there being only a small positive correlation, the researcher failed to reject the null hypothesis.

Table 4

Fiscal Year 2017 Correlations

	PEARLE	On-time graduation rates
PEARLE		
Pearson's correlation	1	.127
Sig. (2-tailed)		.152
N	128	128
On-time graduation rates		
Pearson's correlation	.127	1
Sig. (2-tailed)	.152	
N	128	128

Null Hypothesis 4

Null Hypothesis 4 states, "There is no significant relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2018 (July 1 to June 30, 2018)." After *z* scores for fiscal year 2018 were calculated, two data pieces were identified as being greater than the absolute value of 3.29 and were therefore classified as extreme outliers and eliminated. The researcher then ran the Pearson product-moment correlation. Figure 13 displays the scatterplot created after the correlation was run. Based on the points on the scatterplot, the researcher concluded bivariate normality assumption was met and did not detect any additional extreme outliers.

Figure 13

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2018
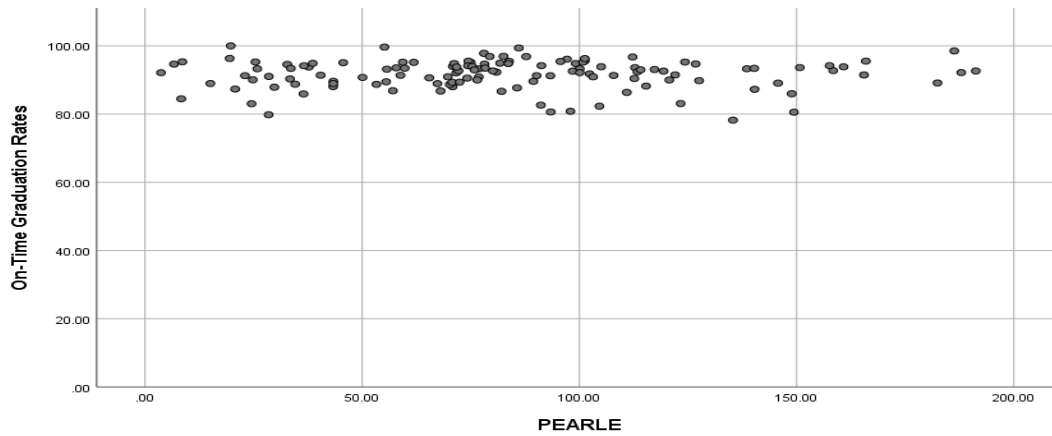
The researcher conducted the assumption of linearity test for fiscal year 2018. As can be seen in Figures 14 and 15, all the data points form a line along the line of best fit for both PEARLE and on-time graduation rates, signifying the data met the assumption of linearity.

Figure 14

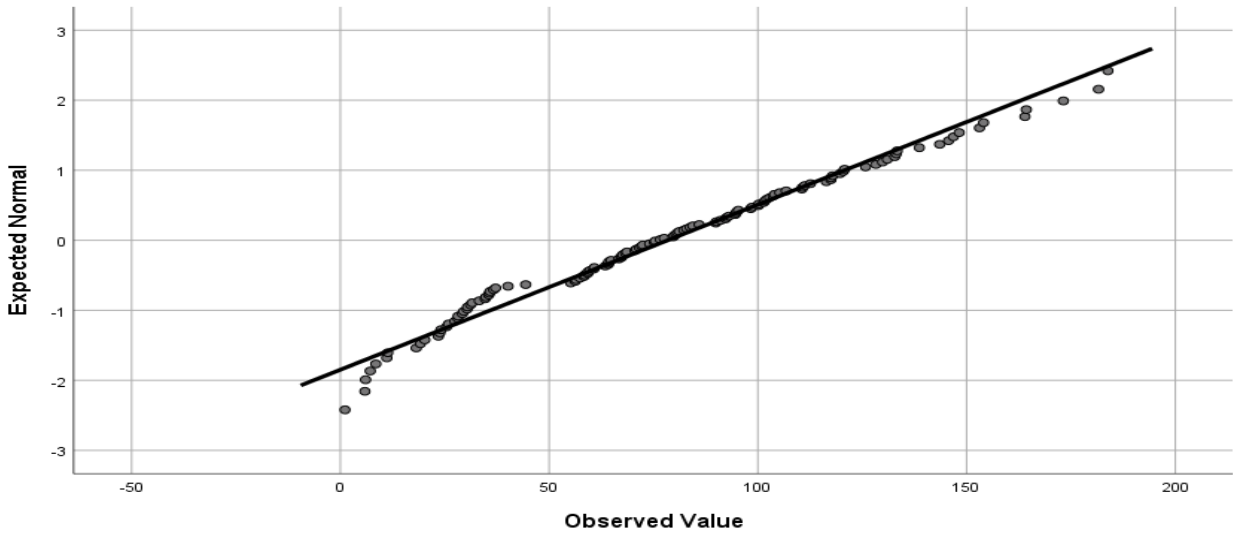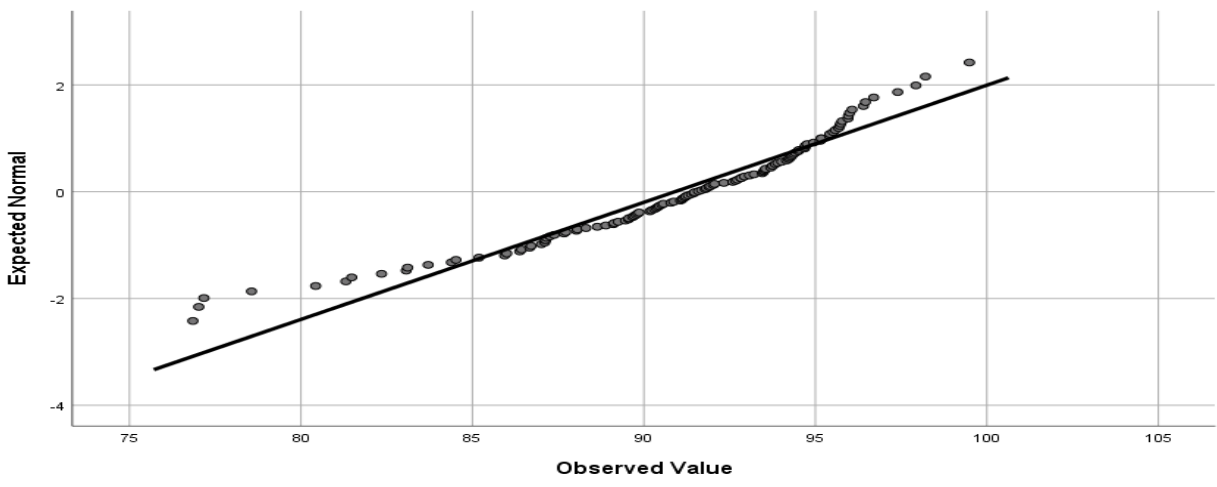*Normal Q-Q Plot of PEARLE for Fiscal Year 2018*
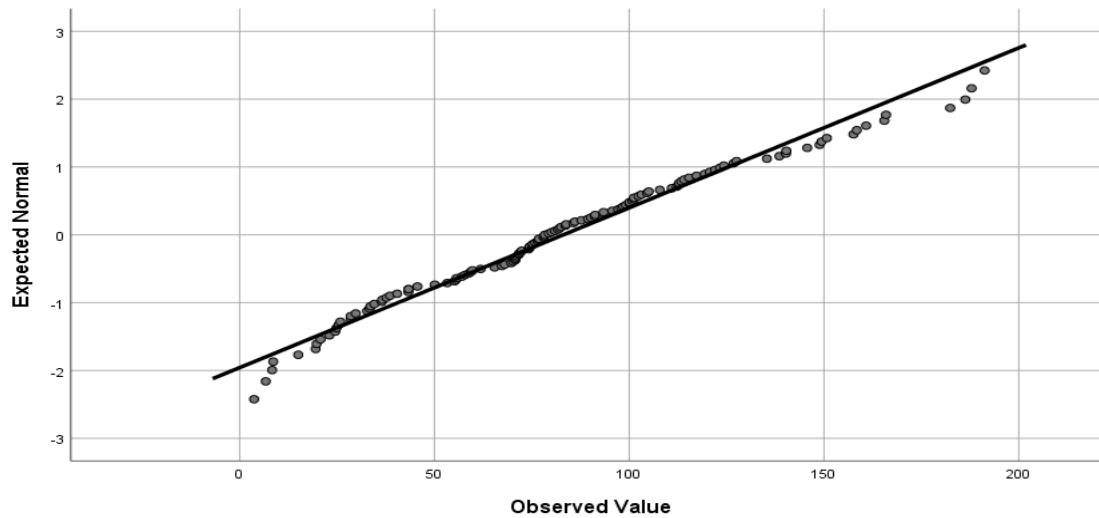
Figure 15

Normal Q-Q Plot of On-Time Graduation Rates for Fiscal Year 2018
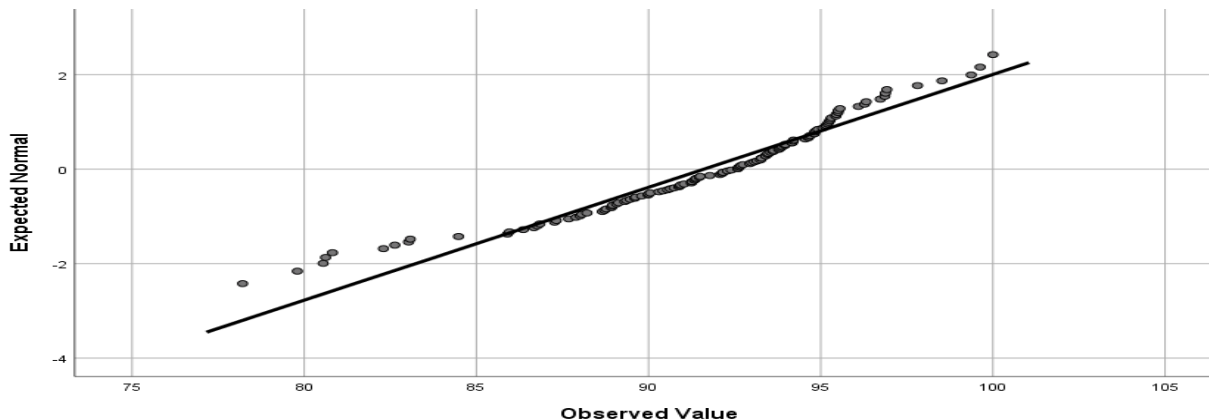

The researcher then conducted the test for the assumption of bivariate normal distribution. The researcher used a scatterplot (see Figure 16) to look for the classic cigar shape, which was found, indicating the data met the assumption of bivariate normal distribution. The researcher then moved forward in the Pearson product-moment analysis since all assumptions were met.

Figure 16

Simple Scatter of On-Time Graduation Rates by PEARLE for Fiscal Year 2018
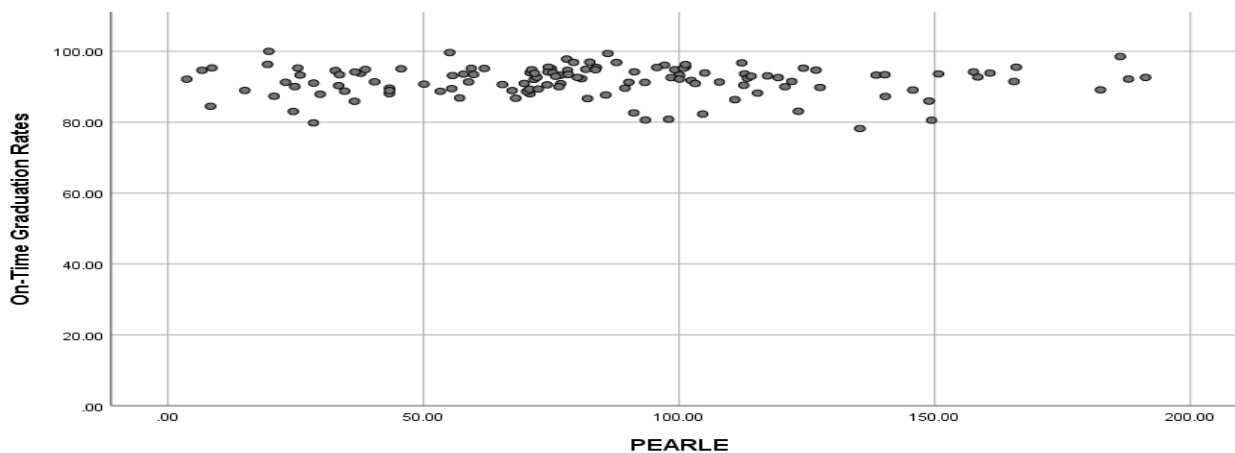
After running the Pearson product-moment correlation, the researcher found the following results regarding the Pearson correlation coefficient and effect size for fiscal year 2018. As seen in Table 5, there was no correlation between PEARLE and on-time graduation rates for fiscal year 2018, $r(129) = -.001$, $p = .992$. The researcher failed to reject the null hypothesis.

Table 5

Fiscal Year 2018 Correlations

	PEARLE	On-time graduation rates
PEARLE		
Pearson's correlation	1	-.001
Sig. (2-tailed)		.992
N	129	129
On-time graduation rates		
Pearson's correlation	-.001	1
Sig. (2-tailed)	.992	
N	129	129

CHAPTER FIVE: CONCLUSIONS

Overview

This study analyzes the potential relationship between local government school funding as measured by PEARLE and student achievement in the form of on-time graduation rates for all 133 Virginia public school divisions. The researcher identified the need based on prior experience serving as a former classroom educator and former finance officer in multiple Virginia school districts. In this chapter, the researcher explains conclusions drawn after having run Pearson product-moment correlations between the two variables: local government school funding and on-time graduation rates for all 133 Virginia public school divisions. The researcher also discusses implications of the research, limitations, and recommendations for future research, which assist with filling the research gap on the potential relationship between school funding and student achievement in the form of graduation rates.

Discussion

The purpose of this quantitative correlational research design study is to analyze the potential relationship between local government school funding and student achievement in the form of graduation rates for Virginia public school divisions. Based on prior research, the researcher identified local government school funding as the best form of funding to study concerning student achievement due to local governments serving as the sole funding source negotiated between school systems and their respective locality, whereas state funding is driven by a school system's average daily membership and federal funding is based on grants received (Lin & Couch, 2014; Lou et al., 2018). Nationally, local government school funding represents an average of 35% of the overall revenue needed to fund a school system's budget (Lin & Couch, 2014; Lou et al., 2018). In Virginia, the required local effort drives the minimum amount

of local dollars school systems are entitled to receive, and based on the conducted research for fiscal years 2015, 2016, 2017, and 2018, all school divisions in Virginia in all fiscal years gave their respective school divisions funds above the required local effort (Lou et al., 2018; Virginia Department of Education, n.d.g). The four fiscal years analyzed in this study were all pre-COVID-19 school years. In the current fiscal year (2021), school systems are no longer entitled to the required local effort, therefore making the political relationships even more important for school systems to attain stakeholder support and ensure resources are distributed equitably with students' success in mind (Owings & Kaplan, 2019; Virginia General Assembly, 2020).

The research question for this study was as follows: What is the relationship between graduation rates and PEARLE for Virginia school divisions in fiscal year 2015 (July 1 to June 30, 2015) through fiscal year 2018 (July 1 to June 30, 2018)?

The researcher conducted a unique study in analyzing the potential relationship between PEARLE and on-time graduation rates, as research had never been performed in Virginia. Researchers in other states have researched the relationship between funding and student achievement but did not look at funding in the form of local funding utilizing PEARLE. Instead, previous research has investigated state funding using state-specific school funding formulas and their effects, utilizing multiple variables of student achievement including test scores, graduation rates, dropout rates, and college enrollment (Kreisman & Steinberg, 2019; Ray & Lao, 2019). Research in these states found a strong connection between state funding and multiple student achievement variables due mostly to the attainment and sustainment of high-quality educators working toward ensuring student success (Kreisman & Steinberg, 2019; Ray & Lao, 2019). These findings proved the importance of effectively using financial resources to ensure student success in the states of Georgia and Texas (Kreisman & Steinberg, 2019; Ray & Lao, 2019).

The researcher's unique approach of applying human capital theory when analyzing the potential relationship between PEARLE and on-time graduation rates provides a blueprint for researchers in other states also to utilize and compare their results to the ones in this study. Yearly data, including data on local funding and on-time graduation rates, are consistently collected in the 50 states based on the standards outlined in the recently passed Graduation Counts Compact, which establishes consistency in the calculation of received funding compared to graduation rates (Neher et al., 2017). This agreement provides reliable annual reporting requirements and ensures proper data collection and analysis by local governments and school divisions (Neher et al., 2017). The procedures outlined in this study allow researchers in other states and Virginia to perform the same study by utilizing data for prior or future fiscal years to compare to the researcher's study and results.

Since prior research does not exist in Virginia or other states studying the relationship between PEARLE and on-time graduation rates, the researcher has become a pioneer in this form of research process and analysis. Based on the results of each null hypothesis, the researcher does not conclude a relationship exists between PEARLE and on-time graduation rates, as the null hypothesis failed to be rejected for each fiscal year. If the same research was conducted using other forms of student achievement, such as SAT and ACT scores, different results might have been attained. However, unlike on-time graduation rates, these forms of student achievement may be impacted by bias, as these single administration assessments do not include the same rigor and value as on-time graduation rates, which serve as the terminal approval, signaling students have officially achieved the requirements outlined in the respective curriculum (Jackson et al., 2016; Nicoletti & Rabe, 2017).

Based on the study results, a relationship does not exist between PEARLE and on-time graduation rates. However, some individuals may argue the ineffectiveness of school budgeting practices and spending by school divisions in Virginia. In the fiscal year 2018, Virginia's average teacher salary was close to $10,000 less than the national average (Will, 2019). However, Virginia is in the top 10 out of the 50 American states for offering the best equitable pre-K-12 education for students in 2019 (U.S. News & World Report, n.d.). In addition to the historical emphasis placed on education, such as having its own high-stakes assessment in the form of the SOL test sversus other standardized tests used in other states, these results have indeed proven that Virginia seeks to provide for the equitable best interest of its students. Based on these results and the results from the present study, one could wonder if the results would have been different if more money had been allocated to teacher raises to encourage attainment and sustainment of teachers within Virginia school districts. Historically, many Virginia educators use the position of teacher to attain experience and move into higher-paying administrative positions. Virginia has tried to counteract this painful process by offering compensation supplements to school divisions and requiring local governments match to match state increases in teacher salaries (Virginia Department of Education, n.d.c).

Application of Jacob Mincer's earnings function alongside human capital theory supports increasing salaries for Virginia teachers (Galiakberova, 2019; Mincer, 1958). Budgetary practices of school administrators do not align with the Mincer's earnings function, which states that more education should lead to higher wages (Galiakberova, 2019; Mincer, 1958). As teachers work toward degrees beyond their bachelor's degree, one way in which they are able to fulfill the findings found in Mincer's earnings function as it aligns with human capital theory is to seek positions such as administrator, school counselor, psychologist, or technology specialist

or leave the field of education altogether, thus eliminating high-quality teachers who are driven to assist students in attaining their very best, using resources to provide relevant, reliable, and rigorous instruction.

Results from this study point to the importance of communication between school administrators such as the school board, superintendent, and finance officer, to ensure school systems are asking their respective locality for the dollars required to maximize on-time graduation rates. The results from this study can also be utilized to highlight the importance of offering professional development opportunities to build and sustain relationships between top school administrators and local government administrators for the sake of ensuring student equitable needs. Higher-level learning institutions can learn from this study the necessity of adding extra school finance courses into the graduate-level education curriculum. This can assist graduate students in attaining the necessary knowledge to run a school system effectively and efficiently, as many graduates entering the field of school administration have proven to be unprepared to practice the due diligence to sustain the financial prudence and efficacy necessary to effectively run the operations of a school division.

COVID-19, along with recently provided CARES Act funding, provides school system administrators and their respective localities the opportunity to reanalyze how education is currently funded and reassess current progress (Welch, 2020). Positive relationships are critical in that CARES Act funding may only provide funding opportunities for nonrecurring expenses; however, school administrators and localities can work together to build upon the CARES Act funding currently received to assist with providing raises to teachers even though state funds for teacher raises were eliminated due to the COVID-19 pandemic. Virginia school superintendents, principals, reading specialists, directors, school counselors, and other personnel are a financial

product of the Mincer earnings function, as they receive above-average salaries based on previous experience in the classroom and attaining a higher education level (Galiakberova, 2019; Mincer, 1958). However, Virginia teachers do not have this luxury and can only benefit if they make the move into other positions in a school division, thus continuing the Virginia critical teacher shortage and providing the challenge of narrowing the gap between salaries and results achieved (U.S. News & World Report, n.d; Will, 2019).

Implications

The researcher's experience in the field of education, both as a teacher and finance officer, has allowed him to work directly with key administrators, including school board members, superintendents, and principals. Before COVID-19, the current governor of Virginia worked alongside the General Assembly for planned teacher raises to help attain and sustain excellent teachers and narrow the pay gap between teachers and administrators (Virginia Department of Education, 2020). In Virginia, there has been a sense of conflict between teachers and administrators, as teachers often experience burnout, feel a lack of administrative support, and believe administrators are overpaid based on their duties versus the duties of teachers who work directly with students every day to ensure they achieve their very best (Keese, 2018; Welch, 2020).

High school graduation rates throughout Virginia were maximized for fiscal years 2015 through 2018, as the results showed a lack of correlation between PEARLE and on-time graduation rates. The study's results creates the need for school system stakeholders to complete an overhaul by analyzing available school funds and identifying where school funds are necessary to be spent in order to maximize student achievement. The lack of correlation between PEARLE and on-time graduation rates for school systems in Virginia creates the question of

what areas school systems should focus on in order to increase on-time graduation rates, since each school division received dollars from their locality above the required local effort in fiscal years 2015 through 2018 (Virginia Department of Education, 2015, 2016, 2017a, 2018a, 2019). Literature has proven the need for these conversations to be held among stakeholders as decreasing the teacher shortage and sustaining high-quality teachers in the field of education have been identified as potential strategies to increase on-time graduation rates, as teachers are identified through the application of human capital theory as the strongest asset for assisting students with achieving their best.

Many Virginia school systems have been accused of pushing students through each grade level to ensure on-time graduation rates, thus minimizing student accountability for becoming responsible for their own learning. Evidence can be seen through school systems creating rules stating students cannot receive below 50% on assignments turned in. Policies such as this skew on-time graduation rates and present opportunities for future research to be conducted on the adequacy of student knowledge attained for success in life after high school.

In the researcher's time working in two Virginia school divisions, he experienced results aligning with this study's results. Unlike in Virginia, educators in Georgia and Texas have enjoyed the effectiveness of human capital theory, as it has led to a positive correlation between school funding and student achievement in the form of test scores, graduation rates, and college enrollment for these states (Kreisman & Steinberg, 2019; Ray & Lao, 2019). During the researcher's time in the field of education, he noticed that many school divisions had large amounts of funds left over at the end of a fiscal year. Since state and local funds are grouped together during Virginia school division budgeting practices, any leftover funds would be required to be given back to the locality at the end of the fiscal year (Virginia General Assembly,

2020). Even if school divisions did not necessarily need specific items such as vehicles, including buses, they would spend the large amounts of money left at the end of a fiscal year just to spend, even if a need was not presented.

School divisions also used the spend-down concept to prepay certain items that would be budgeted for in the future fiscal year budget, including paying the following fiscal year's bus lease, dues, subscriptions for administrator professional development such as for the Virginia Association of School Superintendents or Virginia School Board Association, and the following fiscal year's worker's compensation/liability insurance coverage, copier leases etc., thereby showing funds were not spent in accordance with human capital theory, which would necessitate increasing teacher salaries, but were rather used according to the school administration's personal agenda of completing projects not necessarily tied directly to student achievement. Administrators initiated major spend downs due to the fear of budget cuts the following fiscal year if localities decided the school system did not need the current level of funds received if it did not ensure a low amount of revenue was left in the budget at the end of the fiscal year. Rather than negotiating for higher teacher salaries to help place Virginia on the same level of teacher salaries enjoyed by educators in other states, Virginia school administrators have failed to advocate with their respective localities on behalf of teachers to help sustain continuous yearly growth in teacher salaries, which would keep high-quality teachers in their expert-content level positions. This would narrow the gap between the salaries received by Virginia teachers and their current success in helping students to achieve their very best as can, as seen by Virginia ranking in the top 10 out of the 50 states for providing students with an equitable pre-K-12 education in 2019 but receiving a salary more than $10,000 less than the national average (U.S. News & World Report, n.d.; Will, 2019).

Virginia school administrators have continued to focus on their own personal agendas for increasing their own salaries. They have also continued to use the excuse that without a compensation supplement match for teacher salary increases from the state government, their general school operating budget cannot sustain teacher raises. They have instilled the fear that should significant raises be given to align with those in other states, positions could be cut if the average daily membership does not come in at a certain needed level, due to the state government providing the largest source of funds for supporting Virginia public schools. These budgetary practices and high salaries for school administrators do not align with the proven human capital theory enjoyed by school systems in Georgia and Texas, where an emphasis on teacher effectiveness has helped increase student achievement (Kreisman & Steinberg, 2019; Ray & Lao, 2019).

The researcher would like to use the data presented in this manuscript to help build and sustain positive relationships between school systems and their localities for effective negotiation discussions to ensure school systems have the necessary funds to provide for the equitable best interest of students, especially since the required local effort has been waived as of fiscal year 2021 (Owings & Kaplan, 2019; Virginia General Assembly, 2020). Currently, school superintendents and finance officers attend the conferences for the Virginia Association of School Board Officials and Virginia Association of School Superintendents once a year to discuss the upcoming fiscal year budget and to assist in strengthening positive relationships between superintendents and finance officers as they work to operate their respective school systems together efficiently and effectively.

After completing this manuscript, the researcher plans to earn his certified public accountant certificate. The researcher also intends to conduct further research on the importance

of preparing finance officers for their role in school system operations and would like to assist in building and teaching a postgraduate-level curriculum to better prepare finance officers for the financial operations of school divisions. The researcher attended a new director's training offered by the Virginia Department of Education for food service directors. After frequent conversations with other finance officers at the training, the researcher realized the Virginia Department of Education does not offer any training specifically designed for new finance officers. Therefore, the researcher would like to work alongside a Virginia university to assist in filling in the gap of preparing new finance officers for their role, especially since in the past few years, some Virginia school divisions have overspent their fiscal year budget, causing both the finance officer and superintendent to lose their respective positions (Remmers, 2018).

Limitations

The correlational research design utilized for this study could have certain limitations including possible minimal readability and the potential error of over or under estimating the true strength of a correlational relationship between variables after running the designs tests (Gall et al., 2007; Warner, 2013). The researcher is aware of the lack of random assignment which states there are many confounding uncontrolled variables (Gall et al., 2007). Probable calculation errors can lead to mis-identification of outliers causing abnormal distribution shapes of figures and graphs when conducting the study and possible skewed results which can prevent credibility of results (Gall et al., 2007; Warner, 2013). Factors of limitations for this study includes the researcher solely analyzing local dollars in the form of funding provided by the local governments for Virginia school divisions and not other forms such as state funding, federal funding, funding received through donations, and funds raised by parent-teacher associations and athletic departments. Funds acquired through donations, parent-teacher associations, and

athletics are all included in student activity fund budgets, utterly separate from the general fund of a Virginia school division's budget. Another limitation of the study is food service funds. School cafeterias are self-sustaining and must receive enough revenue to cover their expenses. They are not part of the general fund and not included in this study's funding source (Virginia Department of Education, n.d.f). Another limitation of the study is that only one form of student achievement was studied, on-time graduation rates. Other forms of student achievement, including SAT scores, ACT scores, SOL test scores, and college enrollment were not utilized in the study.

Recommendations for Future Research

Recommendations for future research are as follows:

1. Analyze state and/or federal funding in comparison to on-time graduation rates and/or other forms of student achievement including, SAT scores, ACT scores, and college enrollment.

2. Include student activity funds in the form of parent-teacher association raised funds, athletic department funds, and other donations in research, as extracurricular activities have assisted in encouraging students to work harder in school with the hopes of graduating on time.

3. Since the researcher utilized pre-COVID-19 data, other research on on-time graduation rates can be conducted for future fiscal years, especially since PEARLE may be eliminated due to the elimination of the required local effort requirement for Virginia school divisions beginning in the current fiscal year 2021.

4. Conduct research for fiscal years since the passing of the Graduation Counts Compact and compare local funding to on-time graduation rates, both pre-COVID-19 and current fiscal year data, to the data achieved in Virginia.

5. Compare and analyze Virginia superintendent salaries over certain identified fiscal years pre-COVID-19 and beyond and compare to on-time graduation rates.

6. Include food service funding as a component since effective school nutrition has proven to assist in helping students to achieve their best and graduate on time (Virginia Department of Education, n.d.f; Murnane, 2013).

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APPENDIX A

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

October 29, 2020

Stanley Schoppe
Meredith Park

Re: IRB Application - IRB-FY20–21–67 LOCAL GOVERNMENT SCHOOL FUNDING AND STUDENT ACHIEVEMENT IN VIRGINIA SCHOOL DIVISIONS

Dear Stanley Schoppe and Meredith Park,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research for the following reason:

(1) it will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

Also, although you are welcome to use our recruitment and consent templates, you are not required to do so. If you choose to use our documents, please replace the word ***research*** with the word ***project*** throughout both documents.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

APPENDIX B

Division of Legislative Automated Systems: PEARLE by Fiscal Year

Division	FY15	FY16	FY17	FY18
Accomack	28.85	24.39	25.90	36.49
Albemarle	119.12	131.09	133.37	158.41
Alleghany	128.63	153.72	164.30	150.72
Amelia	23.02	26.51	44.38	33.38
Amherst	68.47	86.58	75.39	76.78
Appomattox	23.77	23.58	34.85	37.71
Arlington	172.06	186.98	181.61	187.89
Augusta	88.24	92.60	94.98	99.15
Bath	125.26	141.72	116.39	112.80
Bedford	62.23	103.51	98.30	102.36
Bland	39.25	74.12	82.93	61.87
Botetourt	116.29	135.67	128.27	124.29
Brunswick	14.05	46.78	36.71	53.28
Buchanan	102.73	50.46	24.09	24.83
Buckingham	30.57	50.83	31.56	25.40
Campbell	106.18	115.41	111.22	107.86
Caroline	36.11	32.70	63.44	70.81
Carroll	96.21	89.37	89.90	90.14
Charles City	87.12	112.91	105.24	127.55
Charlotte	14.70	17.22	6.03	15.05
Chesterfield	77.19	80.72	76.64	76.84
Clarke	77.14	85.77	79.70	86.05
Craig	54.04	31.83	31.15	43.31
Culpeper	69.53	73.70	66.70	71.62
Cumberland	50.77	43.45	23.83	36.59
Dickenson	59.15	81.06	29.22	58.81
Dinwiddie	53.64	77.77	79.95	85.64
Essex	56.65	78.13	82.26	100.06
Fairfax	116.14	121.10	117.54	122.03
Fauquier	103.37	108.15	98.58	97.14
Floyd	28.83	41.23	58.47	78.01
Fluvanna	68.60	96.08	81.16	101.24
Franklin	60.03	63.53	80.42	76.49
Frederick	121.47	139.69	125.79	138.54
Giles	46.60	47.06	68.34	72.15
Gloucester	100.77	98.54	95.33	98.44
Goochland	63.41	61.88	64.25	70.87
Grayson	29.25	62.85	56.28	74.17
Greene	61.75	57.92	92.26	126.76
Greensville	37.81	25.35	35.84	34.56

Division	FY15	FY16	FY17	FY18
Halifax	18.11	39.83	35.54	32.74
Hanover	60.74	68.76	59.26	75.01
Henrico	87.62	97.89	72.44	80.93
Henry	21.98	25.50	28.17	29.78
Highland	20.78	11.69	7.15	19.74
Isle of Wight	66.22	76.18	77.57	74.43
King George	38.99	45.14	64.29	59.34
King Queen	31.29	47.32	46.45	57.06
King William	73.81	85.10	101.67	112.64
Lancaster	69.61	62.24	64.17	70.17
Lee		13.84	8.49	8.33
Loudon	138.54	156.63	163.97	165.93
Louisa	83.47	82.35	70.54	91.24
Lunenburg	10.48	29.40	11.12	28.47
Madison	81.81	75.33	71.67	83.81
Mathews	51.75	61.76	60.72	74.35
Mecklenburg	28.62	34.63	30.48	67.32
Middlesex	34.68	40.94	55.18	59.76
Montgomery	88.02	90.14	103.68	95.64
Nelson	97.02	95.95	102.11	113.34
New Kent	65.06	69.80	59.25	57.83
Northampton	33.69	30.87	19.17	40.43
Northumberland	55.11	64.39	64.85	81.72
Nottoway	13.14	21.11	11.37	28.50
Orange	65.00	86.89	74.09	55.67
Page	64.02	60.69	56.43	55.12
Patrick	6.99	7.69	30.37	33.57
Pittsylvania	15.62	12.78	27.41	23.03
Powhatan	102.87	104.71	100.22	105.01
Prince Edward	77.98	91.79	33.27	70.71
Prince George	10.97	55.97	57.44	69.70
Prince William	95.79	99.81	93.08	100.07
Pulaski	53.77	57.19	72.17	71.16
Rappahannock	73.81	80.03	85.94	83.63
Richmond	77.42	73.52	68.65	45.62
Roanoke	84.06	94.61	92.52	100.82
Rockbridge	60.85	47.74	60.81	65.43
Rockingham	123.16	139.22	146.83	157.57
Russell	9.05	16.71	29.53	43.35
Scott	10.42	8.55	5.87	6.68
Shenandoah	90.33	103.40	84.43	87.74
Smyth	39.71	42.10	25.47	38.61
Southampton	86.42	171.31	119.67	68.04

Division	FY15	FY16	FY17	FY18
Spotsylvania	90.14	112.02	102.83	93.30
Stafford	87.24	100.45	106.77	78.16
Surry	125.53	140.94	132.79	160.80
Sussex	176.66	187.11	154.06	182.41
Tazewell	29.96	21.56	23.47	43.35
Warren	73.73	63.15	58.34	71.73
Washington	77.56	71.96	80.77	75.30
Westmoreland	19.38	12.12	1.12	25.85
Wise	68.73	21.26	20.21	19.50
Wythe	52.42	60.10	67.64	78.30
York	75.82	55.88	70.89	79.35
Alexandria	162.30	158.75	153.07	149.38
Bristol	37.53	50.48	37.17	50.08
Buena Vista	85.97	23.68	28.19	20.76
Charlottesville	151.76	161.51	173.18	191.24
Colonial Heights	155.43	155.85	138.69	165.49
Covington	148.57	103.16	110.54	97.93
Danville	54.79	55.19	67.31	93.40
Falls Church	195.97	206.49	183.84	186.27
Fredericksburg	91.26	94.27	91.07	91.12
Galax	36.52	43.96	40.15	75.86
Hampton	110.42	101.46	112.60	119.37
Harrisonburg	110.63	105.86	94.76	115.34
Hopewell	75.89	82.21	117.49	103.14
Lynchburg	94.61	136.53	117.88	110.90
Martinsville	101.48	132.99	148.22	140.32
Newport News	108.25	112.14	101.39	114.08
Norfolk	103.02	100.93	100.13	104.60
Norton	7.19	9.00	18.17	8.61
Petersburg	86.00	79.78	35.69	24.52
Portsmouth	123.43	130.76	296.25	148.87
Radford	77.35	75.36	90.05	82.52
Richmond City	83.64	96.19	59.76	76.40
Roanoke City	145.79	125.32	110.69	120.69
Staunton	81.15	95.51	94.56	89.39
Suffolk	64.78	93.10	83.78	82.08
Virginia Beach	120.89	127.25	129.88	140.24
Waynesboro	110.90	124.47	131.00	123.30
Williamsburg	55.12	22.22	34.68	3.69
Winchester	140.70	141.24	133.16	145.71
Franklin City	139.40	167.34	75.21	80.09
Chesapeake	105.22	120.88	120.43	117.27
Salem	119.23	102.36	120.77	112.25

Division	FY15	FY16	FY17	FY18
Poquoson	98.35	152.76	103.98	101.23
Manassas	158.17	105.67	143.57	135.34
Manassas Park	94.05	72.90	67.37	72.43
Colonial Beach	44.17	258.83	145.67	55.52
West Point	283.97	258.83	243.15	264.80
Average	77.53	82.51	81.06	84.42

Note. Red = below avg, blue = average, green = above average. Std Dev: +/-3

APPENDIX C

Virginia Four-Year Cohort Reports: On-Time Graduation Rates

Division	FY 15	FY 16	FY 17	FY 18
Accomack	89.88	88.64	89.71	89.71
Albemarle	94.38	95.20	94.70	94.70
Alleghany	88.74	92.92	91.13	91.13
Amelia	93.79	96.79	94.16	94.16
Amherst	89.25	91.04	95.68	95.68
Appomattox	94.02	92.35	95.14	95.14
Arlington	92.92	91.10	90.79	90.79
Augusta	91.60	92.15	91.22	91.22
Bath	89.13	93.75	91.07	91.07
Bedford	88.74	92.94	90.41	90.41
Bland	91.36	90.77	98.21	98.21
Botetourt	96.02	95.52	93.55	93.55
Brunswick	83.75	82.47	86.43	86.43
Buchanan	92.54	86.02	90.30	90.30
Buckingham	90.91	91.03	94.41	94.41
Campbell	90.06	89.95	92.83	92.83
Caroline	86.64	88.46	87.26	87.26
Carroll	89.00	92.36	90.52	90.52
Charles City	98.25	98.44	92.59	92.59
Charlotte	85.23	90.58	87.01	87.01
Chesterfield	91.05	90.88	90.17	90.17
Clarke	97.59	97.54	97.93	97.93
Craig	91.07	95.65	89.13	89.13
Culpeper	92.38	92.73	89.82	89.82
Cumberland	90.99	91.35	94.95	94.95
Dickenson	82.93	90.40	87.72	87.72
Dinwiddie	81.66	87.46	89.55	89.55
Essex	92.37	86.86	86.00	86.00
Fairfax	92.55	92.30	91.38	91.38
Fauquier	94.05	95.22	95.78	95.78
Floyd	92.59	92.68	93.48	93.48
Fluvanna	92.81	94.37	97.40	97.40
Franklin	87.97	91.59	93.45	93.45
Frederick	93.27	93.47	94.76	94.76
Giles	88.73	85.13	89.86	89.86
Gloucester	93.73	90.54	90.36	90.36
Goochland	94.12	97.13	96.46	96.46
Grayson	90.13	90.58	96.40	96.40
Greene	95.26	93.26	95.42	95.42
Greensville	91.72	85.39	84.39	84.39

Division	FY 15	FY 16	FY 17	FY 18
Halifax	88.50	93.35	91.29	91.29
Hanover	95.20	95.36	95.17	95.17
Henrico	90.14	91.04	91.11	91.11
Henry	88.46	91.34	87.16	87.16
Highland	91.67	100.00	82.35	82.35
Isle of Wight	92.01	92.71	93.75	93.75
King George	95.58	94.84	93.83	93.83
King Queen	89.13	82.35	73.68	73.68
King William	90.74	89.14	92.02	92.02
Lancaster	90.24	89.72	87.13	87.13
Lee		85.42	77.02	77.02
Loudon	95.97	95.94	95.52	95.52
Louisa	90.38	92.73	91.79	91.79
Lunenburg	88.57	82.11	88.03	88.03
Madison	95.21	96.45	93.75	93.75
Mathews	92.98	96.40	91.59	91.59
Mecklenburg	93.66	90.81	92.67	92.67
Middlesex	94.74	89.89	84.52	84.52
Montgomery	87.57	94.47	92.83	92.83
Nelson	83.92	91.98	88.31	88.31
New Kent	92.65	92.59	88.89	88.89
Northampton	84.38	86.79	81.48	81.48
Northumberland	94.50	93.94	95.58	95.58
Nottoway	85.55	87.82	87.13	87.13
Orange	90.73	93.75	94.36	94.36
Page	98.18	97.35	96.70	96.70
Patrick	90.91	91.37	92.06	92.06
Pittsylvania	91.10	93.09	91.90	91.90
Powhatan	92.92	94.89	94.02	94.02
Prince Edward	85.71	90.42	93.21	93.21
Prince George	85.15	88.34	91.68	91.68
Prince William	91.42	91.67	91.82	91.82
Pulaski	90.18	92.97	93.70	93.70
Rappahannock	94.52	89.39	95.71	95.71
Richmond	92.68	94.38	94.50	94.50
Roanoke	94.63	94.08	94.25	94.25
Rockbridge	92.43	91.08	90.87	90.87
Rockingham	91.23	94.17	94.68	94.68
Russell	94.06	93.27	91.47	91.47
Scott	94.42	94.60	94.22	94.22
Shenandoah	95.89	94.70	96.07	96.07
Smyth	93.31	95.47	94.52	94.52
Southampton	88.66	86.91	89.25	89.25

Division	FY 15	FY 16	FY 17	FY 18
Spotsylvania	90.24	89.60	90.45	90.45
Stafford	92.50	92.93	94.29	94.29
Surry	88.46	95.52	88.06	88.06
Sussex	89.16	89.77	89.77	89.77
Tazewell	84.21	92.07	89.46	89.46
Warren	92.65	92.90	93.90	93.90
Washington	94.99	96.57	93.50	93.50
Westmoreland	88.43	90.00	93.08	93.08
Wise	91.78	94.04	95.95	95.95
Wythe	90.51	91.64	91.19	91.19
York	94.55	96.25	95.17	95.17
Alexandria	79.95	82.40	83.07	83.07
Bristol	88.62	89.66	83.71	83.71
Buena Vista	84.21	79.22	90.22	90.22
Charlottesville	84.92	89.42	89.56	89.56
Colonial Heights	89.72	93.42	95.96	95.96
Covington	81.67	79.69	85.94	85.94
Danville	79.05	81.01	77.17	77.17
Falls Church	98.81	99.47	99.49	99.49
Fredericksburg	82.76	88.65	83.11	83.11
Galax	91.26	86.36	89.11	89.11
Hampton	87.98	90.54	91.46	91.46
Harrisonburg	89.47	89.37	87.38	87.38
Hopewell	81.91	85.14	85.19	85.19
Lynchburg	82.30	85.55	86.38	86.38
Martinsville	80.89	85.96	86.71	86.71
Newport News	89.50	92.10	93.53	93.53
Norfolk	80.65	84.94	81.31	81.31
Norton	94.83	98.25	95.74	95.74
Petersburg	70.93	84.31	80.43	80.43
Portsmouth	86.99	89.00	86.56	86.56
Radford	96.69	95.83	95.41	95.41
Richmond City	81.34	80.50	76.85	76.85
Roanoke City	85.60	87.47	89.67	89.67
Staunton	91.01	91.09	88.64	88.64
Suffolk	86.16	87.04	87.11	87.11
Virginia Beach	89.79	91.35	91.93	91.93
Waynesboro	79.74	82.63	87.67	87.67
Williamsburg	90.93	91.63	92.33	92.33
Winchester	92.71	91.09	92.93	92.93
Franklin City	82.28	88.89	86.67	86.67
Chesapeake	93.03		92.73	92.73
Salem	94.20	94.86	94.32	94.32

Division	FY 15	FY 16	FY 17	FY 18
Poquoson	94.82	92.39	94.71	94.71
Manassas	86.24	79.82	78.56	78.56
Manassas Park	87.92	86.32	90.57	90.57
Colonial Beach	92.86	95.24	96.00	96.00
West Point	98.44	98.15	97.33	97.33