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Charter School and Traditional Public-School Performance Scores in Washington, D.C.

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Walden University
2020

Abstract

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MPA, The University of Akron, 2011

MEd, Strayer University, 2007

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Student performance data reporting between traditional public schools (TPS) and public charter schools (PCS) is not uniform and cannot easily be compared by enrolling parents. The purpose of this quantitative study was to determine if achievement scores of students in TPS and PCS can be used to uniformly compare student performance. The theoretical base for this study was contingency theory by Fiedler. The research question sought to answer if academic outcomes in TPS were statistically significantly different from PCS in English/ Language Arts for Elementary school students. This descriptive study used English/ Language Arts performance scores based on the Partnership for Assessment of Readiness for College and Careers data from District of Columbia Public Schools, District of Columbia Public charter schools, the Urban Institute, and the Office of the State Superintendent of Education using ordinal logistic regression to examine 53 TPS and 10 PCS located in Washington, D.C. with grade spans of PreK3 through 5th grade. The data showed that school type does not have a significant impact on Grade 3 student performance indicators and student enrollment decision. However, school type does have a significant impact in Grades 4 and 5 and is therefore an indicator for student performance and student enrollment decision. The positive social change implications for this study are for school district leaders to identify and increase support for uniformity and transparency of reported performance data to ensure parents have the necessary information to make informed decisions when evaluating and enrolling their child in either school system.

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Dedication

This dissertation is dedicated to my sons, Alyosha G Marcus-Tribble and Jacques R Marcus-Tribble. Dear sons, be the bolt of lightning that shifts the ground beneath your feet. You have inspired me to persevere and finish a process started long before you blessed me with your love and light.

Do not fear failure; be terrified of regret. Giving up breathes life in regret. You will hear more “no’s” than “yes’s”. Do not take “no” for an answer; for every “no” has an equal “yes” that you miss when you do not push forward. A good “no” adds fuel to the fire of your aspirations in getting to “yes.” Do not quit.

Do not use this as the mark to success. This dedicated dissertation is to show you that through life’s changes, failures, and successes, you can achieve anything. Let your determination and quest for enlightenment guide you. Always be inquisitive.

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I would like to acknowledge my chair, Dr. Hilda Shepeard, PhD; my method member, Dr. Melanie Smith, PhD; and my URR, Lydia Forsythe, PhD, for guiding me and working with me through this process from an idea to a completed study that will make a significant impact in education and data availability.

I also would like to acknowledge my parents, Evinger G Tribble, Jr and Brenda J Tribble, for encouraging me and supporting me in my academic endeavors. To my partner, Michael A. Marcus, thank you for being my supporter, coach, editor and sounding board academically and professionally. I appreciate you all for helping me reach this momentous milestone in my academic career.

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Chapter 1: Introduction to the Study

Introduction

In this study, I examined student performance data and the reporting in both traditional public schools and public charter schools. This secondary data analysis was conducted to look at the ways in which each school type reports student achievement. There was currently limited knowledge on data reporting standards to make data driven decisions for student enrollment. The positive change implications for this study include starting a conversation about how data driven decisions are created from uniform data practices that can assist in clearer understandings of student performance in each school type for parents wishing to enroll their children in school choice district schools. In addition, I elaborate on the background, problem statement, purpose of the study, research questions and hypothesis, theoretical framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance of the study. Finally, this chapter concludes with a summary of the main points.

Background

Publicly funded schools, such as charter schools, are usually governed under a legislative charter or contract by a group or organization within its residing state, district, or other chartering entity (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.). These schools are exempt from certain state and local rules and regulations, giving them flexibility and autonomy, with the expectation that they meet accountability standards outlined within their charter agreement (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.). Charters can be revoked if curriculum guidelines and

management accountability standards are not met (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.).

Increased popularity of public charter schools has led to an increase in student enrollment from school year 2004-2005 through 2014-2015 by 3% (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.). During this same span of time, elementary public charter schools have had the largest enrollment of students compared to any other charter school type (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.). Nationally, there are three states with 10% or more of their student population enrolled in public charter schools ; D.C. leads the nation by 24% in student enrollment in these school types (*NCES*, n.d.). The national average number of students enrolled in public charter schools sits at 5%; conversely, the average number of students enrolled in a public charter school in D.C. is nearly double the national average, at 45% (*District of Columbia Public Charter School Board*, n.d.; *NCES*, n.d.).

Currently, there is research on data driven decision making and organizational performance measures and student performance outcomes (Abbott et al., 2017; Boehe, 2016; Cao et al., 2015; Filderman et al., 2018; Pak & Desimone, 2019), but there is a gap in the literature on linking uniform student performance as a reflection of organizational/ school performance for data driven decisions for student enrollment in school choice districts, like Washington, D.C.. This study is therefore needed to highlight if there should be universal student data performance reporting across all school types for data driven decisions for student enrollment.

Problem Statement

There is a problem in academic performance analysis reporting in Washington, D.C. between public charter schools and traditional public schools. Researchers do not know if academic performance ratings received by the students in public charter schools and traditional public schools, based on the way the data were presented, differ from one another, and therefore affect the interpretation of a student's performance. This has resulted in an inability of parents, who must use the information to make decisions about school quality, to accurately identify and compare academic performance ratings received by students attending different school systems (Valcke, et. al., 2015). This problem affects families, education professionals, and anyone interested in school performance data reporting as it relates to the academic performance of public charter school and traditional public schools ("Department of Education", 2016). Currently, public charter school and traditional public school academic performance reports are housed on separate data platforms without reference to one another for detailed performance comparisons (*DCPS Data Set - PARCC | Dcps*, n.d.; *District of Columbia Public Charter School Board*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.). In the literature I reviewed for this study, I found that previous studies addressed school quality, returns on educational investments in postsecondary education, longitudinal data systems to make informed decisions on student learning improvements and teacher effectiveness for employment purposes, and enhanced ways for states to efficiently manage data, including student records, through grant programs (see Cannata et al., 2017; "Department of Education," 2016; Webb, 2012). None of the

literature has addressed if differences in performance rating presentations by charter and traditional public schools significantly affected a student's academic performance rating. This study helps fill this gap by providing policy makers with data that can be used to encourage uniform student academic performance data reporting availability by primary education institutions.

Purpose of the Study

The purpose of this quantitative study was to determine if achievement scores of students in traditional public schools and public charter schools could be used to uniformly compare student performance. I used academic outcomes data of elementary students taking the Partnership for Assessment of Readiness in College and Careers (PARCC) test in the nation's capital. I specifically looked at public charter schools in Washington, D.C. and traditional public schools in Washington, D.C. using academic outcome standards of performance set by the U.S. Department of Education (*English Language Arts Standards | Common Core State Standards Initiative*, n.d.; *Standards, Assessment, and Accountability*, 2018).

Research Question and Hypothesis

Research question (RQ)1: To what extent are the academic outcomes in traditional public schools different from public charter schools in English/ Language Arts for elementary school students in Washington, D.C.?

H_1: There is no statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public schools in Washington, D.C..

H_2: There is a statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public schools in Washington, D.C..

Theoretical Framework

The theoretical base for this study was contingency theory, an organizational based theory, which states that there is no best way to make decisions in an organization (Fiedler, 1964). The optimal course of action is therefore dependent upon the situation, whether internal or external (Fiedler, 1964). The course of action then reflects what is perceived to be the right situation. Leaders in the field of student academic score outcomes therefore may be exhibiting scoring standards based on the testing outcomes specific to their school type instead of scoring guidelines at the time of presentation. The Standards for Education Data Collection and Reporting (SEDCAR) provides data collection and scoring standards through data providers, producers, and local, state, and federal users (*Standards for Education Data Collection and Reporting*, 1991). The SEDCAR does not, however, describe the types of data that should be collected (*Standards for Education Data Collection and Reporting*, 1991). Therefore, qualities and characteristics are provided to leaders on data scoring, which detail good measures and describe the process of selecting and evaluating information rather than what may be best for users of the information. Common Education Data Standards (CEDS) is a data governance resource to assist leaders in ensuring the availability, reliability, integrity, and security of data in the organization (*Common Education Data Standards*, n.d.). Additionally, *CEDS* provides resources for data leaders to assist with certain data

governance functions, including data inventory, data standards, and catalog data use (*Common Education Data Standards (CEDS)*, n.d.). My research focused on data scoring differences in testing outcomes for elementary school students in Grades PreK3 through 5.

Nature of the Study

The nature of this study was a descriptive quantitative secondary data analysis. Quantitative research was consistent with evaluating public charter school student academic scoring as it relates to that of traditional public school student performance in the same grades and subject area; the measure of subject mastery for English/ Language Arts is reflected in the quantitative scoring reports published by public schools (*Ensuring Every Student Succeeds*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.). Public charter school student academic score reporting should be consistent with the National Center for Education Statistics' (2017) standards on school performance. In this research, I highlighted the necessity for uniform scoring standards for both public charter schools and traditional public schools when examining cognitive mastery of student learners in each school type. The independent variable in this study was the school type: public charter and traditional public schools. The dependent variables in this study were the English/ Language Arts scores of test takers in each school type based on PARCC test score scales, ranging from Level 1 through Level 5. The data for this study were collected from public education resource domains that provided school performance results based on student test taking in required academic subjects. Currently, similar data performance reports exist, but the data are not

uniform. Therefore, the data collected evaluated the similarities and differences in academic scoring of outcomes and provided insight on how the mismatch of information may change the interpretation of school performance. In order to complete the study, a sample size of Washington, D.C. public charter schools and traditional public schools was used. I used the most recent, available school year performance data to analyze academic performance data and scoring to extract meaningful insights on the differences or similarities in school type testing outcomes. Therefore, I reviewed school year 2017-2018 academic performance data. The rationale for selecting this data point is that these data were the most recent and currently available for secondary data analysis. The data for school year 2017-2018 were published for public review and could be used for data driven decision making based on performance reporting. When analyzing the data available, I looked for consistency in data and quality of data to compare outcome scores. Further, I identified discrepancies and highlighted anomalies. Local education agencies and state education agencies publish school performance files, which were compiled for public distribution and were accessed through public duction resources. Once I accessed this public information, I then examined the correlation between public charter school data and traditional public school outcome scores.

Definitions

Charter school: A public charter school is an autonomous public school created by a contract between a sponsor, as a local school district or corporation, and an organizer, including a group of teachers or community group. The curriculum or focus of the charter school is not traditional (*The Definition of Charter School*, n.d.).

Elementary school: A school providing the lowest formal instruction for students ages 5 (Kindergarten) through 10 (fifth grade) although some schools may offer enrollment for students as young as 3 years of age (Pre-K3) or 4 years of age (Pre-K4; (*Elementary School | Definition of Elementary School by Merriam-Webster*, n.d.; *State Kindergarten Statutes*, n.d.).

Individual education program: An individual education program (IEP) is developed for eligible public-school children in special education and is usually maintained with a written document or agreement for services. It is a team effort and is reviewed at least once a year. A student must be eligible for special education by federal law because the child (a) has a disability and (b) requires special education and related services to benefit from the education program offered (Baumel, 2016).

The Partnership for Assessment of readiness for College and Careers (PARCC): The PARCC represents a group of states working together to develop assessments that measure whether students are on track for success in college and careers upon graduation (*Ensuring Every Student Succeeds*, n.d.).

Proficient performance level: There are five PARCC performance levels used to report overall performance to describe how well a student met the expectation for their grade level. The five levels are Level 1-- Did not meet expectations, Level 2-- Partially met expectations, Level 3-- Approached expectation, Level 4-- Met expectations, and Level 5-- Exceeded expectations (Partnership for Assessment of Readiness for College and Careers, 2016).

Public school: Traditional public school is a school that is maintained at the expense of the public for the purpose of educating the children of its community or district. It is part of a system of free public education that usually includes primary and secondary schools (*Public School | Define Public School at Dictionary.Com*, n.d.).

School choice: The District of Columbia school enrollment policy allows for families to place their students in schools outside of the neighborhood school zone boundaries. Students can attend school in the same ward where they live or travel across the city to a school of their choosing (Gallagher, 2019).

Assumptions

In this study, I assumed that both traditional public schools and public charter schools (a) administer the same examinations to students to measure student achievement, (b) administer these tests at the same intervals as their counterparts, (c) include similar student capabilities, meaning the results exclude students with an IEP in place at time of testing, and (d) report results (data) in a similar fashion to show student achievement for each school within each school type for the grades examined. These assumptions were necessary in the context of the study because these data were derived from public resources, after the examinations for which student performance reporting is generated and published (*DCPS*, n.d.; *School Quality Reports | District of Columbia Public Charter School Board*, n.d.). These assumptions were also based on the purpose of the PARCC exam. The PARCC exam is administered yearly at the conclusion of the academic school year to measure student progress in Common Core standards in Grades 3 to 11 ("What Is the PARCC Test?," 2019). The goal of the test results was to highlight

student performance by school and identify problem areas for schools as well as individual student performance problem areas ("What Is the PARCC Test?," 2019) The PARCC exam is designed to assess problem solving and thinking skills in the two component examination (*Ensuring Every Student Succeeds*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.; "What Is the PARCC Test?," 2019). One of these components, English/ Language Arts, entails students reading passages, watching videos, and listening to audio recordings (*Ensuring Every Student Succeeds*, n.d.; "What Is the PARCC Test?," 2019). Students then answer questions and provide written responses based on what they learned. Based on the student responses, performance scores are assigned between Level 1 and Level 5. Students scoring between Level 4 and Level 5 indicates strong performance, students scoring at Level 3 indicates that students need assistance to meet expectations, and students scoring between Level 1 and Level 2 indicates that significant intervention is required to meet academic expectations (*Ensuring Every Student Succeeds*, n.d.; "What Is the PARCC Test?," 2019).

Scope and Delimitations

In this study, I sought to determine the reporting correlation of the data presented for student performance outcomes in both traditional public schools and charter public schools of Washington, D.C. students in grades Pre-K3 through 5 English/ Language Arts. I found it important to limit the scope of the information reviewed due the large number of schools, subjects tested, grade spans, and the national reach of educational testing in general.

This study was limited to a sample of Washington, D.C. students in grades Pre-K3 to 5 who took the English/ Language Arts PARCC examination during the academic school year 2017 – 2018. The age of students was not captured in the data reporting, and therefore student grade was reported instead.

Limitations

This study included the following limitations:

- I used secondary data to examine the correlation between school type performance and data reporting. Therefore, I had no control over the development of the testing tool used to measure student performance nor the data collected in the process of testing.
- The data used were limited to students who fell within the grades examined and were present for the day of testing or any make up as determined by the school itself. The study in no way captured every student enrolled at the school at the time of examination in the event of an absence during testing times.
- The data collected represented Washington, D.C. elementary schools, and a generalization of results beyond Washington, D.C. should be made with caution. The Washington, D.C. results might be reflective of other areas, but that cannot be known without further research.
- The PARCC examination was developed by a group of states. It was adopted by schools in 2010. I did not take into account professional development of

teachers to prepare students for the examination specifically (*Ensuring Every Student Succeeds*, n.d.).

- The autonomous nature of public charter schools may have developed curricula based on the establishing teachers, parents, or community groups' charter terms, which may not be geared directly to the PARCC examination and therefore can affect student performance data reporting outcomes.

Significance

This study contributed to the gap of knowledge in education related to data score reporting of student performance and how that reported data are relied upon for parents to make data driven decisions about the school's academic quality for student enrollment. Primary education sets the foundation for continued academic success in young learners. Without the appropriate tools to make data driven decisions, parents may not be aware of school quality in an area of school choice. Additionally, being able to make data driven decisions will have a broader impact on the future of education, being able to be agile and filling gaps quickly for the student learner. If a student transfers from one school type to another, having data reporting that is of similar measure and meaning can assist the gaining school in what that student learner weaknesses may be. My analysis of the data is intended to inform parents about data reporting in these school types for informed decision making of student enrollment. Additionally, this study can be used to inform the expansion of data reporting policy and standards in education and to assist lawmakers with crafting public policy to support the standardization of traditional public school and public charter school reporting.

Summary

In this chapter, I have introduced traditional public schools and charter public schools and the purpose of this study. In order to better understand the importance of data performance reporting of students and how it affects data driven decision making for parents, a comprehensive study should take place at the reporting level. In Chapter 2, I discuss the limited amount of research and literature associated with data reporting of student performance and how data driven decisions are made for both internal and external stakeholders in the nation's capital, Washington, D.C..

Chapter 2: Literature Review

Introduction

Researchers do not know if the lack of uniform academic score performance data between public charter schools and traditional public schools in Washington, D.C. affects the perception of student academic performance and therefore student enrollment into choice schools (*District of Columbia Public Charter School Board*, n.d.; *My School DC Lottery - How to Apply | Dcps*, n.d.; *NAEP Report Cards - Home*, n.d.; *Open Enrollment Policy | DC PCSB*, n.d.; *School Quality Reports | District of Columbia Public Charter School Board*, n.d.). Therefore, the purpose of this quantitative study was to compare the achievement scores of students in traditional public schools and public charter schools using publicly reported performance data of elementary English/ Language Arts students taking the PARCC examination in Washington, D.C. (*The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.).

Current literature has addressed factors around education and its success, including finances, organizational leadership influences, and data stewardship (Ford & Ihrke, 2016; Kelly & Loveless, 2012; Roch & Pitts, 2012). In contrast, other researchers have focused on students either at the very beginning of their primary education or at the end of their secondary education years, in disadvantaged areas, or in various states throughout the United States in multiple core subjects (Cornick, 2017; Farran et al., 2017; Ngubeni, 2016; Ritter et al., 2016; Turner, 2011). Therefore, current literature does not address how available data on student performance for data driven decision making in school zones with school choice enrollment affects the perception of academic

organizational achievement. Additionally, current literature does not address whether student data performance reports for school choice districts, like Washington, D.C., are uniform and easily digestible for parents to appropriately compare organizational academic performance. Having uniform data to compare school types allows for complete data driven decision making for student enrollment in school choice programs based on PARCC examination results (*Ensuring Every Student Succeeds*, n.d.)

In the remainder of this chapter, I explore literature search strategies, the scope of the literature, theoretical foundations, data management, data collection, data reporting, educational aptitude tests used to report student performance data, and how the available performance data reports are currently used for performance interpretation. I conclude the chapter with a synopsis of what is known and the gap in current literature.

Literature Search Strategy

Search strategies used to narrow the research scope and support this literature review included detailed searches using Walden University's research databases available. These databases included Google Scholar, EBSCOhost, ProQuest, and previously published dissertations through the university. The literature strategy also included the use of key words to filter through material. These key words included *charter school, public charter school, traditional public school, Washington D.C., nation's capital, English, Language Arts, data, performance, analysis, scoring, PARCC, ELA, student achievement, performance, performance data, test scores, leadership, charter, contingency theory, education, learning, teaching, primary school,* and *data analytics*. The scope of the literature went back as far as 2015. Peer-reviewed literature as

well as industry publications (performance reports by schools or school boards) were also used in the scope of the literature review. In cases where there was little research, I used material that was closely related to the topic. This includes peer-reviewed documents or previously published dissertations from other states within the United States as well as broader grade ranges.

Theoretical Foundation

The theoretical base for this study was contingency theory, an organizational based theory, which states that there is no best way to make decisions in an organization (Fiedler, 1964; Hoffman-Miller, 2013). The optimal course of action is therefore dependent upon the situation, whether internal or external (Fiedler, 1964). The course of action then reflects what is perceived to be the right situation. Therefore, leaders in the field of student academic score outcomes may be exhibiting scoring standards based on the testing outcomes specific to their school type instead of scoring guidelines at the time of presentation. The *SEDCAR* (1991) provides data collection and scoring standards through data providers, producers, and local, state, and federal users . The *SEDCAR* does not, however, describe the types of data that should be collected . Therefore, qualities and characteristics are provided to leaders on data scoring that detail good measures and describe the process of selecting and evaluating information rather than what may be best for users of the information. CEDS is a data governance resource to assist leaders in ensuring the availability, reliability, integrity, and security of data in the organization (*Common Education Data Standards*, n.d.). CEDS provides resources for data leaders to assist with certain data governance functions, including data inventory, data standards,

and catalog data use (*Common Education Data Standards (CEDS)*, n.d.). In this research, I focused on data scoring differences in testing outcomes for elementary school English/ Language Arts students in grades K to 5.

Contingency theory was first researched and described by psychologist Fiedler in the late 1960s (Fiedler, 1964; Hoffman-Miller, 2013). According to Hoffman-Miller (2013), this theory has influenced organizational researchers seeking to understand organizational behavior and outcomes. As such, contingency theory proposes that there is no one best way to lead an organization and, therefore, leadership is geared toward situational management (Hoffman-Miller, 2013; Ylimaki & Uljens, 2017).

Hoffman-Miller (2013) asserted that organizational behavior is affected by leadership effectiveness and subsequent success. Further, this theory is in line with other behavioral theories relating to cause and effect of leadership on organizations (Fiedler, 1964; Hoffman-Miller, 2013; Tan, 2018). According to Hoffman-Miller, organizational theory is "leader matched," and, as such, the effectiveness of a leader is in line with the context of the situation at the time. Further, Hoffman-Miller expanded on Fiedler's theory by asserting that leadership style affects the quality of organizational behavior and effectiveness.

In contingency theory, a leader's personality and their situational context are important (Bigham & Riney, 2017; Fiedler, 1964; Hoffman-Miller, 2013). According to Hoffman-Miller (2013), there are two types of leaders in Fiedler's contingency theory: those motivated by tasks and those motivated by relationships. Further, based on these leadership styles, Fiedler's theory developed a model to measure differences in leaders

(Hoffman-Miller, 2013). Hoffman-Miller called these leadership differences the "least preferred coworker" index where it is based on a scale from1 to 8 weighing characteristics of leader effectiveness. This leadership index differed from previous research at the time, where the focus was on power, relationships, and task structures to measure leader value (Hoffman-Miller, 2013). However, Fiedler rated leaders on their situation approach, whether their actions were appropriate to the situation (Hoffman-Miller, 2013). If the leader's course of direction is not in line with the situation, their effectiveness can therefore be generalized (Hoffman-Miller, 2013).

Similar to Hoffman-Miller, Özkan evaluated contingency theory and the application to school management implementation influence factors through a qualitative document analysis methodology (Özkan, et al., 2017). Özkan et al. (2017) held that the success of leaders in school management is dependent on diverse variables and the success awareness of the leader. Therefore, Özkan et al. addressed situation approaches in school management as school leaders spearheaded innovation and self-improvement.

Özkan et al. (2017) also expanded on Fiedler and Hoffman-Miller's approach to contingency theory. With Özkan et al., schools are social education institutions where the educational relationships with society are paramount. Therefore, schools as social education institutions have a duty to society to ensure the socialization and acculturalization of its members, prepare for social change, develop relationships, and equip its members with production competencies (Özkan et al., 2017). Thus, the school leader's mission is to efficiently use human and material resources to advance school goals (Özkan et al., 2017). Özkan et al. emphasized that school leaders are responsible for

the success and management of the school. Equally important for school success are the school leaders (principals), teachers, parents, and students (Özkan et al., 2017). Özkan et al. also expanded the contingency perspective by adding that there are internal and external factors that affect the organizations success. Under the expansion of Fiedler's theory by Özkan et al., when both internal and external impacts are taken into consideration and management uses the insights of those factors appropriately, success is an automatic outcome. Fiedler's theory in this instance does not focus on managing the situation but altering one's management style for each person in various situations; this is where Hoffman-Miller differs from Özkan et al.. Özkan et al. differed from behavioral theories that are human and employee driven or require rankings systems for improvements. Instead, Özkan et al. asserted that it is important to know the conditions that affect leaders and then determine the structure and process for the required result.

Further, Özkan et al. (2017) qualitative research sought to answer the question of model situationism implementation into school management through document analysis of the data. Özkan et al. (2017) finally conclude that there is no single best organizational structure that can be applied to all locations and conditions of schools and their leadership. According to Özkan et al. (2017), successful school leaders must have varied leadership qualities because each school is unique and encumbered with multiple variables outside of leadership.

Tan's (2018) differs from Hoffman-Miller and Özkan et al. because the research focused on the indirect effects of principal leadership on mathematics academic performance. According to Tan (2018), school leadership is the most influential factor on

student performance; right behind classroom teaching. Therefore, the influence of school leadership on student performance; either directly, indirectly, or reciprocally was the focus of this study (Tan, 2018). According to Tan (2018), there were few studies examine the leadership-achievement relationship directly. Instead, the focus was on prior student performance and teacher experience/ qualifications, like Hoffman-Miller (Tan, 2018). Therefore, Tan (2018) examines the school leadership and student performance relationship.

According to Tan (2018), contingency theory is applied through the lens of school leader's effectiveness, which expands Fiedler's initial concept of contingency theory. Unlike other studies around leadership and organizational success, Tan (2018) unifies two ideas of school leadership: leadership proponents of adaptability and advocates of leadership constraint impeding leadership. Tan's study focuses on school principals and grade 7 students who participated in the Program for International Student Assessment (PISA) 2012. Tan's (2018) examination of principal leadership on grade 7 mathematics achievement from a contingency perspective recognizes that there are environmental factors that impact leader's outcomes on student performance; this perspective differs from Özkan et al. and Hoffman-Miller in the application of the theory. However, Tan's theory is similar to Özkan et al. theory in that principal leadership and student performance are contingent on environmental constraints and challenges. Disadvantaged students are positively impacted via their achievement from higher teacher autonomy through leadership empowerment of best instructional decisions (Tan, 2018). Additionally, privileged students best benefit from less teacher autonomy and increased

principal instructional leadership (Tan, 2018). Tan (2018) asserts that privileged students already have multiple learning resources and likely already benefit from strong home-school relationships; which results in high academic achievement.

Amaro and Beuren's (2018) focuses on the influence of contingency factors on the academic performance of Accounting students. The application of contingency theory and student success to a specific subject or group in Amaro and Beuren's study is similar to that of Tan's study of grade 7 mathematic student success factors. Amaro and Beuren's (2018) quantitative, descriptive research surveyed 295 Higher Education students in South Brazil and is grounded on Fiedler's contingency theory. Unlike Tan's study, however, Amaro and Beuren focus on Higher Education Institutions and the demand for high-quality education compounded by the need not only to pass on context to the student, but to provide student support in skill development (Amaro & Beuren, 2018). To accomplish information delivery and increase skill development, several factors must be considered; including external factors, like the socioeconomic student profile (Amaro & Beuren, 2018). Additionally, internal factors to improve context and skill development include the technology used to teach the course, course strategies and faculty (Amaro & Beuren, 2018). According to Amaro and Beuren (2018), factors such as these influence course quality and student academic performance, which was not examined in Tan or Hoffman-Miller's studies of contingency theory and school organizational development. Fiedler's contingency theory looks at the relationship between organizations and their environments; therefore, inferring that there is no single way to deal with environmental pressures of student performance (Amaro & Beuren, 2018). Amaro and Beuren expand

Fiedler's theory by asserting that the type of activity or organizational environment dictates the adjustments necessary for organizational effectiveness to take place. Therefore, according to Amaro and Beuren (2018), when organizations adopt new characteristics, they are effectively reshaping based on contingencies, both internal and external to the school. As a result of this reshaping, problems arise for the organization because the environment is unreliable and changes over time (Amaro & Beuren, 2018). Amaro and Beuren (2018) go beyond subject matter of Tan and Özkan et al. studies and expand to how education is influenced politically, culturally, socially, technologically, through other beliefs and expectations.

According to Amaro and Beuren (2018), academic performance in Higher Education corresponds to the general average of courses taken by a student and the student's performance self-assessment. Amaro and Beuren further expand the current studies of Tan and Özkan et al.by developing constructs to influence contingency factors on undergraduate Accounting students' academic performance in higher education. Contingency theory in Amaro and Beuren's (2018) study provided the construct for organizational structures to match the requirements of environmental standards to student performance; linking Fiedler's theory to academic performance. Tying environmental standards to academic performance directly influences the degree of change necessary for the organization; which will therefore impact organizational structure (Amaro & Beuren, 2018). According to Amaro and Beuren (2018), the organizational structure is defined by the formal specification of the organization's members to ensure the organizational goals are reached. These organizational goals, examined by Amaro and Beuren (2018), are

contingent upon one or more contingency factors; which is an assertion shared by Hoffman-Miller's (2013) study.

In Amaro and Beuren's (2018) study, educational quality not only includes factors directly related to the school, like familial economic status, parental educational level, and the like; but also, the student themselves. Additionally, Amaro and Beuren's (2018) educational quality factors of students include intellectual level, skill, previous knowledge, and similar factors; which encompasses facets not addressed in Tan's (2018) assertion of privileged versus disadvantage student success. Amaro and Beuren (2018) assert that all of these factors are a part of the educational organization's performance.

Looking further into contingency theory and Education, as it relates to primary school English/ Language Arts student performance based on available data, has not been researched directly. Therefore, reviewing Business Analytics to Decision Making Effectiveness provides a link to contingency theory and Education when viewing schools as being in the business of education (Cao et al., 2015). Unlike Tan (2018), Amaro and Beuren (2018), and Hoffman-Miller (2013); framing traditional public schools and public charter schools as a business with student performance measures being the measure of success, parents can put these schools in a business setting and compare the use of available data to make effective decisions on student enrollment for positive educational outcomes. Cao et al. (2015) have used the outcome of data to measure the effectiveness of businesses. Therefore, in order to gain data-driven insights about school and student performance in traditional public schools and public charter schools , data analytics can be used to support decision making (Cao et al., 2015). Further, performance data reported

by public charter schools and traditional public schools can be used for decision making about the school types as an organization. Cao et al. (2015) argues that data analytics are an important part of driven decision making; however, there is little academic research which results in little available information concerning how data analytics improve enrollment decision making. Furthermore, Fiedler's (1964) contingency theory can be applied to data reporting, educational organization factors, and educational organizational performance based on the needs, demands, goals, and objectives of these educational institutions (Cao et al., 2015; Nadler & Tushman, 1980). Cao et al. (2015) assert that as a result of expanding Fiedler's (1964) theory to analyze data reporting and school types, parents are able to analyze academic performance of the school, which could affect student enrollment in choice schools.

Therefore, the rationale in the choice of contingency theory aligns with performance score reporting of traditional public school and public charter schools in Washington, D.C.. Performance score reporting can be contingent on factors affecting educational outcomes locally or nationally. Factors could include reporting norms for traditional public schools that are more aligned with National Score Performance Reporting or Federal Data mandates for public schools (*NCES*, n.d.; *Open Enrollment Policy | DC PCSB*, n.d.). Conversely, Charter Public School Score Performance reporting could differ because of the rules of the governing charter or the norms of reporting standards for this school type (*District of Columbia Public Charter School Board*, n.d.). There can be variations in score performance reporting by the different school types because of the factors they are contingent upon when publicizing student achievement. In

this study, data performance reports are the outcomes of contingent factors. Performance guides data collection and reporting from schools. Score performance reporting can be centered on the task of education. This does not detail however, if these score reports are appropriate and convey student achievement in an equal and easily digestible manner. Contingent factors of data reporting can result in score performance reports being inaccurate, unequal, and incomplete. The type of activity or organizational environment dictates the data collection and reporting for organizational effectiveness (Amaro & Beuren, 2018; Cornick, 2017; Tan, 2018). Schools are organizations and therefore are contingent on environmental factors (Amaro & Beuren, 2018; Özkan et al., 2017; Tan, 2018). This selected theory relates to the research question of academic outcomes of performance score reporting in traditional public schools and public charter schools in English/ Language Arts for Elementary school students in Washington, D.C.; a school choice district (Gallagher, 2019; *My School DC Lottery - How to Apply | Dcps*, n.d.; *Open Enrollment Policy | DC PCSB*, n.d.).

Literature Review Related to Key Variables

Acquiring Meaningful Data

Ford and Ihrke (2016) assert that Public charter schools are built upon a premise to shift away from democratic governance. According to Ford and Ihrke (2016), democratic governance is the legal oversight of a municipal school district by a board whose members are elected by voters within the geographical locale of the municipal school district. Charter school laws are in place in 42 US states across the country (Ford & Ihrke, 2016). Despite the growth of charter school acceptance and the innovative shift

away from democratic governance; public charter schools remain understudied (Ford & Ihrke, 2016). However, the general concept behind Charter School governance is common across states (Ford & Ihrke, 2016). This commonality is that public charter schools are given a certain degree of freedom from district and state policies in exchange for meeting or surpassing academic targets outlined in their contract between the school board and authorizing entity (Ford & Ihrke, 2016; *Open Enrollment Policy | DC PCSB*, n.d.). With this freedom, public charter schools often develop their own curriculum, maintain their own financial management, and oversee their own human resource efforts (Bohler et al., 2017; Ford & Ihrke, 2016; Roch & Pitts, 2012; Ylimaki & Uljens, 2017). Additionally, this leaves public charter schools free from many of the bureaucratic constraints that traditional public schools are held to (Ford & Ihrke, 2016; Roch & Pitts, 2012; Tan, 2018).

Decades of research has found the need for better use of data in education, yet most schools continually struggle to use data to make organizational decisions (Cao et al., 2015; Cech et al., 2018). Further, a defining characteristic of current U.S. educational policy is the focus on using data to inform decisions about institutional and educator quality (Hora et al., 2017; Webb, 2012). Additionally, using data is a corrective way to making decisions compared to the past; where information was less reliable and based on anecdote or intuition for successful educational outcomes (Hora et al., 2017).

The current push for data- driven decision- making (DDDM) is a result of the need for continuous improvement in organizational processes to identify problems and enact corrective measures (Hora et al., 2017). Utilizing a Multi-Tiered Systems of

Support (MTSS) that uses classroom teams; including the classroom teacher, paraprofessionals, special education teachers, and administrators could lead to continuous organizational improvement (Abbott et al., 2017). Using this idea, the team creates action-oriented plans for preschool literacy through DDDM; which is a process used to make instructional decision based on verifiable data (Abbott et al., 2017; Hora et al., 2017). With the DDDM process in the MTSS plan, educators can target skill identification based on the student performance data (Abbott et al., 2017; Cao et al., 2015; Hora et al., 2017). Therefore, the classroom team identifies a skill where most students have a significant need or an emerging skill and can emphasize instruction in that area (Abbott et al., 2017; Bigham & Riney, 2017; Turner, 2011). Further, based on the performance data, instruction can be differentiated to meet the needs of individual students instructional needs (Abbott et al., 2017; Farrell, 2015). With individual needs addressed; in depth knowledge of assessment and intervention will significantly contribute to data collection with the Tune-Up Checklist (TUC) for classroom teams (Abbott et al., 2017). Additionally, MTSS models are improved with data collection to impact differentiation and increase skill practice for students; this results in significant and measurable performance outcomes of students (Abbott et al., 2017).

Like Hora et al. (2017), developing data-driven decision making tools using the data competence maturity model (DCMM) serves as the foundation for data collection in primary education (Cech et al., 2018). The DCMM is a new approach to data analytics and primary education performance in English/ Language Arts (Cech et al., 2018; Farran et al., 2017). Further, implications from the DCMM guide educators to manage student

and operational outcomes for academic performance (Cech et al., 2018). Using the DCMM as a guide, data is captured for compliance regulations with state and federal educational governing bodies; this information is then used to fulfill various requirements in annual reports on student performance, school performance, state compliance and federal compliance (Cech et al., 2018).

Similar to Hora et al.(2017) study, academic data is often used to describe academic outcomes (Cech et al., 2018). Both Hora et al.(2017) and Cech et. al. (2018) assert that data can be stored in a variety of structured and unstructured ways where the information is readily available or can take significant effort to obtain. Both Cech et al. (2018) and Lovenheim and Walsh (2018) argue that data in general is often disjointed and not immediately available for those requiring it for data- driven decision making; and when data is available, decision makers are often unaware of the data available and lack the skill set needed to leverage information from the data.

Hora et al. (2017) assert that parents struggle to understand precisely the voluminous amounts of student achievement data as it relates to school success; Little et al. (2019) have a similar stance when looking at data for students who are too young for performance-based tests. Additionally, stakeholder feelings with a particular school can influence how they interact with data and therefore shape how they act with the organization as a whole; teachers and administrators included (Hora et al., 2017). Further, Little et al. (2019) states that there is an abundance of data available in early education settings for parents to make data driven enrollment decisions for students in either public charter schools or traditional public schools.

As far back as 1994; Arizona has the earliest adoption of public charter schools in the nation (Chingos & West, 2015). Additionally, the average attendance of Arizona public charter schools is three times the national average of any other state as of the 2012-2013 school year (Chingos & West, 2015). Similar to Chingos and West (2015), Smith's (2014) study utilizes descriptive analytics to compare public charter and traditional public schools' fifth grade student academic aptitude on the Arizona's Instrument to Measure Standards (AIMS) test. Smith (2014) hypothesized that one school type would perform statistically better than another school type based on academic performance as measured by adequate yearly progress (AYP). Smith (2014) collected performance data from school years 2009 through 2011. Additionally, public charter schools in Arizona account for nearly a quarter of all public schools in the state (Chingos & West, 2015). The AIMS testing instrument is a statewide standards-based assessment in math, reading, writing, and science and is administered to students in Grade 3 through 8 in math and reading, Grades 4 and 8 in science, and Grades 5 through7 in writing (Chingos & West, 2015). Utilizing the AIMS testing instrument, a state sponsored instrument, to ascertain academic organizational outcomes is a different approach than previous studies by Hora et al. (2017), Cao et al. (2015), and Cech et al. (2018); where various models were used to collect data and analyze performance outcomes. Further, data used to classify public charter schools in Chingos and West's (2015) study focused on mission statements; breaking them down into the following categories: rigorous, progressive, arts, at-risk, and general; virtual public charter schools were omitted from studies.

Connecting Data Input and Instructional Output

Recent studies used the overarching MTSS strategy to focus on student improvement, resources, structures, and practices that support preschool literacy implementation (Abbott et al., 2017). Abbott et al. (2017) uses the MTSS plan to include information used to address student's academic needs and intervention progress through (a) instructional goal setting, (b) resource allocation, and (c) teacher implementation evaluations. Further, failure to build and maintain a high quality Tier 1 MTSS plan will likely yield fragmented and ineffective implementation of intervention (Abbott et al., 2017). Unlike Cech et al. (2018), Cox et al. (2017), and DeJear et al. (2018), where the DCMM and DDDM are used; Abbott et al. (2017) focus on the Literacy Data- Driven Decision (L3D) team which utilized the Preschool Early Literacy Indicators (PELI) to determine student achievement. Using the L3D team with PELI; other literacy and oral language assessment screening tools can be used to benchmark child achievement in literacy and language development (Abbott et al., 2017). Using this model in early literacy for performance outcomes allow for the assessments to include ways to evaluate students over time and link back to program goals in the subject (Abbott et al., 2017).

Abbott et al. (2017) further asserts that in order for the MTSS to be effective, the classroom team must be masters at data collection, data interpretation to determine best interventions, and data driven decisions to implement the chosen interventions; which is something that the DCMM and DDDM didn't require (Cech et al., 2018; Cox et al., 2017; DeJear et al., 2018). However, schools can determine the best instructional configuration of teams for the environment; this flexibility aids in student performance

improvement (Abbott et al., 2017). Unlike Abbott et al.'s (2017) use of L3D teams with PELI, the DCMM puts educational data mining and learning analytics and other practices in the perspective of the appropriate development for analytic capabilities in secondary education (Cech et al., 2018). Smith (2014) uses data from AIMS' student percentages and analyzed the collected data using repeated measures factorial ANOVA. Based on the data collected and analyzed, it was found that there was no statistical difference in the academic achievement nor adequate yearly progress (AYP) between Arizona Charter Public Schools and Arizona traditional public schools (Smith, 2014). In addition, it was found that while Arizona's public charter schools are growing in number, they do not significantly outperform traditional public schools in the same locale (Smith, 2014).

Cornick (2017) collects data from the 2014 Virginia Standards of Learning Assessment test scores in reading and math for fourth grade students. Performing an ANOVA indicated significant differences in reading and math scores between Title I and Non-Title I students based on standardized assessment scores from fourth grade student in reading and math, for a non-experimental quantitative study design (Cornick, 2017). Little et al. (2019) used North Carolina data in the state's Pre-K early education programs using a mixed methods research design, based on interview data and survey data. Little et al. (2019) revealed that while Pre-K students were not able to take tests, the environments were data rich due to the amount of informal data collected using developmental screening tools and formative assessment systems. This type of performance data collection was also found in Abbott et al.'s (2017) study on preschool students. However, in Little et al.'s (2019) study, data engagement and data driven instructional use were

variable; data sharing was also inconsistent between grades unless the Pre-K program resided within the elementary school buildings.

Palardy et al. (2015) examined if student score performance improvement were related to an increase in resources (funds) or increased efficiency in resource (fund) management. To answer this question, Palardy et al. (2015) used panel data to at the school level between school years 2004- 2005 through 2008-2009 to measure the technical efficiency of traditional public schools and Charter Schools. Additionally, four categories were based on the data collected: expenditure, performance, student attributes, and school attributes (Palardy et al., 2015). Palardy et al. (2015) showed that one percent (1%) of traditional public schools misreport information regarding the management of resources while ten percent (10%) of public charter schools misreported similar information funding related information. Palardy et al. (2015) also asserts that public charter schools average more spending per pupil than traditional public schools. The largest difference in spending was in administrative expenditures; public charter schools spent three times the amount than traditional public schools spend on this line item (Palardy et al., 2015). Based on fiscal responsibility alone, it is evident that additional expenditures per pupil do not improve school score performance between school types (Palardy et al., 2015). However, public charter schools improve their technical efficiency quicker than traditional public schools as it relates to the economics of education (Palardy et al., 2015). Palardy et al. (2015) asserts that this could be due to Charter School flexibility in management, curriculum, and teaching methods.

Chingos and West (2015) used Arizona Middle Schools for analysis in longitudinal study between public charter schools and traditional public schools. Chingos and West (2015) provided a comprehensive study of the effectiveness of Arizona public charter schools in raising student achievement in recent, high stakes tests administered by the state. The scope of this study differs from that of Palardy et al. (2015), where fiscal responsibility was thought to have an effect of academic outcomes of students. Chingos and West (2015) focuses on middle and high school score performance due to availability of test scores for comparison in a longitudinal study of school types. However, Chingos and West (2015) lack information of specific charter school practice; instead, a comparison of open and closed charters along with mission statements of each school were examined for schools in urban areas and non-urban areas. Chingos and West (2015) use data pulled from statewide, student level longitudinal score performance data extracted from the Arizona Department of Education by an unnamed third-party research organization. Further, the dates of use for the score performance data pull fall between school years 2005-2006 through school years 2011-2012 (Chingos & West, 2015). The limitations to the data examined include key demographic variables being withheld on students (Chingos & West, 2015).

Kelly & Loveless (2012) provided a different examination of school type performance by comparing new school effect in Charter Public Schools and traditional public schools. Specifically, the study investigates student achievement variations between charter public schools and traditional public schools based on start-up issues (Kelly & Loveless, 2012). According to Kelly & Loveless (2012), there was no

difference in performance patterns for new charter public schools or new traditional public schools. Further, Charter Public School research previously studied whether these school types were effective, or as effective as traditional public schools, in increasing student performance outcomes; but there was no evidence presented to that fact (Kelly & Loveless, 2012).

Roch and Pitts (2012) poses their research from the perspective of teacher influence and administrator representation by race and ethnicity on disciplinary measures and standardized test scores within traditional public elementary schools and public charter schools. This differs from other research found on leadership affecting student performance outcomes on standardized tests within each school type, like with Bigham and Riney (2017) and Tan (2018). Roch and Pitts (2012) assert that school officials leading public charter schools were less likely to consider race and ethnicity when enacting schooling decisions due to their attention to the culture and norms within charter schools. Additionally, Roch and Pitts (2012) further find in their study that as a result, public charter schools have increased difficulty in the translation from passive to active representation than traditional elementary schools. Roch and Pitts' (2012) study focuses on data from Georgia; where there is a statistically significant influence of representation among teachers on disciplinary measures and test scores and a limited influence of administrative representation on standardized tests. Roch and Pitts (2012) findings support the question of racial and ethnic effects on representation between school types. This research differs from studies based in other states and on other factors influencing student academic outcomes in other school districts like those researched by Amaro and

Beuren (2018), Chingos and West (2015) and Gill (2006). Roch and Pitts (2012) does not address how racial and ethnic factors affect performance reporting for data driven decision on student enrollment for stakeholders who may also be influenced by racial and ethnic representation at Traditional public schools and Charter Public Schools.

Kelly and Loveless (2012) examine student achievement during the institutional lifespan of Charter Public Schools in California over a five-year span, which differs from Roch and Pitts (2012) in locale. Kelly and Loveless (2012) focus on the progression of test scores over time; upwards trends of performance outcomes as the institution matures. Kelly and Loveless (2012) has limitations in the study because it simply identifies achievement patterns and not achievement causes like Roch and Pitts (2012). Kelly and Loveless (2012) asserts that when weighing school enrollment options, enrollment decisions are made based off estimates of school quality based on performance data. Further, if achievement patterns in Charter Public Schools are identified, subsequent research on how to avoid school performance issues can mitigate negative performance reports and therefore negative views by parents on student enrollment in these institutions (Kelly & Loveless, 2012).

Winters et al. (2017) utilize a linear probability model to measure the relationship between observed student characteristics and the probability of student school exit; almost similar to observing student characteristics outside of formal testing like Abbott et al. (2017) and Farran et al. (2017). Winters et al. (2017) focused on whether a student observed to have exited the school for another in the district at the end of a school year as the dependent variable. Additionally, the independent variables for this study were:

charter enrollment upon exiting, academic performance in the prior year, gender, English Language Learner (ELL) status, IEP status, and federal free or reduced meal participation- which is directly linked to economic status of the family (Winters et al., 2017). Winters et al. (2017) provides that low performing students are more likely to exit their school than are higher performing students; however, there is very little difference across school types. Winters et al. (2017) further highlights that there was a significant negative relationship between student's test score performance and the likelihood that they exit the school. However, the prior year performance scores and charter school enrollment is statistically insignificant (Winters et al., 2017). Finally, Winters et al. (2017) concludes that there was no difference between prior performance scores and the probability of exiting schools across school types, regardless of school location compared to state specific studies in Abbott et al. (2017), Smith (2014), Blohm (2017, and Chingos and West (2015).

Data Analysis Application

Cech et al. (2018) states that the purpose of applying data analytics to education is to provide the tools to make the most reliable decisions; this requires looking at data in four categories: descriptive, diagnostic, predictive, and prescriptive. Further, Cech et al. (2018) defines descriptive analytics focus on what has happened or what is currently happening; diagnostic analytics attempt to explain why something has occurred; predictive analytics focus on predicting what is likely to happen in the future; and prescriptive analytics attempt to determine if a specific intervention will lead to a specific outcome.

Cech et al. (2018) further breaks down data analytics into are four classifications; they include non-empirical, summary, correlational, and causal analysis. Therefore, non-empirical data analysis typically doesn't require formal data collection, but casual observations, like in studies presented by Abbott et al (2017) (Cech et al., 2018). Additionally, summary analysis is a form of quantitative analysis that is commonly used in student and school performance evaluations like with Henry (2013) (Cech et al., 2018). Next, Cech et al. (2018) defines correlational data analysis as the investigative statistical relationships between two phenomena. Casual data analysis focuses on the interplay of two events where the first event is responsible for the second event (Cech et al., 2018). Finally, Cech et al. (2018) asserts that summary data analysis is commonly referred to as descriptive analytics. It further follows that using summary data analysis is much more reliable when determining differences between groups or identifying outliers (Cech et al., 2018).

Opposite of Cech et al.'s (2018) study, Abbott et al. (2017) uses student assessment data, student observation, target skill identification, planning and practicing and implementation of data collection for Preschool Early Literacy Indicators (PELI) in phonological awareness. Student data is collected four times a year utilizing the PELI assessment, unlike studies where annual data is collected and analyzed (Abbott et al., 2017). Abbott et al. (2017) uses the PELI assessment, which is comprised of four subtests where each skill tested is housed within an engaging storybook for preschoolers. These subtests look at alphabet knowledge, phonological awareness, vocabulary-oral language, and comprehension (Abbott et al., 2017). However, other tools like the DCMM can

potentially provide a practical guide for schools to develop the ability to use student performance data collected in means other than direct testing (Cech et al., 2018). According to Cech et al. (2018), the DCMM allows educators to leverage data currently available to make data driven decisions for the future.

There are many types of data available in education; however the approach to the use of data has hindered its use to improve student performance (Cech et al., 2018; Clark et al., 2015; Farrell, 2015). According to Abbott et al. (2017) and Cech et al. (2018), data analytic techniques can provide teachers, administrators, and parents with evidence for decision making and improved warning to focus improvements in student performance. Currently, educational institutions are using data analytics to improve services based on various key performance indicators; including data mining and learning analytics to develop models to improve learning systems and school performance (Blohm, 2017; Cox et al., 2017; Kováts, 2018). Finally, Cech et al. (2018) asserts that data mining focuses on the development of tools to discover patterns; learning analytics focuses on applying techniques to larger scales.

According to Cech et al. (2018), data techniques use patterns and predictions to highlight data that has yet to be acted on; but it has to be applied correctly. Webb (2012) analyzes school performance scores and rating of public charter schools and traditional public schools using the Louisiana Accountability Results between school years 2008-2011. The Louisiana Accountability Results provide detailed listings of school level statistical performance data (Webb, 2012). Overall, Webb (2012) provided a comparative analysis of the student academic performance outcomes of twenty-five public charter

schools and twenty-five traditional public schools in Louisiana. The state of Arizona measures student achievement based on the AIMS assessment (Smith, 2014). Smith (2014) examines twenty-seven charter and traditional public schools based on socioeconomic status, location, and ethnicity. Even further, Cornick (2017), examines standardized reading and math scores of fourth grade students in Title I schools and those in Non-Title I schools following the implementation of the No Child Left Behind Act (NCLB) of 2001. Cornick (2017) uses a retrospective comparative design to gather, analyze, and interpret existing school data of student assessments in reading and math scores of fourth grade students in 86 Title I and 87 Non- Title I schools in Virginia.

In a study by Chingos and West (2015), the focal point is on middle school student score achievement in Arizona between Charter and Traditional public schools. Here, student performance and achievement are measured prior to entering middle school and longitudinal student tracking of score performance on state tests in this school level are compared to other school levels, like elementary schools and high schools (Chingos & West, 2015). The selection of data for Chingos & West's (2015) study examines performance during school years 2007 through 2012 in grades 4 through 7. Chingos and West (2015) provide that Charter School enrollment in Middle School reduced student score performance in math by two percent (2%) and reduced student score performance in science by four percent (4%). Further, Reading and Writing showed no difference in score performance (Chingos & West, 2015). Additionally, non-urban charter school score performance fell three percent (3%) in math and reading while urban charter school score performance had no effect in either subject (Chingos & West, 2015). Therefore, this

research indicated that charter public middle schools in Arizona are moderately worse than traditional public schools of the same grades in Arizona (Chingos & West, 2015). The lack of equal or exceptional charter public school score performance could be due to the vast amount of time between charter public school reviews, which is currently every 15 years (Chingos & West, 2015). Smaller review intervals could measure quality more effectively and strike a better balance between innovative autonomy and result accountability (Chingos & West, 2015).

In a study by Ford and Ihrke (2016), the focal point differed from that of Chingos and West's (2015) study; here, survey informational data was utilized from publicly elected school board members and nonprofit charter school board members in Minnesota to test three hypotheses: attitudes, conflict, and financial management of board members and their perceived governance. Minnesota has a large number of nonprofit public charter schools (142) (Ford & Ihrke, 2016). Ford and Ihrke (2016) focused on Minnesota's nonprofit public charter schools authorized by entities outside of the school district. Ford and Ihrke (2016) use an 82-question governance survey to poll both traditional public-school board members and nonprofit charter school board members returned a response rate of twenty-one percent (21%).

Palardy et al. (2015) differ from Ford and Ihrke (2016), Chingos and West (2015), and Webb (2012) through the utilization of a panel study to examine the technical efficiency in Ohio through an economics in education lens. Palardy et al. (2015) focused on education expenditures; specifically, whether spending funds efficiently results in significant student test score performance improvements; similar to Cornick's (2017)

study. Palardy et al. (2015) examined student score performance versus school resources using the stochastic frontier production model. Finally, Palardy et al. (2015) assert that using this model to compare public charter schools and traditional public schools is a relatively new idea.

Winters et al. (2017) focus their research on New York City and Denver charter public school enrollment data. Further, Longitudinal, student-level, unique administrative identifiers were used for this study by both school systems in New York City and Denver public schools (Winters et al., 2017). Winters et al. (2017) study spanned school years 2005-2006 through 2011-2012 for New York City schools and school years 2007-2008 through 2012-2013 for Denver schools. Winters et al. (2017) focused on a single measure of student performance score achievement by combining test scores in Math and Reading/ English Language Arts (ELA); the combined scores were then standardized by grade and year. The results provided indicators for whether a student scored below the test's proficiency standard on math or reading/ ELA tests separately (Winters et al., 2017).

Finally, Roch and Pitts (2012) examine 1,263 Georgia elementary schools for periods 2005-2006 through 2007-2008. The analysis from the public schools in Georgia excludes schools that were not considered regular elementary schools, charter schools, middle school, and high schools (Roch & Pitts, 2012). Roch and Pitts (2012) filter the data used I this study because student outcomes were different across the school levels. Additionally, in Georgia, public charter schools are much more common at the elementary level (Roch & Pitts, 2012).

Academic Data Evolution for Decision Making

The introduction of public charter schools into the education market is perceived to cause competition for existing traditional public schools, according to policy makers (Palardy et al., 2015). However, research shows that traditional public schools have improved in response to Charter Schools; even though some public charter schools outperform their traditional public-school counterparts (Palardy et al., 2015).

In Abbott et al. (2017), the Literacy Data-Driven Decision (Literacy 3D, L3D) preschool literacy program is grounded in Data-Driven Decision-Making across two components. The first component examines the MTSS with a DDDM tool called the Tune-Up Checklist (TUC) (Abbott et al., 2017). The second component expanded the TUC, which lead to the implementation of the L3D. The study looked at the L3D over the course of 1 year for 120 students, regardless of IEP status in Preschool Early Literacy (Abbott et al., 2017). The experimental/ comparison study of the 120 students showed that students in the experimental condition with IEPs experienced greater academic growth in the spring than children in the comparison group with IEPs (Abbott et al., 2017). The goal of the research was to increase a student's response to prompts that promote practice learning based on the L3D model (Abbott et al., 2017). The L3D model does not focus on pulling students out of instruction, but rather enrich MTSS Tier 1, whole classroom instruction (Abbott et al., 2017). In a previous study on Louisiana public schools and Louisiana charter schools, Webb (2012) performs data analysis using online and archival data from public sources. Sources include Louisiana's Department of Education, the Office of Education Research, and US Charter School websites (Webb,

2012). Webb's (2012) study conducts statistical analysis on school performance scores between traditional public schools and charter public schools in Louisiana. Webb's (2012) study provides further insights on school performance to lawmakers, school administrators, parents, and students on data needed to make data-driven decisions when it comes to school choice in Louisiana public schools. Louisiana Charter School performance was compared to Louisiana Public School performance using school performance scores (Webb, 2012). In Virginia, Cornick (2017) studies the relationship between Title I and Non-Title I fourth grade student performance. The results of Cornick's (2017) study could motivate a reevaluation of educational practices and funding allocation for Title I schools to improve student achievement. Using the information from Cornick's (2017) study provided insight as to the academic differences of school structure from the implementation of the No Child Left Behind (NCLB) Act. Further to Hora et al. (2017) asserts that data and other information plays a central role in providing important insights into the relationship between data and organizational health. Additionally, of the components that make up K-12 data systems; tools necessary for data-driven decision-making need to be incorporated into a useable and well-designed information system for gathering, analysis, and information dissemination (Hora et al., 2017).

Public charter schools are a design of school choice (Winters et al., 2017). School choice allows students to attend a school outside of their neighborhood zoned traditional Public School; which creates competition for schools to attract and retain students (Winters et al., 2017). To do this, schools of choice have a great desire to produce

superior outcomes (Winters et al., 2017). Further, Winters et al. (2017) examined whether schools respond to policy incentives in education through the discrimination and manipulation of student enrollment data. Specifically, the research focuses on if public charter schools intentionally screen out certain groups of students because their existence depends on their ability to attract and retain top performing students (Winters et al., 2017). The theory behind this practice being to improve the school's academic score performance profile and minimize costs indirectly incurred through the enrollment and matriculation of low achieving and educationally challenging students (Winters et al., 2017). Pursuant to Winters et al. (2017), public charter schools and traditional public schools differ between Denver and New York City. New York City public charter schools enroll larger amounts of minority students with lower rates of free/ reduced lunch eligibility or Individual Education Program (IEP) requirements (Winters et al., 2017). In Denver, the student demographic is similar between charter pubic schools and traditional public schools (Winters et al., 2017).

Digesting and Interpreting Academic Performance Data Reports

Abbott et al. (2017) introduces the concept of the Multi-Tiered Systems of Support (MTSS) as a literacy preschool curriculum to link preschool literacy assessments and curriculum. Within MTSS the Response to Intervention (RTI) provides three tiers; Tier 1 (T1) whole class instruction, Tier 2 (T2) small group instruction, and Tier 3 (T3) individualized intervention (Abbott et al., 2017). The RTI is then used to identify (a) children who need additional support, (b) increased intensity of best practice interventions, and (c) continual progress monitoring (Abbott et al., 2017). A robust and

well-implemented T1 MTSS plan benefits students; especially those with Individual Education Plans (IEPs) (Abbott et al., 2017). Quality public school choice and governance of Louisiana Public Schools are comparatively examined based on performance analysis between Louisiana public charter schools and traditional schools (Webb, 2012). Webb (2012) analyzes school performance scores and rating of public charter schools and traditional public schools using the Louisiana Accountability Results between school years 2008-2011. Research on data use in K-12 settings has demonstrated that data alone does not lead to improved teaching and learning for students (Hora et al., 2017). Data-driven decision-making (DDDM) is not simply a matter of giving educators data reports, but a matter of translating data into information and action items that parents, teachers, and administrators can apply to current and future educational problems (Hora et al., 2017). Additionally, the utilization of the DDDM is found in management, logistics, and business philosophies where the analysis and response to performance data an essential component of operational efficiency and productivity (Hora et al., 2017).

Summary and Conclusions

Major themes in the literature focused on the process of data collection through data application in organizations and education for leadership. The literature also looked at the ways in which leadership utilized formal and informal student performance information but lack the expertise to always turn that information into actionable results to positively impact upward momentum of educational outcomes. To date, current research found that states may have similar school types, but report student performance outcomes using different testing materials. The literature also focused mostly on K-12

schools in multiple socio-economic areas. There were few studies that looked at student outcomes in students younger than Kindergarten age because of the lack of formal testing capability of the student. Also, studies on school performance for school types do not expand past secondary education levels because of the structure of the grade spans. In the literature, all core subjects were examined. This included English/ Language Arts, Mathematics, and Science.

The literature presented clear evidence of what was known and what was not known in the area of data driven school enrollment decisions. What was known currently focuses on organizational leadership and the change therein to become more data driven in academic results (Cannata et al., 2017; Litel, 2017; Scott & US Government Accountability Office, 2013). The literature provided that schools were looking into gathering data formally and also examined what data had been gathered informally to drive teacher performance for positive outcomes (Egan, 2007; Farrell, 2015; Geer, 2014). Additionally, there was an abundance of literature available examining the performance competition that traditional public schools have with public charter schools for top performing students (Palardy et al., 2015; Smith, 2014; Winters et al., 2017). Based on the literature, it was also known that previous studies compared schools and core school subjects in various U.S. states, but no studies had been done nationwide. Topics of interest included Mathematics, English, and Science in grade spans from Pre-Kindergarten through twelfth grade (Filderman et al., 2018; Geer, 2014; Henry, 2013; Little et al., 2019; Turner, 2011; Webb, 2012). For those studies in various U.S. states, there was a related standardized test that covers both traditional public schools and public

charter school student performance (Blohm, 2017; Chingos & West, 2015; Gill, 2006; Smith, 2014; Turner, 2011). Traditional public schools and public charter schools were also researched and compared based on school safety as it related to increasing student performance due to the learning environment (Hamlin, 2017). What was not known from the literature was how student performance data that was currently available for review and analysis by parents was presented. We do not know if traditional public schools and public charter schools provided student performance data reports in a uniform matter so parents and other interested stakeholders can make adequate comparisons about the quality of education. The literature did not show if schools in the same state took the same standardized tests reported those test results in the same fashion for the entire, testing eligible demographic.

This study filled in the gap concerning student performance data and the analytical interpretation of the information presented publicly. This research sought to examine the publicly reported student performance data between traditional public schools and public charter schools and analyze the information's uniformity for comparison between school types in Washington, D.C. where the PARCC examination is administered for students in grades K-12. Specifically, this study examines elementary school student performance on the PARCC examine in primary school; grades Kindergarten through fifth (K-5) grade. The results of this study have provided insight into how the public student performance data was viewed and interpreted by those unfamiliar with school performance data interpretation. This study extended the

discipline of data presentation across school types for parents or other stakeholders seeking to make enrollment decisions for young learners in Primary School.

In order to explore this phenomenon and answer the question presented, I examined currently available student performance data from both traditional public schools and public charter schools for the 2017-2018 academic year to establish a trend in performance reporting and explore how these reports are presented. Further, I used this secondary data to explain how it is presented and provided the ability to compare school type performance to make an inference on the quality of education. Chapter 3 expanded on the research design and rationale for the study, the method in which data was collected and analyzed and concludes with threats to validity of this study.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to compare the academic achievement scores of students in traditional public schools and public charter schools using performance data of elementary students taking the PARCC test in Washington, D.C.. I used secondary data from public reporting databases from Washington, D.C. traditional public schools and public charter schools . Student performance data were examined from academic school year 2017-2018. Major sections of this chapter include the research design and rationale for the study, the methodology and the use of archival data, and threats to validity of the study. I conclude this chapter with a summary of the information discussed throughout.

Research Design and Rationale

The descriptive quantitative secondary data analysis study addressed the relationship between student performance data reports in English/ Language Arts for grades PreK3 to 5 students taking the PARCC examination for school year 2017-2018. For this study, the independent variable was the school types; the dependent variables were the PARCC test score results for each school type. The quantitative research design was consistent with current school performance measures when reporting to state and federal stakeholders on student academic (*DCPS*, n.d.; *School Quality Reports | District of Columbia Public Charter School Board*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.).

Time and resource constraints were limited to my analysis of secondary data from Washington, D.C. traditional public schools and public charter schools in elementary English/ Language Arts instruction, with test taking students who sat for the PARCC examination. School academic performance was based on individual student performance data. Also, attaining performance information from each school type reflected the school year 2017-2018, not the current one. Additionally, any analysis done on student performance would therefore be in school years 2017-2018 and not the most immediate year posted. Resource constraints affected this availability. Traditional public schools and public charter schools posted yearly academic performance, outside of the most recent year, differently, or not at all.

Quantitative research uses statistical methods to investigate observable phenomena and therefore was consistent with evaluating public charter school student academic scoring as it relates to that of traditional public school student performance in the same grades and subject area (Labaree, n.d.). The goal of this study was to determine the relationship between the school types and test score reporting within Washington, D.C.. A descriptive quantitative research design established any associations between school type and performance reporting through the focus of the numeric and unchanging data of the student test outcomes. Previous studies similar to this one have used quantitative research designs to measure academic outcomes in the broad span of education; subjects have included Pre-K program performance, undergraduate accounting curriculums, assessing teaching and learning, and longitudinal studies to address curriculum and instruction (Ballou et al., 2018; Bigham & Riney, 2017; “Doing More

With Data," 2019; Little et al., 2019). Additionally, quantitative research was appropriate for this study because the instrument used to collect data, the PARCC exam, was a structured testing instrument used to count and explain educational outcomes of schools (*PARCC Final Technical Report for 2018 Administration*, 2019). The research design choice of this study was needed to advance knowledge in educational data availability and understanding for parents and other stakeholders to make informed decisions on where to enroll their children in this age of "school choice." Current researchers have used similar research designs when examining student performance data; standardized examination reports are analyzed and compared by school type or socioeconomic levels to assess school quality (Ballou et al., 2018; Geer, 2014; Hamlin, 2017; Henry, 2013; Verhaeghe et al., 2015). Further, quantitative design has been used in current research to examine data competence for data driven decision making in secondary education in the areas of education accountability, reading interventions for struggling readers, early education settings where formal testing is not yet appropriate for learner capabilities, and principal leadership development (Cech et al., 2018; Filderman et al., 2018; Hora et al., 2017; Little et al., 2019; Pak & Desimone, 2019). Finally, there was a gap in the literature on defining current data availability and whether it was uniform and easily understandable and accessible for parents to appropriately identify successful schools for student attendance.

Methodology

Population

In this study, I specifically looked at public charter schools in Washington, D.C. and traditional public schools in Washington, D.C. using academic outcome standards of performance set by the U.S. Department of Education (*English Language Arts Standards | Common Core State Standards Initiative*, n.d.). I focused on the difference in mean scores in testing outcomes for elementary school English/ Language Arts students in Grades PK3 through 5.

The target population for this study was elementary traditional public schools and elementary public charter schools in Washington, D.C. where English/ Language Arts instruction is taught to students in Grades PK3 through 5. In this target population, I reviewed performance results for all grades eligible to take the PARCC examination during school year 2017-2018. These grade ranges take standardized tests for aptitude and subject mastery at a specified interval. I specifically analyzed the student performance interval data. The estimated target population size included 115 traditional public schools and 120 public charter schools in Washington, D.C.. This estimation was based on current school information for Washington, D.C. (*DCPS*, n.d.; *Find A Charter School | District of Columbia Board*, n.d.). Additionally, the data provide information on the number of valid test takers at the time of examination (*The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.)

Sampling and Sampling Procedures

The testing timeframe for this secondary data analysis consisted of testing completed in the academic year 2017-2018. I extracted student performance information for elementary school students between Grades Pre-K3 through Grade 5 for both traditional public schools and public charter schools who were eligible and took the PARCC examination. I included all schools that had at least 10 test takers during the academic school year 2017-2018 to get a clear understanding of performance of each school type during that time.

Publicly available performance data for school year 2017-2018 for traditional public schools and public charter schools in Washington, D.C. were downloaded from District of Columbia Public School's website, from the Office of the State Superintendent of Education (OSSE), and from the Urban Institute publication to separate Microsoft Excel files (*DCPS Data Set - PARCC | Dcps*, n.d.; *Find A Charter School | District of Columbia Board*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.; Gallagher, 2019). However, the Washington, D.C. public charter schools' website does not have downloadable datasets for review, just a downloadable report of school performance in general (*School Quality Reports | District of Columbia Board*, n.d.). The OSSE in Washington, D.C. provided the database framework to which I added data fields (*The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.).

The database framework from OSSE provided a foundation in which I added data from other datasets and included both traditional public schools and charter public

schools within the workbook. The OSSE database broke down schools within Washington, D.C. by school, subject, and grade. To use information from all three database resources, I inserted eight columns. From there, I used the VLOOKUP function in Microsoft Excel to combine information of interest from the D.C. master database and Urban Institute publication into the OSSE database. These eight columns were inserted immediately to the right of the dataset. In three of the eight columns inserted, I used the VLOOKUP function in Microsoft Excel to identify lowest grade offered, highest grade offered, and enrollment total from the D.C. master database file. This information was important to filter schools based not only on school type but on grade ranges as well. This helped me quickly filter grade spans as low as PreK-3 and as high as Grade 5. Two columns from the OSSE database that identified "Level 3+" and "Level 4+" test takers were hidden in this dataset. This was done because the information was duplicative and combined student performance information across performance levels. It was not my intention to use data that were combined into one column for analysis because it masked student performance at each level for each school type. Additionally, four of the inserted columns contained an equation to provide the actual count of student test takers within each performance level (Levels 1 through 5). This equation was the result of the total valid test takers multiplied by the percentage of test takers that fall into each performance level. This gave me a raw count of total test takers in each performance level. The final inserted column provided the percentage of test takers based on the enrollment total and the total of valid test takers. The enrollment total was a VLOOKUP from the Washington D.C. master file while the count of total valid test takers was already contained within the

OSSE database. This process was repeated for spreadsheet tabs “School ELA Grade 4” and “School ELA Grade 5” within the downloaded OSSE Microsoft Excel database. Further, all other grade tabs in the dataset were hidden because they were outside of the scope of the study. Then, these data were filtered to include only elementary schools with grade spans between Pre-K3 through fifth grade. I also used a sample size calculator through Qualtrics to determine the sample size for the study from the total schools in operation for both school types for the grade spans of interest (*Sample Size Calculator [Use in 60 Seconds]*, 2019). After filtering the combined dataset of 235 schools within Washington, D.C. based on a grade span of PreK-3 though 5, there were 10 public charter schools and 53 traditional public schools. Using Qualtrics to calculate sample size (2019), a minimum total of 47 traditional public schools and 10 public charter schools were used for this study for a confidence interval of 95% and a 5% margin of error for each school type.

Procedures for Data Collection

In order to perform secondary data analysis on student performance, I used publicly published and available archival student performance data posted by District of Columbia Public Schools, D.C. Public charter school Board, the Urban Institute, and OSSE for academic school year 2017-2018 (*DCPS Data Set - PARCC | Dcps*, n.d.; *Find A Charter School | District of Columbia Board*, n.d.; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.; Gallagher, 2019). These datasets were accessed from each website resource with downloadable excel files. A data dictionary was also provided to provide clarification of table labels. While these datasets

were public and available for review, I needed to access the information. To access the information, I visited District of Columbia Public School's website and view the performance information page (*School Profiles Home*, n.d.). I did the same for public charter schools in Washington, D.C.; I accessed the academic outcomes data from their website (*Find A Charter School | District of Columbia Board*, n.d.). There were also resources from the Urban Institute and OSSE that contain school performance information that I accessed as well in order to cross reference that information with that provided by each school type (Gallagher, 2019; *The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.). While there were no permissions necessary to gain access the data; these data sets contained historical data, which was the best source of both school type's student performance records. All sources of student performance data were housed on the main website of each school type for public review and as well as organizational transparency and ease of access for any stakeholder to review at their convenience. This included not only governing bodies that invested in Washington, D.C.'s education standards, but for other leaders in education, teachers, and parents to stay informed on school performance in this area of school choice. Having this information public, both current and historical data, provided a narrative that the public could see without having to deliver the information multiple times to different interest groups. The nature of the information presented therefore is the best source of data for this study.

Instrumentation and Operationalization of Constructs

The instrument used to measure student academic outcomes data in both school types is the PARCC exam (*The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.). The PARCC exam was used as an annual assessment in the District of Columbia in the for English/ Language Arts instruction and is based on the Common Core State Standards (*English Language Arts Standards | Common Core State Standards Initiative*, n.d.). Performance goals of the PARCC exam focused on measuring student knowledge and skills through complex text, evidence-based writing, and problem solving to confidently measure success in key academic areas ("What Is the PARCC Test?," 2019). This exam administered to students in grades three through eight in English/ Language Arts and Mathematics in the spring each academic year ("What Is the PARCC Test?," 2019). The PARCC exam, along with other academic tools, measure student achievement; those achievement results are then published for review by the larger academic community ("What Is the PARCC Test?," 2019). The student performance results are published at all levels- state, city, and school level ("What Is the PARCC Test?," 2019).

Definition of Variables

Dependent Variable

Student performance score levels on the PARCC examination in English/Language Arts is the dependent variable. PARCC scores are assigned based on student performance levels where student test takers received marks between Level 1 and Level 5 ("What Is the PARCC Test?," 2019). The Likert scale scoring results provided a

numeric count of each student within each performance level for each school type. The resulting performance scale ranks indicated if the school was performing well. Student test takers that fell within Levels 4 and 5 were well performing; student scoring at Level 3 needed slight assistance to meet academic expectation; and student s scoring at Level 1 or Level 2 required significant intervention to meet academic expectations ("What Is the PARCC Test?," 2019). These results were of each student test taker by calculating the number of test takers multiplied by the percent reported in each performance level. This variable was determined based on existing performance school datasets from traditional public schools and Charter Public Schools in Washington, D.C. from current published reports.

Independent Variables

School types were the independent variables. Traditional public schools, in this study, were schools within the District of Columbia school choice attendance zone. In general, traditional public schools were tied to school districts and have curriculums set by state standards. Additionally, traditional public schools were not exempt from state, federal, or municipal laws in education. Contrary to traditional public schools, public charter schools are schools within the District of Columbia attendance zone. Further, public charter schools increased autonomy in the way in which learning concepts were delivered but have a higher risk of accountability in exchange for that autonomy. Public charter schools were also open to all students and participated in state and federal testing accountability programs. However, public charter schools have a set of rules and performance standards they were held to according to their chartering rules. These school

types are categorical; students in this study either attended a traditional public school or a public charter school during the academic year 2017-2018 during the testing period for the PARCC examination.

Data Analysis Software

Microsoft Excel is the software that was used to complete data analysis detailed in this section. Data downloaded from the public domain for traditional public-school student performance and public charter schools student performance was loaded into a Microsoft Excel file; SPSS was used after synthesis of the imported data was performed. Each school had its own row for performance indicator tracking by grade tested. From there, an ordinal logistic regression was ran using SPSS to analyze the data within.

Research Question

RQ1: To what extent were the academic outcomes in traditional public schools different from public charter schools in English/ Language Arts for Elementary school students in Washington, D.C.?

Hypothesis

H_1: There was no statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public schools in Washington, D.C..

H_2: There was a statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public school in Washington, D.C..

Data Analysis

An ordinal linear regression was used to test the hypothesis. An ordinal linear regression allowed the researcher to determine if there is statistical significance between the value of the independent variable (school types) based on the value of the dependent variable (performance reporting). An ordinal linear regression also helped determine how much variation lies within school types based on the performance reports. Since there were multiple grades examined in this study, there were multiple ordinal linear regressions ran. Specifically, performance data was reported in grade 3, grade 4, and grade 5; therefore, there was three analyses. The results were interpreted based on school type and grade.

Threats to Validity

The PARCC exam was created as a progress measurement tool that assesses academic performance of Common Core standards of students in English/ Language Arts at the end of the academic year for grades 3-11 ("What Is the PARCC Test?," 2019). Performance results provided a scaled score range as well as a performance level indicator for grade level subject mastery. Previous studies examined the validity of the PARCC examination when compared to other academic aptitude tests (Steedle et al., 2017). Further, results indicated that a student meeting the benchmark on the PARCC test had a high probability of making benchmark level on external tests, like the SAT or ACT; conversely students meeting benchmark level on external tests did not have the same probability of meeting benchmarks on the PARCC exam (Steedle et al., 2017). The threats to external validity of this study included selection biases. This threat was

addressed in the study by examining both school types and the number of test takers at the time of examination. It is the goal of the study to compare schools in both school types with similar test takers in order to compare the performance results across all levels. With selection bias, if the number of test takers were not also considered, the results could also push the study in favor of one school type over the other. Further, this study examined elementary performance results and data reporting. Threats to internal validity included selection threat. The PARCC examination measures college and career readiness based on student mastery of concepts from the Common Core Curriculum (*The Partnership for Assessment of Readiness for College and Careers (PARCC) | Osse*, n.d.; "What Is the PARCC Test?," 2019). Further, while the PARC examination measures college and career readiness, it is taken by students in grades 3 through 11, annually (*PARCC Final Technical Report for 2018 Administration*, 2019; "What is the PARCC Test?," 2019). The results of the test were used in multiple ways; all the way from individual aptitude to organizational achievement (*PARCC Final Technical Report for 2018 Administration*, 2019; "What is the PARCC Test?," 2019). This selection threat could be addressed by covering a span of grades from one point in time rather than a snapshot of one grade from one point in time. The purpose of selecting multiple grade spans was to attain insight on the organizational performance across elementary school eligible test takers to assess overall school performance.

Ethical Procedures

Archival data used for this research was found in the public domain for each school type (*Find A Charter School | District of Columbia Public Charter School Board*,

n.d.; *School Profiles Home*, n.d.). This data was found at the following locations: https://greaterdc.urban.org/blog/new-dc-education-data-show-how-school-choice-plays-out-across-wards; https://dcps.dc.gov/node/1157771; https://www.dcpcsb.org/find-a-school; and https://osse.dc.gov/parcc. Student performance data for traditional public schools and public charter schools as it relates to individual school performance was found on the central office websites. The websites contained clean data files which excluded human participant demographic information that could directly link any student to any school. This information has been cleaned to identify the overall number of test takers, subjects tested, and performance ranges in which each tester falls within. Individual human participants were not used directly for this research; this research focused on the collective student performance and how the schools rank overall against one another. The data was therefore anonymous. Downloaded public tables from D.C. Public Schools, D.C. public charter schools , the Urban Institute, and OSSE were checked for information completeness, relatability to the research, and sorted based on factors related directly to this research. From there, the information was saved directly to a password protected cloud storage server in which only the researcher had access to. Archival student performance data that the researcher has collected and put together over the one-year period of study was not be shared with anyone. Downloaded data will be destroyed three years after the conclusion of this research study. The researcher also had to share information on where to attain school performance data with Walden University's Institutional Review Board. The researcher completed a form to request to collect data upon approval of the proposal; the Institutional Review Board approval

number is 07-22-20-0135907. The researcher did not use protected class citizens, nor human subjects in this study because the data was collected from a secondary source. A final ethical concern for this study is the researcher did the study based on previous professional experience in educational leadership.

Summary

There was a gap in the literature on defining current data availability and whether it is uniform and easily understandable for parents to appropriately identify successful schools for student attendance. The research focused on data scoring differences in testing outcomes for Elementary School English/ Language Arts students in grades PK3 through 5. The variables in this study examined percent proficient scores in English/ Language Arts for the grade span PK3 through 5 and the score performance report data differences between traditional public schools and public charter schools in Washington, D.C.. This descriptive quantitative secondary analysis study was consistent with current evaluation practices in standardized testing. Currently, the PARCC examination is used to provide quantitative measures on how students perform and how it relates to school success, as published by each school type. In chapter 4, I examined the results of published student performance through the data collection of the study and subsequent results of student performance reporting in order to make data driven decision for student enrollment in school choice school zones.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to determine if achievement scores of students in traditional public schools and public charter schools can be used to uniformly compare student performance. I used academic outcomes data of elementary students taking the PARCC test in Washington, D.C. and specifically looked at public charter schools in Washington, D.C. and traditional public schools in Washington, D.C. using academic outcome standards of performance set by the U.S. Department of Education (*English Language Arts Standards | Common Core State Standards Initiative*, n.d.; *Standards, Assessment, and Accountability*, 2018). I sought to answer to what extent academic outcomes in traditional public schools are different from public charter schools in English/ Language Arts for elementary school students in Washington, D.C. The null hypothesis was that there is no statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public schools in Washington, D.C. The alternative hypothesis was that there is a statistically significant difference in school academic performance outcomes reported in public charter schools and traditional public schools in Washington, D.C. In the rest of this chapter, I discuss the data collection of this study as well as the results from the data collected around student academic reporting between school types on the PARCC examination.

Data Collection

The data used for this study were collected from four different academic performance reporting sites in Washington, D.C. Using multiple academic performance

reporting websites was necessary because no one source had all the information required for this study. The data used for this study only covered school year 2017-2018 to look at performance reporting for one academic year. The data pulled from the public databases were put together to obtain one mass data file for school names, school types, number of enrollments, number of eligible test takers, and the respective percent proficient in PARCC exam Level 1 through 5. There was no student identifiable data used, such as race, gender, name, date of birth, or home address. There were no discrepancies in the data collected compared to the initial data collection plan presented in Chapter 3. The data pulled and filtered, prior to analysis, represented all schools that encompassed grade spans from Pre-K3 through fifth grade, with at least 10 test takers eligible for the PARCC examination in school year 2017-2018. Based on confidence level calculations described by the Sample Size Calculator (2019) as described in Chapter 3, using a same size of 10 public charter schools and 53 traditional public schools provided a confidence interval of 95% and a 5% margin of error for each school type within the study.

Study Results

An ordinal logistic regression has four assumptions that need to be considered. The first two assumptions were related to my study design and measurements; the second two assumptions were related to the characteristics of the data I collected for this study. The first assumption in an ordinal logistic regression test is that there is one dependent variable that is measured at the ordinal level. In my study, the ordinal variable was within the test score performance level. These performance levels ranged from Level 1 to Level 5. The second assumption in an ordinal logistic regression is that there are one or more

independent variables that are continuous, ordinal, or categorical. In this study, the independent variable was categorical. The categories within the independent variable were the school types: traditional public schools versus charter public schools. The third assumption in an ordinal logistic regression model to provide a valid result is that there should be no multicollinearity and there should be proportional odds. In this study, there was no multicollinearity. This study did not involve two or more independent variables that were highly correlated with each other. Finally, the fourth assumption was a fundamental assumption of proportional odds. Proportional odds mean that each independent variable has an identical effect at the cumulative split of the test score results. The assumption of proportional odds in this study was tested using SPSS, with a full likelihood ratio test where the fit of proportional odds was compared to a model with varying location parameters. In this test, there can be a flag of violations that do not exist, so I separated the binomial logistic regressions on cumulative dependent variables to find if the assumptions of proportional odds was also met. In the following sections, I discuss how my research addressed the assumptions in the ordinal logistic regression model.

Grade 3

The sample for Grade 3 traditional public school and charter public school PARCC exam reports included 48 (76.2%) below average performing schools, eight (12.7%) average performing schools, six (9.5%) above average performing schools, and one (1.6%) school with less than 10 eligible test takers, thus rendering this school ineligible to be included in the overall analysis. Traditional public schools accounted for 53 (84.1%) of the schools analyzed while charter public schools accounted for 10

(15.9%) of the schools analyzed in this study. The data included valid performance indicators for all school types in this study, and there were no missing values in the information analyzed.

A cumulative odds ordinal logistic regression with proportional odds was run to determine the effect of school type on Grade 3 student performance reporting. In this study, I expected the difference in the model fit between the two models to be small and not statistically significant ($p > .05$); however, if the proportional odds were violated and $p < .05$, then the difference in fit between the two models would be large and statistically significant. The assumption of proportional odds was not met because it was violated, and, therefore, the independent variable did not have the same effect for each cumulative logit. Thus, the assumption of proportional odds was not met as assessed by a full likelihood ratio test comparing the fit of the proportional odds location model to a model with varying location parameters $\chi2(2) = 8.940$, $p = .011$ (see Figure 1).

Table 1

Grade 3 Test of Parallel Lines

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	20.244			
General	11.304[b]	8.940[c]	2	.011

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. Maximum number of iterations were exceeded, and the log-likelihood value and/or the parameter estimates cannot converge.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

The odds ratio for the binomial logistic regression is 1.859. For this variable, the assumption of proportional performance odds increased for Grade 3 for each school type (see Figure 2).

Table 2

Grade 3 Variables in the Equation

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Grade 3 Performance Level	.620	.405	2.345	1	.126	1.859	.841	4.112
	Constant	-2.584	.731	12.475	1	.000	.076		

a. Variable(s) entered on step 1: Grade 3 Performance Level.

The deviance goodness-of-fit test indicated that the model was not a good fit to the observed data, $\chi2(2) = 8.940$, $p = .011$. The Pearson goodness-of-fit test also indicated that the model was not a good fit to the observed data, $\chi2(2) = 7.103$, $p = .029$ (see Figure 3).

Table 3

Grade 3 Goodness-of-Fit

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	7.103	2	.029
Deviance	8.940	2	.011

Link function: Logit.

Additionally, the final model did not statistically significantly predict the dependent variable over and above the intercept-only model, $\chi2(1) = 3.024$, $p = .082$ (see Figure 4).

Table 4

Grade 3 Model Fitting Information

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	23.268			
Final	20.244	3.024	1	.082

Link function: Logit.

The odds ratio of being in a higher category of the dependent variable for traditional public schools versus charter public schools is 1,085, 95% CI [.075, 1.181], a statistically insignificant effect, $\chi 2(1) = 2.968$, $p = .085$ (see Figure 5).

Table 5

Grade 3 Parameter Estimates

Parameter Estimates

Parameter		B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
Threshold	[Grade 3 Performance Level=1]	.219	.6163	-.989	1.427	.126	1	.722	1.245	.372	4.166
	[Grade 3 Performance Level=2]	1.164	.6496	-.109	2.437	3.210	1	.073	3.202	.896	11.439
	[Grade 3 Performance Level=3]	3.211	1.1087	1.038	5.384	8.385	1	.004	24.792	2.822	217.784
[School Type=1]		-1.211	.7028	-2.588	.167	2.968	1	.085	.298	.075	1.181
[School Type=2]		0[a]	.	.	.	.	.	.	1	.	.
(Scale)		1[b]									

Dependent Variable: Grade 3 Performance Level
Model: (Threshold), School Type

a. Set to zero because this parameter is redundant.

b. Fixed at the displayed value.

Therefore, the school type does not have a statistically significant effect on the prediction of Grade 3 PARCC school performance, Wald $\chi 2(1) = 2.968$, $p = .085$ (see Figure 6).

Table 6

Grade 3 Tests of Model Effects

Tests of Model Effects

Source	Type III Wald Chi-Square	df	Sig.
School Type	2.968	1	.085

Dependent Variable: Grade 3 Performance Level
Model: (Threshold), School Type

Grade 4

The sample for Grade 4 traditional public school and charter public school PARCC exam reports included 51 (81.0%) below average performing schools, 10 (15.9%) average performing schools, 1 (1.6%) above average performing school, and 1 (1.6%) school with less than ten eligible test takers; thus rendering this school ineligible to be included in the overall analysis. Traditional public schools account for 53 (84.1%) of the schools analyzed while charter public schools account for 10 (15.9%) of the schools analyzed in this study. The data included valid performance indicators for all school types in this study and there were no missing values in the information analyzed.

A cumulative odds ordinal logistic regression with proportional odds was run to determine the effect of school type on grade 4 student performance reporting. The assumption of proportional odds was met, as assessed by a full likelihood ratio test comparing the fit of the proportional odds location model to a model with varying location parameters, $\chi 2(2) = 4.279$, $p = .118$ (see Figure 7).

Table 7

Grade 4 Tests of Model Effects

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	14.168			
General	9.889	4.279	2	.118

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

The deviance goodness-of-fit test indicated that the model was a good fit to the observed data, $\chi 2(2) = 4.279$, $p = .118$. The Pearson goodness-of-fit test also indicated that the model was a good fit to the observed data, $\chi 2(2) = 3.311$, $p = .191$ (see Figure 8).

Table 8

Grade 4 Goodness-of-Fit

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	3.311	2	.191
Deviance	4.279	2	.118

Link function: Logit.

Additionally, the final model statistically significantly predicted the dependent variable over and above the intercept-only model, $\chi 2(1) = 3.899$, $p = .048$ (see Figure 9).

Table 9

Grade 4 Model Fitting Information

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	18.068			
Final	14.168	3.899	1	.048

Link function: Logit.

The odds ratio of being in a higher category of the dependent variable for traditional public schools versus Charter Public Schools is .210, 95% CI [.050, .880], a statistically significant effect, $\chi 2(1) = 4.554$, $p = .033$ (see Figure 10).

Table 10

Grade 4 Parameter Estimates

Parameter Estimates

Parameter		B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	Hypothesis Test df	Hypothesis Test Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
Threshold	[Grade 4 Performance Level=1]	.190	.6244	-1.034	1.414	.093	1	.761	1.209	.356	4.112
	[Grade 4 Performance Level=2]	2.257	.8430	.605	3.909	7.168	1	.007	9.554	1.831	49.857
	[Grade 4 Performance Level=3]	3.001	1.0969	.851	5.151	7.485	1	.006	20.108	2.342	172.605
[School Type=1]		-1.563	.7323	-2.998	-.127	4.554	1	.033	.210	.050	.880
[School Type=2]		0[a]	.	.	.	.	.	.	1	.	.
(Scale)		1[b]									

Dependent Variable: Grade 4 Performance Level
Model: (Threshold), School Type

a. Set to zero because this parameter is redundant.

b. Fixed at the displayed value.

Therefore, the school type has a statistically significant effect on the prediction of Grade 4 PARCC school performance scores, Wald $\chi 2(1) = 4.554$, $p = .033$ (see Figure 11).

Table 11

Grade 4 Tests of Model Effects

Tests of Model Effects

Source	Type III Wald Chi-Square	Type III df	Type III Sig.
School Type	4.554	1	.033

Dependent Variable: Grade 4 Performance Level
Model: (Threshold), School Type

Grade 5

The sample for Grade 5 traditional public school and charter public school PARCC exam reports included 59 (77.8%) below average performing schools, 12 (19.0%) average performing schools, 1 (1.6%) above average performing school, and 1 (1.6%) school with less than ten eligible test takers; thus rendering this school ineligible to be included in the overall analysis. Traditional public schools account for 53 (84.1%) of the schools analyzed while charter public schools account for 10 (15.9%) of the schools analyzed in this study. The data included valid performance indicators for all school types in this study and there were no missing values in the information analyzed.

A cumulative odds ordinal logistic regression with proportional odds was run to determine the effect of school type on grade 5 student performance reporting. The assumption of proportional odds was met, as assessed by a full likelihood ratio test comparing the fit of the proportional odds location model to a model with varying location parameters, $\chi 2(2) = 2.258$, $p = .323$ (see Figure 12).

Table 12

Grade 5 Tests of Model Effects

Test of Parallel Lines[a]

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	12.408			
General	10.149	2.258	2	.323

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

The deviance goodness-of-fit test indicated that the model was a good fit to the observed data, $\chi 2(2) = 2.258$, $p = .323$. The Pearson goodness-of-fit test also indicated

that the model was a good fit to the observed data, $\chi 2(2) = 1.530$, $p = .465$ (see Figure 13).

Table 13

Grade 5 Goodness-of-Fit

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	1.530	2	.465
Deviance	2.258	2	.323

Link function: Logit.

Additionally, the final model statistically significantly predicted the dependent variable over and above the intercept-only model, $\chi 2(1) = 9.889$, $p = .002$ see Figure 14).

Table 14

Grade 5 Model Fitting Information

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	22.297			
Final	12.408	9.889	1	.002

Link function: Logit.

The odds ratio of being in a higher category of the dependent variable for traditional public schools versus charter public schools is .094, 95% CI [.022, .404], a statistically significant effect, $\chi 2(1) = 10.119$, $p = .001$ (see Figure 15).

Table 15

Grade 5 Parameter Estimates

Parameter Estimates

Parameter		B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
Threshold	[Grade 5 Performance Level=1]	-.619	.6387	-1.870	.633	.939	1	.333	.539	.154	1.883
	[Grade 5 Performance Level=2]	1.871	.8046	.294	3.448	5.407	1	.020	6.495	1.342	31.440
	[Grade 5 Performance Level=3]	2.638	1.0665	.548	4.729	6.120	1	.013	13.990	1.730	113.138
[School Type=1]		-2.363	.7428	-3.819	-.907	10.119	1	.001	.094	.022	.404
[School Type=2]		0[a]	.	.	.	.	.	.	1	.	.
(Scale)		1[b]									

Dependent Variable: Grade 5 Performance Level
Model: (Threshold), School Type

a. Set to zero because this parameter is redundant.

b. Fixed at the displayed value.

Therefore, the school type has a statistically significant effect on the prediction of Grade 5 PARCC school performance scores, Wald $\chi 2(1) = 10.119$, $p = .001$ (see Figure 16).

Table 16

Grade 5 Tests of Model Effects

Tests of Model Effects

Source	Type III Wald Chi-Square	df	Sig.
School Type	10.119	1	.001

Dependent Variable: Grade 5 Performance Level
Model: (Threshold), School Type

Summary

The research sought to answer to what extent are the academic outcomes in traditional public schools different from public charter schools in English/ Language Arts for Elementary school students in Washington, D.C.? The data showed varying results to the research question for Grades 3 through 5 for traditional public schools and public

charter schools for eligible PARCC examination test takers. For Grade 3, school type did not have a statistically significant effect on the prediction of PARCC school performance. However, Grades 4 and 5 proved that school type has a statistically significant effect on the prediction of PARCC school performance. The following chapter explored the interpretation of these findings, the limitation of this study, recommendations for further research and implications for social change in educational policy.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to determine if achievement scores of students in traditional public schools and public charter schools can be used to uniformly compare student performance. I sought to answer to what extent are the academic outcomes in traditional public schools different from public charter schools in English/ Language Arts for elementary school students in Washington, D.C. While results for both school types across Grades 3 through 5 varied, the study revealed that for Grade 3, school type did not have a statistically significant effect on the prediction of PARCC school performance. However, Grades 4 and 5 showed that school type had a statistically significant effect on the prediction of PARCC school performance.

Interpretation of Findings

While public charter schools are built upon the premise to move away from democratic oversight (Litel, 2017), these school types test students' academic performance using tools commonly used by traditional public schools. The data showed varying results to the research question for Grades 3 through 5 for traditional public schools and public charter schools for eligible PARCC examination test takers. For Grade 3, school type did not have a statistically significant effect on the prediction of PARCC school performance. However, Grades 4 and 5 indicated that school type had a statistically significant effect on the prediction of PARCC school performance. The data for this study were a combination of four data sources related to student performance reports by school type. Once the data collected were combined, filtered, and cleaned to

create one cohesive dataset, the information was then uploaded into SPSS for analysis. I found that school type and grade tested were indicators of school performance for parent enrollment purposes.

The data analyzed from Grade 3 test takers indicated that between both traditional public schools and charter public schools, this grade level was not adequate to measure school success. The data entry point for this grade level is the first measure for test takers, and performance reports across all sources did not indicate if test takers were enrolled in the same school of performance reporting in prior years. The data for all test takers only indicated the total number of enrolled students and the total number of eligible test takers of that enrollment total. Further, using an ordinal logistic regression model to test my hypothesis was not a model of best fit for this grade and this type of study. Therefore, parents looking to enroll their students in schools based on performance reports should start their search based on Grades 4 or 5. The research indicated that Grades 4 or 5 are better entry points for indication of student performance as it relates to school enrollment types. At this level, while the data did not indicate if students were continuing students from previous years at the same school or transfer students from another school previously, the data did show eligible test takers for the school year based on enrollment length for the year examined. With Grades 4 and 5, student performance and school enrollment types are statistically significant when parents are exercising their enrollment choices. Overall, Grades 4 and 5 indicated that traditional public schools perform better on the PARCC examination taken by students at the end of the academic year compared to that of their public charter school counterparts.

The data overall still showed that there is a need for better use of data in education. The data used to interpret performance results across school types and across eligible elementary grades were found within four different public databases. Each database's performance data reports differed from one another. One source catered only to charter public schools and subsequently ranked these schools against one another. Another source contained only traditional public school performance data and ranked that information against itself. Two other sources had a broader lens, but the information on schools did not match exactly. These databases must be combined to attain a clear picture of school type, grades offered, test takers, eligible test takers, subject performance, and test administration. Further, some of the performance indicators were combined in several ways to present differing weights on performance information. Parents without insight on how to manipulate the information or even the multiple places where the same information resides will make decisions based on a partial view of all available information. While the information on student performance is public, it is not published in a way that provides one, clear, concise picture for the interpretation of available data.

Further, the results showed that the data collected and reported by both school types did not reflect organizational performance in a transparent fashion. Ordinal data reported by both school types were often concatenated when examining reports. This meant that test levels were combined for Levels 1 and 2 (below average performance) and Levels 4 and 5 (above average performance). Downloading the raw data files was possible, but the parent then must take these raw data files and combine them to recreate one complete flat file that encompasses all schools within one's district. This type of

analysis or data interpretation training is not found on the local or state education agency's website. The education agencies often included visualizations that were focused on the interests of a school type alone. For example, because charter public schools function in an autonomous manner and must follow different guidelines based on the chartering agreement, the performance data visualizations reflect on charter school performance. The same is true for traditional public schools. Traditional public school performance is presented by local education agencies in data visualizations that do not include charter public schools. These visualizations were not interactive, and there was no drill down information that could be performed on these premade data reports. The only way to compare the school types effectively was to download the raw data files and combine the publicly available data using Microsoft Excel VLOOKUP functions. These transformed data then needed to be entered into an analysis tool, like SPSS, to measure the performance outcomes for each academic year of interest.

Data presented by each school type were available to the public for informative purposes on school performance so stakeholders, like parents, can make informed decisions on student enrollment. This type of data driven decision making by parents has an impact on the way an organization, like the school types examined in this study, chooses to present information. According to Abbott et al. (2017), using a multitiered system of support with classroom teachers, paraprofessionals, special educators, and administrators can lead to continuous organizational improvement. However, when looking at the available data, these efforts do not translate into positive student performance across the enterprise. Even more, it is unclear if efforts such as those

suggested by Abbott et al. have any positive impact on overall PARCC performance, if implemented at all, and parental performance interpretation. The available data for both school types across the grades of interest for this study showed that there were meaningful data being acquired, but there was no information to link the education professional to the decision-making parent. Based on the results, the data input and the instructional output were related in the fact that both school types were using PARCC exam results to report student performance rankings for each school, overall.

This study did confirm Cech et al.'s (2018) position that data analytics in education must provide tools to make the most reliable decisions based on four categories: descriptive, diagnostic, predictive, and prescriptive. This study confirmed that the data that parents can access from public domains can be analyzed at least in a descriptive or summary manner. However, the information available does not go beyond that. For parents seeking to enroll students in a school based on academic performance, the data are available and accessible; the data are not transparent or easily understandable, however. Any meaningful interpretation of student performance between school types requires significant data manipulation. School performance for each school type was kept in separate databases and had varying descriptive or summative measures to report student performance. Therefore, I further confirmed Cech et al. (2018), Clark et al. (2015), and Farrell's (2015) assertions that there are many types of data available in education; however, the approach to the use of data has hindered its use beyond the organization.

Additionally, this study confirmed that data techniques use patterns and predictions to highlight actionable information; however, parents need to be able to apply the available performance information correctly (see Cech et al., 2018). The onus should not be on the parent to have advanced analytic skills to perform data mining, data cleaning, and data analysis to come to one concise report on organizational performance each year. Further, Palardy et al. (2015) asserted that traditional public schools have improved in response to the introduction of charter public schools into the education market. This research is consistent in showing that student performance is most significantly impacted based on school type beginning in Grade 4. Like Hora et al. (2017), this study confirmed that data availability alone does not result in a complete representation of student performance. Giving a parent access to a data report does not lead to data driven decision making. Instead, this parental decision making takes place when the data are translated into transparent and actionable information.

The theoretical framework for this study is Contingency theory. This organizational theory suggests that there is no best way to make decisions in an organization (Fielder, 1964). Further, the optimal course of action in decision making is situational, regardless if the influence is internal or external (Fielder, 1964). External factors, like parent enrollment decisions in school choice zones affect how school types choose to present school performance information. When data visualizations were made based on school type, it assumed that parents are biased towards one school type over another. In fact, parents may not have the complete picture of all school types in their school zone. If information must be collected from multiple sources and subsequently

combined; parents are at a disadvantage. Contingency theory, therefore, lends to the fact that school types may be presenting only a piece of the total performance information in hopes to steer enrollment in one way. School leaders make decisions on how to report performance data based on the school type they are aligned with. Student performance reporting between school types is the result of leadership decision making on how reporting should look. Further, this reporting was presented in terms that others in the educational field can understand and follow.

These results were not presented in a format for easy consumption and analysis by parents who are concerned about student enrollment based on school performance in school choice zones. Therefore, based on the findings in the study, data presentation was the result of leadership dependent decisions, not necessarily parent focused needs for data driven decision making for student enrollment. According to Hoffman-Miller (2013), organizational behavior is affected by leadership effectiveness and its subsequent success. Based on that understanding, if school performance in both traditional public schools and charter public schools is the result of leadership effectiveness; performance results need to be clear, concise, uniform, and equally available in order for parents to adequately compare the two. Further, this clear and transparent sharing of information will change organizational behavior to result in improved educational quality for schools with poor leadership. This shift in informational exchange and leadership will positively affect the quality of organizational behavior and effectiveness.

Limitations of the Study

This study had several limitations. The study used secondary data sources from four educational authorities and then combined them all to create one cohesive database for performance analysis for both school types examined. Therefore, the researcher had no control over the development of the testing tool used to generate the data. Another limitation of the study was that the data was limited to students eligible to take the PARCC exam in the school year examined, in grades 3 through 5 and who were present on the day of examination. Therefore, there may have been students enrolled in the school and present for the exam but were not reported because they did not fit the requirements for reporting; this includes enrollment cut off dates. Data reliability was affected based on this secondary information available because it was not known what performance data was omitted based on student enrollment or reporting preferences of each school type. Additionally, this study only represented PARCC performance in Washington, D.C. and did not represent all school choice districts across the nation where PARCC results are the academic performance measure standard. Further, this study does not exam professional development for teachers as an impact on testing preparedness and delivery for students taking the examination. Finally, this study does not examine how public charter schools interact with or mandate parental involvement in student education as a part of their autonomous nature or chartering requirements for student enrollment.

Recommendations

This study recommends that student data for both traditional public schools and public charter schools academic performance be combined on one educational resource

website, such as the Office of the State Superintendent of Education (OSSE) in Washington, D.C. Local Education Agencies or Charter School websites should redirect parents to the OSSE website for all district wide academic performance data information. This includes data visualizations that rank school performance in between school types in bite size, and easily digestible pieces for parents. Further, instruction on how to interpret these visualizations should be available to parents continually. Creating standardized reporting measures for stakeholders, like parents, will expand organizational norms past situational norms. School districts will make organizational decisions for data presentation based on not only the internal facts, like district educational authority; but on external influences as well, such as parental information consumption. These schools will start to move past data reporting at levels that do not meet the needs of parents who are in control of student enrollment in choice districts. Therefore, connecting parents and academic performance transparency in the idea of contingency theory gives way to policy change in data availability and reporting by each school type.

Implications

The implications for social change are found at multiple levels: individual, familial, organizational, and within educational policy. The individual and familial positive social impact walk hand-in-hand. With parents having better access to performance information and having clearer results presented and available to them, student enrollment can take shape based on performance reports. Further, while it may not be feasible to put all students in the top performing school of a school choice school zone, it creates a standard of educational expectation from an external source upon each

school type. When parents can access performance information and then take informed decision driven action on that information, organizations will begin to align educational outcomes with the needs of each student learner.

Organizations, like schools, will go beyond simply reporting one-time academic results and expand internal and external factors to education and how the subsequent outcomes affect overall performance. School district leaders in each school type will identify and increase support for data reporting uniformity and transparency of the reported performance data. This increased support will ensure that parents have the requisite information to make data driven decisions when evaluating prospective schools for child enrollment each year. Policy will change to align with collecting more data and reporting multiple layers of information; realigning the idea around academic achievement being test driven only. Both parents and organizations can meet on a common ground of understanding and move towards shaping academic measures that assess student performance beyond tests. This can also positively impact early education, as students can be better prepared for the rigors of primary education; which builds on through extended study in higher grades. Overall, making performance data transparent, easily accessible, and uniform across all school types will result in increased academic performance awareness for parents when choosing to enroll or re-enroll in choice schools in Washington, D.C.

Conclusion

Primary school academic performance data currently available to parents lacks transparency and cohesiveness. While the information on student academic performance

is available for consumption, it requires a significant amount of effort in not only researching sources with the available data, but also skill in data analytics to turn the data into meaningful information. Parents are at a disadvantage when it comes to school choice enrollment if they are unable to gather all the information across multiple domains and then compile it for data driven decision making. This research has shown that student enrollment and performance are significant factors for traditional public schools and public charter schools by the time the student reaches grade 4. For organizations to provide cohesive information for data driven decision making, policy needs to change around data availability and presentation. Parents, as stakeholders in education, are the consumers of academic performance results and can lead the charge for responsive organizational change in school improvement through basic data analytic skills and data transparency.

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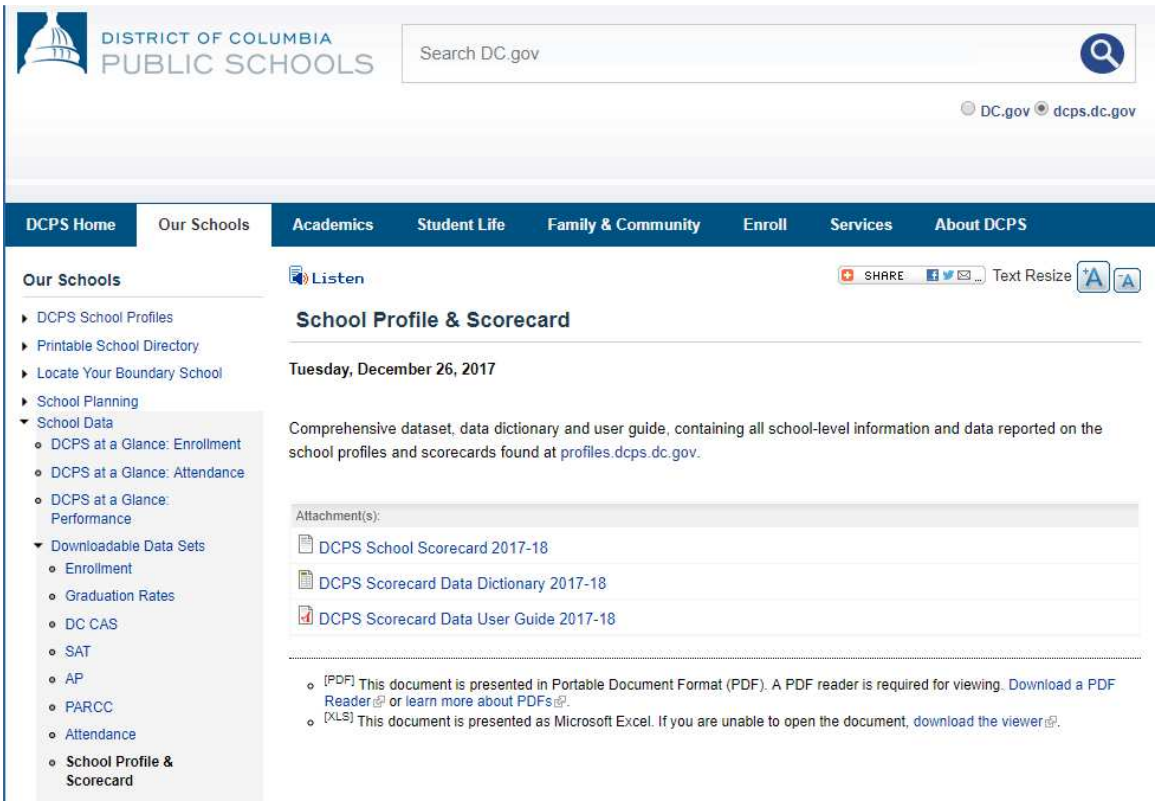
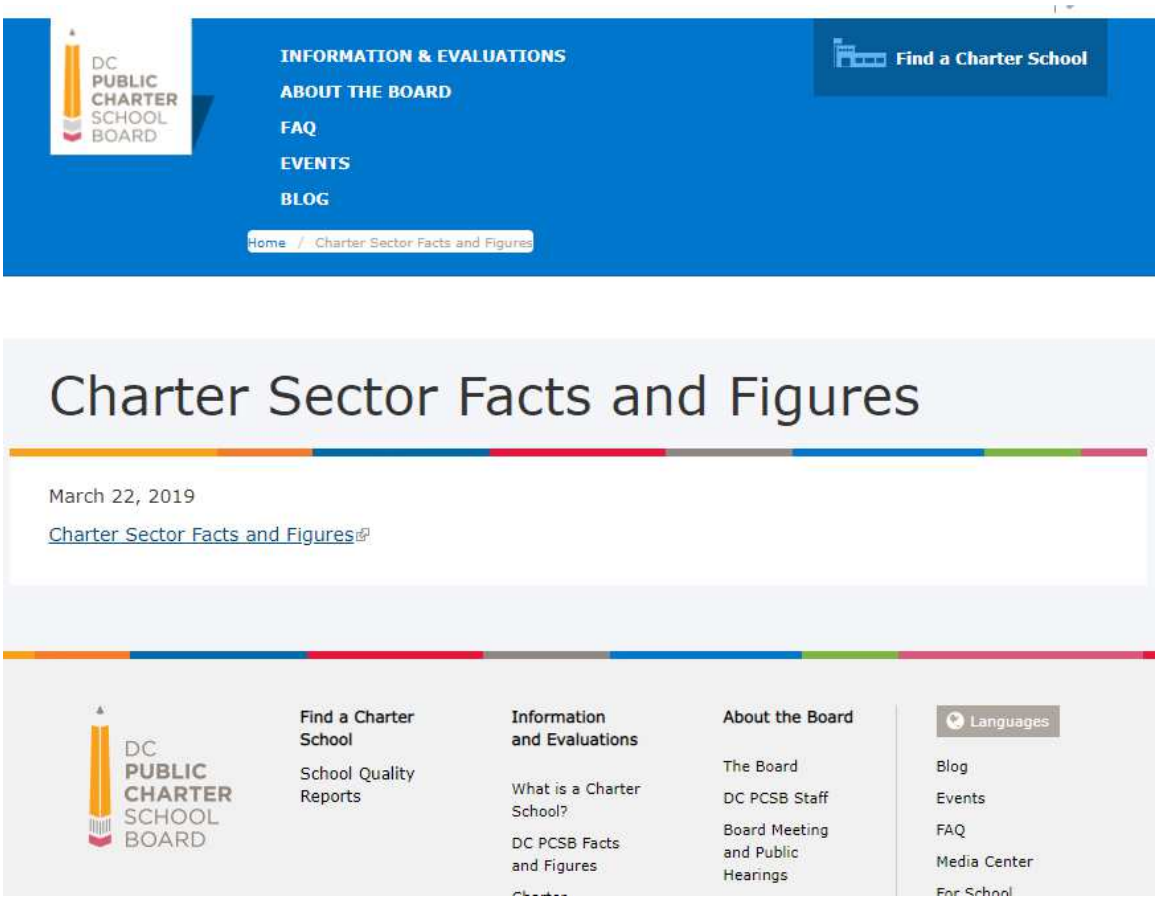
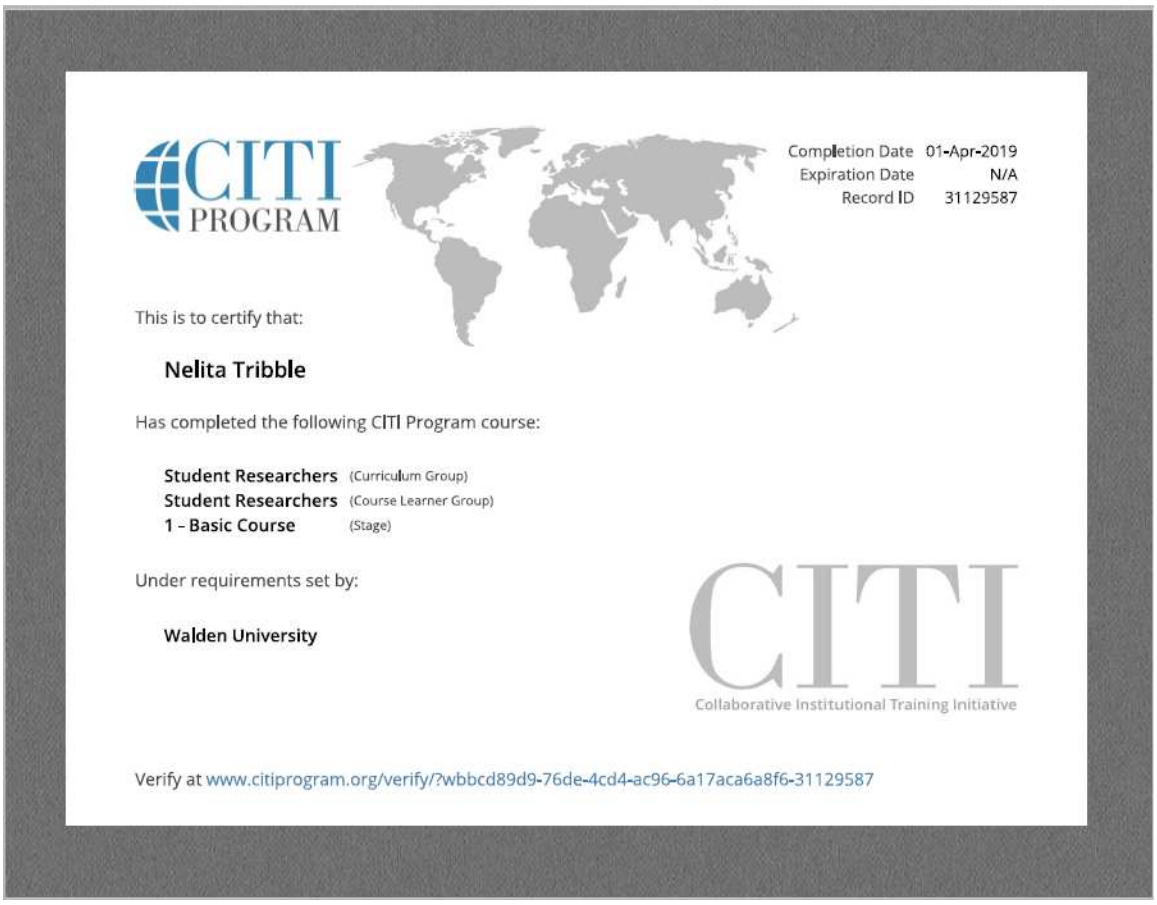
Appendix A: Traditional Public Schools Data Source



Appendix B: Charter Public Schools Data Source



Appendix C: Human Subjects Training Certificate



CITI PROGRAM

Completion Date 01-Apr-2019
Expiration Date N/A
Record ID 31129587

This is to certify that:

Nelita Tribble

Has completed the following CITI Program course:

Student Researchers (Curriculum Group)
Student Researchers (Course Learner Group)
1 - Basic Course (Stage)

Under requirements set by:

Walden University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wbbcd89d9-76de-4cd4-ac96-6a17aca6a8f6-31129587