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Relationship Between Teacher Professional Development and Urban High School Students' Reading Achievement

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This is to certify that the doctoral study by

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Walden University
2020

Abstract

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by

Chantell Rowe

EdS, Walden University, 2016

MA, Strayer University, 2006

BS, Old Dominion University, 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Reading is an essential ability for students to be successful in life. The students attending

an urban high school in Washington, DC received low reading test scores. Therefore, the

school district required teachers to attend mandated professional development workshops

(PDWs) to help improve students' reading. The purpose of this study was to examine the

relationship between the number of mandated PDWs attended over 3 academic school

years and 10th grade student reading achievement levels as measured by the District of

Columbia Comprehensive Assessment System (DC CAS) as well as whether the

increased number of mandated PDWs predicts reading levels on the DC CAS. Guskey's

model of teacher change was the theoretical framework. Archived DC CAS reading

achievement level data from 370 10th grade students were retrieved for an ordinal logistic

regression and Spearman rho correlational analyses. Spearman rho analysis initially

revealed a significant positive relationship between mandated PDWs and DC CAS

reading scores across 3 consecutive academic school years ($r = .897$, $r = .816$, and $r =$

.503). Because reading achievement data were nonparametric/ordinal in nature, a more

conservative technique was conducted that revealed a nearly zero rho coefficient of $r = -$

.020. Regression analyses revealed no significant predictive relationship between the

number of mandated PDWs attended and DC CAS reading levels. The findings may

contribute to social change by showing district administrators that changing teachers'

ability to teach reading more effectively to students is much more multifaceted and

complex in nature than just mandating the attendance of PDWs.

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Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Teachers encounter many challenges and demands in their classrooms, such as creating learning objectives, preparing students for state mandated tests, using technology, and implementing district wide initiatives. Due to these increasing demands, professional development (PD) for teachers in the United States has become essential (Vu, Cao, Vu, & Cepero, 2014). PD can take on different forms, however, at the study site mandated professional development workshops (PDWs) are used which are thirty minute sessions on specific topics. Mandated PDWs aim to provide teachers with new teaching strategies and initiatives to improve the learning of their students (Hargreaves & Fullan, 2013). For example, Nabhania, O'Day Nicolas, and Bahous (2014) suggested several PDW models to enhance teaching practices. These include action research or inquiry, networking, coaching strategies, self-monitoring, and self-reflection. The effectiveness of teachers' teaching is a variable to positively improving student academic achievement (Hartney & Flavin, 2013). Furthermore, Frunzeanu (2014) and Owen (2015) agreed PDWs offer teachers' teaching tools based on their needs to increase their students' academic achievement.

At the research site for this dissertation, 10th grade students have continuously scored below proficiency in the reading portion of the standardized District of Columbia Comprehensive Assessment System (DC CAS). The district implemented diverse mandated PDWs to increase teachers' skill to teach reading. However, the relationship between students' reading skills and the number of attended mandated PDWs was not measured. The purpose of this study is to examine the relationship between the number

of attended mandated PDWs and 10th grade student academic achievement levels in reading. Without the contribution of staff and teachers, the administrative team decided the content of the mandated PDWs on their own along with the duration of the mandated PDWs for teachers. As a result of this dissertation the potential positive social change is considering the change in the process of selecting the content and frequency of mandated PDWs.

This chapter presents an overview of the background, problem statement, and purpose of the dissertation. Also presented are the research questions and discuss the theoretical framework, the nature of the study, and the definitions, assumptions, scope and delimitations of the dissertation. The final sections of this chapter address the dissertation limitations, significance, and summary.

Background

To address the low reading scores at the research site, high school administrators mandated additional PDWs for its teachers starting in the academic school year 2010 to 2011. These mandated PDWs were offered throughout the year (academic school year and summer) at school buildings, teachers' work location, and offsite locations. According to the school's curriculum developer, the mandated PDWs occurred on Mondays, Wednesdays, Thursdays, and Fridays for a duration of 30 minutes.

Berliner (2009), as well as Martin and Kragler (2009), found that teachers can feel overwhelmed with the additional time needed to attend mandated PDWs and implement the newly learned knowledge and skills. Glynne (2015) agreed that the time to implement the learned strategies from PDWs is not taken into consideration for teachers'

workload. Furthermore, Cox (2015) and Grierson and Woloshyn (2013) found PD

should provide opportunities to secure self-reflections, pedagogical skills, collaboration,

and skill development. At the research site, the school's curriculum director suggested

that teachers were feel overwhelmed with the increased number and frequency of

mandated PDWs.

During the academic year 2010 to 2011, there were 65 mandated PDWs designed

to support and enhance students' reading strategies. According to the school's

curriculum developer, in the academic school year 2011 to 2012, there were 75 mandated

PDWs and in the school year 2012 to 2013, the mandated PDWs increased to 100

mandated PDWs.

Problem Statement

The problem that was investigated by this study are the low reading test scores in

an urban high school in Washington, DC, as measured by the reading portion of the DC

CAS. The research site requires teachers to attend mandated PDWs without knowing if

there is a relationship between mandated PDW attendance and students' test scores.

Zhao (2012) suggested teachers' need to support and meet their students' needs to

ultimately increase their students' academic achievement. For 3 years prior to this

research study, each academic school year the percent of student that earned proficient on

the test increased. However, during all 3 years, less than 30% of the students scored

proficient on the standardized DC CAS. Table 1 displays the 10th grade student academic

achievement levels for academic school years 2006 to 2007, 2007 to 2008, and 2008 to

2009. At this research site, there has been continuous underperformance for 10th graders

on the reading portion of the standardized DC CAS.

Table 1

DC CAS Reading Test Result Percentages for 3 Academic School Years

Reading Placement Categories	School Year 2006 to 2007 ($N = 90$)	School Year 2007 to 2008 ($N = 122$)	School Year 2008 to 2009 ($N = 123$)
Level 1 Below Basic	24%	32%	22%
Level 2 Basic	58%	46%	49%
Level 3 Proficient	18%	22%	27%
Level 4 Advanced	0%	0%	2%

Purpose of the Study

The purpose of this quantitative correlational design is to examine the relationship

between the number of mandated PDWs and 10th grade student academic achievement

levels in reading on the DC CAS at the research site for the academic school years 2010

to 2011; 2011 to 2012; and 2012 to 2013. The specific DC CAS student academic

achievement levels from the reading portion are Level 1 (Below Basic), Level 2 (Basic),

Level 3 (Proficient), and Level 4 (Advanced).

Researchers suggested PDWs can improve students' academic achievement

levels. Nicolae (2014), Pehmer, Gröschner and Seidel (2015) studies supported the idea

that teachers who engage in a positive PDW, implement what they learned, will see an

increase in their students' academic achievement. A case study conducted by Brown and

Inglis (2013) indicated a successful PDW includes leadership, vision, mentoring,

prioritization, reflection, collaboration, and time for teachers to reflect, grow, and implement what was learned. PDWs are to increase student academic achievement (Lattuca, Bergom, & Knight, 2014; Owen, 2015).

My dissertation was needed to show whether the number of attendance mandated PDWs offered by the district for improving students' reading and comprehension is associated with student academic achievement levels in reading on DC CAS. The student academic achievement levels were explicitly from the reading portion of the DC CAS. The number of mandated PDWs changed from academic school year to an academic school year. All teachers participated in all mandated PDWs. The variables to support this dissertation are the number of mandated PDWs per academic school year and 10th grade students' academic achievement levels in reading.

Research Questions and Hypotheses

The focus of this dissertation was to examine the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. The 10th grade student academic achievement levels in reading are (a) Level 1 Below Basic, (b) Level 2 Basic, (c) Level 3 Proficient, and (d) Level 4 Advanced. The following research questions and hypotheses were addressed in this dissertation.

RQ1: Does the number of mandated PDWs for the 3 academic school years predict the 10th grade student academic achievement levels in reading on the DC CAS?

H_0: The number of mandated PDWs is not a significant predictor for 3 academic

school years 10th grade student academic achievement levels in reading.

H_A: The number of mandated PDWs is a significant predictor for 3 academic

school years 10th grade student academic achievement levels in reading.

RQ2: What is the magnitude and direction of the correlation between 10th grade

student academic achievement levels on the reading portion of the DC CAS and the

number of mandated PDWs for the 3 academic school years?

Theoretical Framework for the Study

In the Washington, D.C. area, an urban school district requires its schools to

provide teachers with opportunities to maintain and improve their classroom practices.

The district used PDWs to because such workshops have a positively effect student

academic achievement (Desimone, 2011a). The mandated PDWs were given with the

intent to improve students' academic achievement and ultimately students' results on the

state standardized tests.

This study was focused on the relationship between teacher mandated PDWs and

the reading portion of 10th grade students' standardized test achievement levels. The

conceptual framework for this study was Guskey's (2000) model of teacher change.

Since the 1950s, educators have been studying how to effectively and efficiently teach

adults to learn new materials and use them daily (Knowles, 1970). Lieb (1991) stated

that, "Part of being an effective instructor involves understanding how adults learn best.

Compared to children and teens, adults have special needs and requirements as learners"

(p. 1). All PDWs must consider how adults learn and what motivates the adults. I chose

this theory for my study because it focuses on PDWs for adults and mandated PDWs' relationship to students' academic achievement.

Changing a teachers' attitude can lead to a positive change in student academic achievement. Guskey (2000) stated that PDWs should positively change to teachers' knowledge, skills, attitudes, and beliefs. Guskey suggested that positive change has a direct impact on student academic achievement. The National Staff Development Council (NSDC; 2001) reported that, "Staff development is the means by which educators acquire or enhance the knowledge, skills, attitudes, and beliefs necessary to create high levels of learning for all student" (p.2). Through effective PDWs teachers' have a positive change, which results in a positive increase in students' academic achievement.

When PDWs do not have positive effects on teachers' attitudes, it can negatively impact students' academic achievement. The lack of focused planning and unreliability for teachers is why PDWs fail (Guskey, 2000). Guskey (2000) stated that the design of PDWs does not consider what motivates teachers and agreed that providing training in something teachers are interested in aids in the process of teacher change. Aiding in the shift in teachers' attitudes and beliefs will result in teachers' changing their instructional practices and pedagogy, which leads to improving student academic achievement.

To demonstrate how changing teachers' attitudes could improve students' academic achievement a model was created. Guskey (2000) proposed that a teacher change model whereby improvements in student academic achievement give teachers evidence to change their attitudes and beliefs (see Figure 1 below). "The crucial point is

that it is not the professional development per se, but the experience of successful

implementation that changes their attitudes and beliefs" (Guskey, 2000, p. 139). After a

teacher attends a PDW, teachers implement changes in their classroom, student academic

achievement increases, thus evidence to change teachers' attitudes and beliefs.

Professional Development	Change in Classroom Practice	Change in Student Learning	Change in Teachers' Attitudes and Beliefs
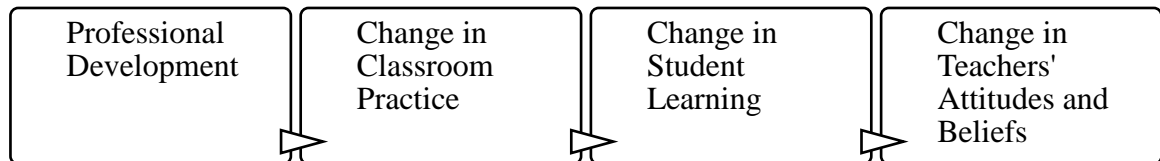
Figure 1. Guskey's model of teacher change.

The conceptual framework addressed how the effectiveness of PDWs affects

students' academic achievement. Penuel, Fishman, Yamaguchi, Gallagher (2007)

conducted a study of 28 PDWs by providers who trained 400 adults in education. The

study confirmed a correlation existed between the effectiveness of the adult PDWs and

their ability to incorporate and implement the knowledge they received (Penuel et al.,

2007). The findings from the study were guided by Guskey's (2000) model of teacher

change. The research questions addressed PDWs and students' academic achievement

levels in reading on the state standardized test. The conceptual framework is guided by

several components of designing effective PDWs to equip teachers with the ability to

increase students' academic achievement. This framework steered the literature review

and answering the research questions of this study.

Nature of the Study

The research design of this dissertation was a correlational quantitative research

design. Correlational research explores the relationship between variables. Lodico,

Spaulding, and Voegtle (2010) stated that correlational studies could suggest a relationship exists between variables which for this study include the number of mandated PDWs and 10th graders' reading portion of the DC CAS academic achievement levels in reading. A correlational study was appropriate for my study. I sought to understand the relationship between the number of mandated PDWs and 10th graders academic achievement levels on the reading portion of the DC CAS at the research site for 3 academic school years.

At the research site students did not pass the state standardized test for the academic years 2010 to 2011 and 2011 to 2012. Learning Forward (2012) suggested one definition of PDWs is to identify learning goals, strategies to assist all students and improve teaching while aligning all aspects to the state academic achievement standards. Both Frunzeanu (2014) and Owen (2015) agreed PDWs offer teachers' teaching tools based on their needs to increase their students' academic achievement. Furthermore, Turner, Christensen, Kackar-Cam, Trucano, and Fulmer's (2014) study observed that two out of the three teachers responded to PDW content in a challenging way to strengthen their instructional practices. The PDWs prompted the teachers to initiate change in their practices. In particular, the teachers reflected on their students' responses and changed their instructional approach to obtain their teaching goals (Turner et al., 2014). The increase in student academic achievement has been an integral part of the result of PDWs (Desimone, Smith, & Phillips, 2013). Improving teachers' teaching quality increases students' academic achievement (Harris, Pollingue, Hearrington, & Holmes, 2014;

Youngs, 2013). Based on previous research, it stands to reason that there should be an increase in student academic achievement levels.

A member from the focus school administrative team provided the archival yearly number of mandated PDWs and the archival student academic achievement levels of the reading portion of the DC CAS. The statistical method used to answer RQ1 was ordinal logistic regression analysis. The predictor variable is the number of mandated PDWs, and the outcome variable is the 10th graders' academic achievement levels in the reading portion on the DC CAS. To answer RQ 2, I completed a descriptive correlational analysis; the variables for the analysis were the number of mandated PDWs and the 10th grade academic achievement level or categories on the reading portion of the DC CAS at the research site.

<div align="center">**Definitions**</div>

The terms throughout this dissertation address multiple areas of PDWs, teaching practices in education. Definitions are listed below as a reference.

District of Columbia Comprehensive Assessment System (DC CAS): State standardized assessment used to measure student achievement in English language arts, mathematics, science, social studies, and writing (Office of Superintendent of Public Instruction[OSPI], 2007).

Professional development workshops (PDWs): In accordance with Learning Forward (2012), professional development work sessions for teachers, principals, and work staff are used to increase student achievement and success in a school setting. The work session provides an intensive, comprehensive, and sustained approach to better

teachers' and principals' effectiveness in improving student achievement (Learning Forward, 2012). Professional development is an opportunity for teachers to improve their instructional practice to enhance their lessons to be effective and enable students to learn at a higher level (Lee, Kinzie, & Whittaker, 2013).

Standardized testing: A test created commercially so the results can be compared to referenced norms. The test is administrated in a condition-controlled environment (Goh, 2012).

Assumptions

Several assumptions were made in this dissertation. One was regarding archival data for analyses of the students' reading portion of the DC CAS. I assumed all protocols were followed when the reading portion of the DC CAS was administered. I made these assumptions as I did not administer the reading portion of the DC CAS; therefore, I could not verify the assessments were administered properly. I assumed the reading portion of the DC CAS was properly administered because if they were not, the students' academic achievement levels would not be reliable.

Another assumption was that the state accurately recorded the students' test results of the DC CAS reading portion. The scores were provided to the school and ultimately to me. I assumed the state accurately collected students' test results because I was not involved. Therefore, I could not verify the proper recording of students' test scores. Additionally, I did not get the test results in raw form (e.g., standard scores, percentiles); the students' scores were categorized before being provided to me. Students' reading test scores needed to be accurately reported, so the analyses using the

data would reflect the relationship between the number of mandated PDWs and the three years of 10th grade students' DC CAS academic achievement levels at the research site. The reading portion of the DC CAS is a state standardized assessment. Since this is a standardized test and is not scored at the school level but is scored at the state level, it is feasible to assume that students' test scores were reported accurately. Lastly, assumptions were all the 10th grade students who took the reading portion of DC CAS did their best. I could not verify if the students did their best when they took the reading portion of the DC CAS.

Scope and Delimitations

This dissertation's scope was to determine the relationship of the number of mandated PDWs and the 10th grade students' academic achievement levels in reading at the research site. The academic achievement levels of 10th grade students continuously score below proficiency on the standardized DC CAS. The district implemented diverse mandated PDWs to increase reading skills. Still, the relationship between students' reading skills and the number of the mandated PDWs has not been measured until this dissertation.

There were delimitations used in this dissertation to narrow the scope of the study. This study did not use actual student test scores of the 10th grade students' reading portion of the DC CAS. The data provided to me from the curriculum developer were in categories. The specific categories of the academic achievement levels are (a) Level 1 (Below Basic), (b) Level 2 (Basic), (c) Level 3 (Proficient), and (d) Level 4 (Advanced). This study does not include the test results from the other portion of the test

scores. However, the delimitations were purposeful in focusing on one aspect of the test. The increase in mandated PDWs was implemented at the school to increase students' reading skills. Therefore, limiting the data used in this dissertation to students' reading level was the most useful course of action for this dissertation.

Limitations

A limitation of this dissertation was I only used archival data. There was no input from the teachers that work at the studied school. I used the archival data collected from an administrative team member for the number and frequency of mandated PDWs. The 10th grade students who took the reading portion of the state standardized tests had no input in this dissertation. The administrative team member provided me with the 10th grade students' test scores in preset categories. This dissertation does not include the test results from the other portions of the test scores. I purposefully omitted the other parts of the standardized test scores. The school's curriculum developer at the research site informed me that the decision to increase the number of mandated PDW increased the 10th grade students' DC CAS reading scores.

Significance

At the research site, there are numerous mandated PDWs. The mandated PDWs increased each academic school year. A positive effect on student performance is the expectation of PDWs; therefore, the increase of students' performance would be arbitrated to teachers' performance. Teachers' participated in PDWs, which would improve teacher performance, therefore, increasing student performance.

I examined the relationship between the number of mandated PDWs and the 10th grade students' academic achievement levels in reading over 3 academic school years at the research site. Some districts view PDWs as a problem-solving solution for problems in education (Desimone, 2011b). According to Desimone et al. (2013), PDWs are an essential part of increasing student achievement. When PDWs are effective, they have a significant and positive effect on student achievement. When the result of PDW is noneffective, and there is no significance or overall positive impact, there is a need for change. The change should occur in the delivery and frequency of the mandated PDWs. Improvement in student academic achievement will result in a direct or indirect positive social change.

States have adopted standardized tests to measure if students' academic achievement has increased or decreased for the school year (see Nicolae, 2014; Pehmer et al., 2015; Bayer, 2014). Each state has a standardized test to show the school district's performance and second the school separately performance. The standardized tests are comparable to a report card for a school. The official name of a school's report card is Annual Yearly Progress (AYP). The report card concepts were created from the No Child Left Behind (NCLB) Act of 2001. The report card determines if the state, school district, and individual school meets the mandates for student performance (Education Week, 2011). For one of the variables in my study I collected the academic achievement levels of 10th grade students from the reading portion of the state standardized test.

The data analyzed in this dissertation was collected in 2009 by the research site in Washington, DC and stored in an archived database. The district was under the NCLB

Act mandates. In December 2015, President Obama signed Every Student Succeeds Act (ESSA) to replace the NCLB Act. AYP is no longer a requirement under ESSA as a different criterion is used, which allows states to establish their own goals and milestones. While the legislation changed, it does not change the nature of the problem in this study (Association for Supervision and Curriculum Development, 2017). While the ESSA replaced the NCLB Act, it did not alter the periodic state standardized test required of students.

There have been many challenges and problems school districts have struggled with because of the NCLB Act. One challenge was teachers began to teach based on preparing students for a standardized test (Berliner, 2009). Another is that the NCLB Act mandated schools to increase the number of PDWs based on their standardized test scores and achieve a passing score according to their AYP. Thus, schools began to increase the number of mandated PDWs schools across states and school districts to improve students' academic achievement levels in reading.

Many schools are struggling to provide the required number of PDWs. Over the last couple of years, teachers have been asked to attend a PDW and then return to their school and share the scientific information with their schoolteachers. In many cases, PDWs are delivered in ways that do not provide enough interaction for teachers to learn the new skills being taught (Klein & Riordan, 2011). Many times, the PDWs assume a one size fits all approach to student learning.

As a onetime offering, PDWs are not useful (see Gulamhussein, 2013). They must be provided over time and reinforced with interactions and communication (Hall,

2015). When a PDW includes a time of interaction, reflective process, support, and interest, they will then prepare teachers in their endeavors to get students ready to learn (Desimone, 2011a). If PDWs do not offer enough interaction for teachers to learn the new skills being taught, it is an excellent possibility that they will not be valid. Typically, at a PDW, the presenters do not allow time for the participants (teachers) to participate. Teachers do not have time to reflect on what they are learning. For PDW concepts to be effective, teachers must use the techniques, and lessons must be understood and mastered.

Stated in the former NCLB Act of 2001, it was essential for teachers to have professional learning activities. In Part A of Title II of the former NCLB Act, 3 billion dollars was allocated annually to improve teacher qualifications through multiple strategies. One of these improvement strategies was PDWs for teachers (Birman et al., 2009). The NCLB Act required at least 10% of a school's Title 1 funds allocated for professional learning activities. For the academic school years of 2009 to 2010, 40 states developed formal PD standards, and of those, 24 were financed PD for all districts (Editorial Projects in Education, 2011). The data collected and analyzed for this dissertation was from academic school years 2009 to 2010, 2010 to 2011, 2011 to 2012, and 2012 to 2013, which were the years under the NCLB Act before President Obama signed and replaced NCLB with the ESSA on December 10, 2015.

Summary

Several areas were discussed in this chapter. This chapter's components include the background, problem statement, purpose of the study, research questions and

hypotheses, theoretical framework for the study, nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance. An introduction to the problem concerning the increase in mandated PDWs was provided. The background and the problem statement identified in this study were the number of mandated PDWs given in one school year at the research site. There have been various studies conducted that support what influences the effectiveness of PDWs (see Blank, 2013; Burridge & Carpenter 2013; Francis & Jacobson, 2013; Nishimura, 2014; Potolea & Toma, 2015; Shaha, Glassett, & Copes, 2015; Wallace, 2014; Wells & Feun, 2013). This problem was essential to this dissertation to examine if resources were being properly used, and students were being given the support needed for their academic success. The study's purpose was to examine the relationship between mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for 3 academic school years.

There were two assigned research questions for this dissertation. The definition of the problem on the research site was stated. This study's framework embraced the philosophical framework of an action-oriented approach by Lodico et al. (2010) with a theoretical framework based on Guskey's (2000) model of teacher change. The nature of this study was a dissertation of a quantitative ordinal regression and descriptive correlation. Next, I defined the needed terms from the dissertation. This was followed by detailed information on the assumptions made in this dissertation. A thorough listing of the scope and delimitations, as well as the limitations for the dissertation was discussed. Lastly, the significance of teachers' participating in PDWs to improve teacher

performance; therefore, increasing student performance was explored. In the next

chapter, the literature review search strategy, conceptual framework, and the research

related to the variables under investigation are discussed.

Chapter 2: Literature Review

The critical significance of the literature review is that it gives an in-depth analysis of the research problem (see Creswell, 2015). The problem addressed in this dissertation is the continuous score of below proficiency on the reading portion of the standardized DC CAS by 10th grade students at the research site. The district implemented mandated PDWs to increase the reading skills, but the results of this strategy have not been measured. The purpose of this quantitative correlational design is to examine the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at a high school in Washington, DC for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. This dissertation examined student academic school years in relation to the number of mandated PDWs. The specific academic achievement levels in reading are (a) Level 1 (Below Basic), (b) Level 2 (Basic), (c) Level 3 (Proficient), and (d) Level 4 (Advanced). I sought to determine if there was a correlation between the 10th grade student academic achievement levels in reading and the number of mandated PDWs offered over 3 academic school years at the research site.

The ultimate goal of any learning institution is to improve the academic proficiency of the learners. Teachers have the mandate to develop approaches aimed at improving the performance of their students (Education Week, 2011). The mandated PDWs were to enhance the academic the performance of students (Owen, 2015). To increase 10th grade student the academic achievement levels in reading on the DC CAS at the research site, mandated PDWs were implemented and increased yearly. Desimone

(2011b) stated "the final test of the effectiveness of professional development is whether it has led to improved student learning." (p. 71). Zhao (2012) suggested teachers need to support and meet their students' needs to increase their students' academic achievement ultimately. Typically, teachers obtain the needed support through PDWs.

Several elements are usually derived from a PD. These elements are the availability of PD, teacher perceptions, district guidance, local school missions, state regulations, and methods for delivering PD (Darling-Hammond & McLaughlin, 2011; Mackay, 2015; Smylie, 2014). Teachers' input and experiences are often not included in the design and or the activities of PDWs (Desimone, 2011b; Hargreaves & Fullan, 2012; Wadesango & Bayaga, 2013). The lack of involvement of teachers' participating in the planning and or the development of activities to PDWs' design can cause teachers to feel they are not valued (Smylie, 2014). These feelings translate into their feelings; the chosen PD may not be of value to them due to their lack of input (Smylie, 2014). This lack of input potentially reduces the effectiveness of PD (Mizell, 2010; Wei, Darling-Hammond, Adamson, 2010).

Research evidence suggested that when teachers have a positive engagement at PDWs and implement practices from PDWs, they will see an increase in their students' academic achievement (see Nicolae, 2014; Pehmer et al., 2015). When effective PDWs are receptive to teachers' needs, a result of a positive change in those teachers' classroom teaching practices can be observed (Gulamhussein, 2013). Guskey (2003) agreed if PDWs do not increase teachers' knowledge or practices in their classroom, then student academic achievement will not increase. Multiple studies support the claim that teachers

who engage positively in PDWs and implement instructional practices from PDWs can improve student academic achievement in their classroom (see Nicolae, 2014; Pehmer et al., 2015). For the past several decades, continuing PDWs for teachers has become a popular educational study (Bayer, 2014).

In this chapter, I analyzed Guskey's (2000) model of teacher change as the theoretical framework for this dissertation. Next professional development was defined. Lastly, I discussed the relationship of PD on student achievement. This chapter provides a literature search strategy, theoretical foundation, literature review related to key variables, summary, and conclusions.

Literature Search Strategy

This section is supported by research based and theoretical sources from journal articles, e journals, seminal works, handbooks, and books. Full text journal articles were collected from peer reviewed journals. The following databases were used Educational Resources Information Center (ERIC), Education Research Complete, EBSCO, ProQuest, Sage Publications, and Google Scholar. The other sources I used for research were the U.S. Department of Education and the District of Columbia Department of Education websites. The search terms, descriptors, and keywords used were *adult learning theory, education reform, Guskey's Model of Teacher Change, professional development, professional learning, professional learning communities, professional development standards, staff development, student academic achievement, student achievement, teacher beliefs, teacher collaboration, teacher efficacy, teacher involvement in professional development, teacher learning, teacher professional development,*

teachers' resources and *teachers' time management.* Additionally, I conducted a search of the references in Walden University dissertation collections and current professional journal articles.

Theoretical Foundation

The critical importance of PDWs in improving the performance of learners can never be understated. Lodico et al. (2010) critically evaluated what works in PDWs, the relationship between teachers and students, and finding the best approaches to enhance their performance. The correct theoretical formulation was essential in meeting the objectives of the dissertation. I applied Guskey's (2000) model of teacher change as the conceptual framework which posits that a positive change to teachers' knowledge, skills, attitude, and beliefs can emerge from PDWs. Guskey's model is founded on the idea that when a positive shift in teachers' attitudes and beliefs occur; it is a continuous and endless learning process and not an onetime event. Furthermore, a positive change in teachers from PDWs has a directly impacts on student academic achievement (Guskey, 2000). The main reason I chose this theory is because of an assumed relationship between teacher mandated PDWs and student academic achievement.

According to Guskey (2000), teachers' attitudes and beliefs bring a change in learners' academic achievement. A study conducted by Bobis, Way, Anderson, and Martin (2016) applied Guskey's (2000) model of teacher change and concluded that the increase of student academic achievement resulted from of changes in teachers' knowledge and beliefs. Lau and Yuen (2013) found Guskey's (2000) model consistent with the evidence of an increase in student academic achievement with teacher change in

their knowledge and beliefs. The importance of using the theoretical approach is that it provides support that at the research site they took efforts to educate their teachers with the intension of a positive result of an increase in students' academic achievement on the reading portion of the DC CAS.

There are four key elements for PDWs to be successful for adult learning to occur. These elements entail using concrete experiences, continuously available monitoring and feedback, encouragement of adults to take on new roles, and support when implementing new instructional strategies (Oja, 1980). The knowledge and talent of a classroom teacher is a critical factor in the aiding in student achievement (Anderson, Hiebert, Scott, & Wilkinson, 1985).

Both Oja (1980) and Anderson et al.'s (1985) previous work served as strong support for Guskey's (2000) model of teacher change. Guskey's model shows that the process of teacher change occurs in a linear process. The process starts with professional development that can provide concrete experiences. After the PDWs, changes happen in the classroom through teachers' practices, follow up PDWs can provide opportunities for monitoring and feedback. The change in teachers' practices affects changes in student learning. Ultimately, the change in teachers' attitudes and beliefs will change teacher practices that will bring positive change in student academic achievement. As mentioned in Chapter 1, the number of mandated PDWs were mandated by the school administrative team. The paper is structured based on the existing theoretical framework with an attempt of meeting the set standards.

Literature Review Related to Key Variables

Defining Professional Development Workshops

Various scholars across the globe have developed various definitions and

meanings of PDWs. The focus of all the definitions is based on change in teacher

knowledge, beliefs, and practices, leading to improving student academic achievement.

This follows Guskey's (2000) model of teacher change. When teachers attend PDWs,

change in teachers' classroom practices occurs, then a shift in student learning happens,

which leads to change in teachers' attitudes and beliefs. Guskey (2002) suggested that

when PDWs are successful they address teachers' needs as learners, which enhances their

effectiveness with students.

In general, Darling-Hammond and McLauglin (2011) and Moon, Passmore,

Passmore, Reiser, and Michaels (2013) agreed that PDWs are referred to as a range of

educational experiences to design improved practices and outcomes for both personal

development and career advancement. The PDWs are delivered formally or informally;

they can also be mandatory or voluntary and delivered to individuals or groups

(Desimone, 2011b). Nabhania et al. (2014) suggested that several PDWs models to

enhance teaching practices. These include action research or inquiry, networking,

coaching strategies, and self-monitoring or self-reflection. The definition of PD by

Guskey (2000) is that "those processes and activities designed to enhance the

professional knowledge, skills, and attitudes of educators so that they might in turn

improve the learning of students" (p. 16). In addition, the NSDC (2008) aligned with

Guskey's (2000) definition and further defined PDWs as "a comprehensive, sustained,

and intensive approach to improving teachers' and principals' effectiveness in raising

student achievement" (p. 1). NSDC definition supported Guskey (1994) previous claim

that "we cannot improve schools without improving the skills and abilities of the teachers

within them" (p. 9). Therefore, PDWs aid teachers in improving their teaching strategies

and improving students' academic achievement.

There are five essential features identified by Desimone (2009) for PDWs to

improve teacher instructional practice and student academic achievement. Those

required features include the following:

- Content focus: The PDW activities focus on teacher's content and how

  students learn the content.

- Active learning: Teachers are provided with time to observe, receive

  feedback, analyze examples of student work, and make presentations.

- Coherence: The PDWs are designed based on identifying outcomes, planned

  activities that align with the school curriculum and goals and identify the

  needs of students.

- Sustained duration: The PDWs will continue throughout the school year and

  provide at least twenty hours on a specific topic.

- Collective participation: Teachers are provided with an opportunity at PDWs

  to collaborate with other teachers who teach the same of similar subjects as

  they do. (pp. 183-185).

Advancement of teachers' efficacy, implementation, knowledge, and skills can be

done through teacher PDWs. An effective PDW must change teachers' mindset in their

classroom practices to improve students' academic achievement. Shaha et al. (2015)

conducted a study of teacher efficacy which analyzed the impact of observations on PD

on student academic achievement. In the United States, 292 schools were studied in 27

states. After teachers participated in an online based PD, students' academic

achievement increased a significant increase in students' academic achievement in

reading and math on standardized assessments. A similar study was conducted by Shaha

and Ellsworth (2013) in 39 states within the United States on a structured program of

online PD in 734 schools. The results reported an increase in students' academic

achievement among teachers who had higher engagement than schools that had a lower

participation in PDWs. Student improvement rate increased by 18% ($p < .001$).

Teachers are provided with PDWs to target strategies for their students. A

teachers' teaching's is a variable to impacting student academic achievement (Hartney &

Flavin, 2013). Frunzeanu (2014) and Owen (2015) agreed that PDWs offer teachers'

teaching tools based on their needs to increase their students' academic achievement. A

case study by Brown and Inglis (2013) indicated that an effective PDW links teacher

development and improved practices to improving student achievement. Epstein and

Willhite (2015) studied that the impact of PDWs on teachers' effectiveness. After one

hundred hours of PDWs with mentor teachers, results yielded an improvement in teacher

effectiveness. This affected the instruction, management, and collaboration of teachers.

Furthermore, Desimone (2011a) and Hammond, Hyler, and Gardner (2017)

agreed to improve PDWs has a positive effect on improving student achievement.

Frances and Jacobsen (2013) stated that an effective PDW has the following

characteristics intensive, connected to school initiatives, ongoing, connected to practice, focused on teaching, and learning within content areas, and conducive to developing coworker relationships through collaboration. Hill, Beisiegel, and Jacob (2013) agreed that equipping teachers with the right teaching methodologies. Teachers need them as it is critical to advancement in students' academic achievement.

The connection to improving students' academic achievement is building teachers' skills to help students, enhance their teaching practices, and improve students' learning (DiPaola & Hoy, 2014). In many cases, when PDWs are designed, they often lack the reinforcement of pedagogy, which leads to misconceptions and misunderstandings (Fisher & Frey, 2014; Meissel, Parr, & Timperley, 2016). Research on PDWs suggests that this intervention is an effective way of improving students' academic achievement. A study by Saleem, Masrur, and Afzal (2014) investigated knowledge and pedagogical skills. This investigation was conducted on 469 university teachers in Pakistan and examined the teachers' pre and post knowledge and pedagogical skills. The study's data analysis revealed the post test of the participant scores were two standard deviations higher than the previous pretest. Cox (2015) and Grierson and Woloshyn (2013) agreed that PDWs should provide opportunities and ensure self-reflection, pedagogical skills, collaboration, and skill development.

The Goals 2000: Educate America Act (2000) called for a reform of PDWs and improved the quality of PDWs for teachers. A decade later, The National Comprehensive Center for Teacher Quality (2011) reiterated that PDWs must be of high quality to yield a positive impact on teacher practices that will influence student

achievement. Presently, the use of PDW to improve student learning and achievement is

supported and encouraged by the U.S. Department of Education (2014). Several

researchers and the federal government have proposed and embraced key characteristics

of quality PDWs (Education America Act, 2000; Goals 2000; Guskey & Sparks, 1996;

NCLB, 2001; NSDC, 2001, 2008, 2009; Wei, Darling-Hammond, Andree, Richardson, &

Orphanos, 2009).

The NSDC, also known as *Learning Forward*, was created in 1969 (National

Staff Development Council, 2009). The NSDC mandated an increase in the quality of

PDWs the development of standards resulted. The National Staff Development Council

(2009) is a nonprofit, private organization. This organization aims to ensure every

educator engages in effective PDWs for every student to positively achieve. The mission

of the organization is to shape "the capacity of leaders to establish and sustain highly

effective professional learning" (Learning Forward, 2020). *Learning Forward'*s

approach to implement its mission is advocating for policies that aid professional

learning, build the capacity of leaders, define effective PDWs and create its Standards for

Professional Learning (Learning Forward, 2020). Organizations still use the term

"professional development" but *Learning Forward* focuses on the idea of professional

learning (Glynne, 2015).

There is a slight difference between the constructs of professional development

and professional learning. In accordance with *Learning Forward* (2012), professional

development work sessions or teachers, principals, and work staff are used to increase

student achievement and success in a school setting. The work session provides an

intensive, comprehensive, and sustained approach to better teachers' and principals'

effectiveness in improving student achievement (Learning Forward, 2012). Professional

development provides teachers opportunities to improve their instructional practice to

enhance their lessons to be effective and enable students to learn at a higher level (Lee et

al., 2013). While professional learning is considered to have more improvement in both

teaching and increasing student academic achievement. As well as be effective in

recruiting and retaining teachers. According to research, professional learning includes

eight components (a) specific content and standards, (b) active learning, (c) job

embedded, (d) collaborative, (e) provides models, (f) coaching, (g) continuous and

sustained, and (h) aligned to standards and assessments of school goals as well as all

other professional learning activities (Darling-Hammond , Hyler, & Gardner 2017;

Labone & Long, 2016).

To obtain quality PDWs and improve student academic achievement, NSDC

(2008) focus was to develop effective policies for government levels (federal, state, &

local) in the form of standards. In efforts to increase accountability, clarity, and improve

instruction; standards-based reform for curriculum content and student performance have

been used (Mosakowski, 2015). Furthermore, Blank (2013) agreed that standards based

PDWs can guarantee teachers will leave with a gained knowledge of their subject content

and effective teaching practices for their classrooms. *Learning Forward* (2011)

explained, "When professional learning is standards based, it has a greater potential to

change what educators know, are able to do, and believe" (p. 43). *Learning Forward*'s

professional learning standards permit "professional developers to have a strategic

delivery plan that has a targeted audience as well as specific achievement, assessment, and implementation goals" (Mosakowski, 2015, p. 3). Professional learning is learning communities, leadership, resources, data, learning designs, implementation, and outcomes ("Standards for Professional Learning," 2011). There are five core beliefs of *Learning Forward* that each research based standard has been built on, which are (a) professional learning that improves educator effectiveness is fundamental to student learning, (b) all educators have an obligation to improve their practice, (c) more students achieve when educators assume collective responsibility for student learning, (d) successful leaders create and sustain a culture of learning, and (e) effective school systems commit to continuous improvement for all adults and students (Learning Forward, 2020).

Both Figures 2 and 3 are shown below. Figure 2 displays the *staff development model*, categorized into three main standards of *context*, *process*, and *content*. Figure 3 displays the standards for *context*.

Figure 2. Model of quality professional development workshop standards (NSDC, 2008)

Figure 3. Standard for "context" of quality professional development ("Standards for Professional Learning", 2011)

The standard for "Context" answered the "who, when, where, and why" (NSDC, 2008). All these questions answer the professional learning. They "added the organization, system, and culture in which new learning will be implemented" (NSDC,

2001, p. 2). The "Context" standards include the Learning Communities, Leadership, and Resource Standards ("Standards for Professional Learning," 2011).

Learning communities are "professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment" ("Standards for Professional Learning," 2011, para. 1). According to professional learning communities are effective in improving schools overall as they prioritize the focus on teacher and student learning through the encouragement of a cycle of collaboration, experimentation of practice, and reflection (Lieberman, Miller, Roy, Hord, & Von Frank, 2014). Effective professional learning communities can help a school enter a continuous cycle of improvement (Learning Forward, 2011; Lieberman et al., 2014).

Leadership is "professional learning that increases educators' effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning" ("Standards for Professional Learning," 2011, para. 1). The responsibility of school leaders being solely in charge of student behaviors has expanded to sharing the burden with teachers (Louis, Hord, & Frank, 2017). Teachers are expected to engage students with learning the entire, class time thus minimizing student behaviors (Louis et al., 2017). Hall (2015) and Louis et al. (2017) agreed that leaders' role has become complex and demanding. Thus, the responsibilities of leadership to manage student behaviors must be distributed to all staff not putting the heavier load on teachers.

Resources are "professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning" ("Standards for Professional Learning," 2011, para.1). Besides books in a school, there are other resources. They include staff, space, access to ideas, time, technology, equipment, funding, and other materials (Hall, 2015; Killion & Hirsh, 2013). Hall (2015) suggested that U.S. schools employ effective professional learning strategies and prioritize the available resources. Additionally, Miles, Sommers, Roy, and Frank (2016) suggested that performing analysis to track cost, targets, purpose, and delivery methods for the impact of professional growth, teacher salary increases teachers' time, teacher support functions. Figure 4 is shown below and displays the standards for *content*.

Figure 4. Standard for "content" of quality professional development ("Standards for Professional Learning", 2011)

The standard of "Content" answered the "what" (NSDC, 2008). The "Content" standard speaks to teachers' knowledge and skills that are needed when ensuring student

success and the ability of the school to build the support required and fidelity in approaching new practices (Hall, 2015; Mosakowski, 2015). The "Content" standards are Implementation and Outcomes ("Standards for Professional Learning," 2011).

Implementation is "professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long term change ("Standards for Professional Learning," 2011, para. 1)." The implementation is the "fidelity to which professional learning results in the desired outcomes through the process of adult learning" (Hall, 2015, p. 38). Fullan, Hord, and Frank (2015) agreed that a critical part of school change, and improvement is the implementation.

Change is needed to move from professional learning to implementing of the lesson's students learn in their classrooms. Hord and Roussin (2013) identified six research based strategies for implementation of change (a) develop and communicate a shared vision, (b) plan and provide resources, (c) invest in professional learning, (d) check progress, (e) continue to give support, and (f) create an atmosphere and context for change (p. 13). Mosakowski (2015) agreed that teachers are receptive to change if presented for demonstrations and modeling of changes they are requested to implement. Teachers taking risks and being willing to change will likely influence an increase in academic achievement (Fullan et al., 2015). Fullan et al. (2015) agreed that teachers participating in PDWs should have an opportunity for teacher to teacher collaboration as it is essential for efficient implementation. The change will conclude an increase in student academic achievement as an outcome.

Outcomes are "professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performance and student curriculum standards" ("Standards for Professional Learning," 2011, para. 1). Outcome standards for PDWs should concentrate on training teachers to focus on the subject matter content concerning how students learn the material (Desimone, 2011a). When student academic achievement outcomes and professional learning outcomes with teacher performance standards are aligned, it should produce high quality professional learning programs (Lindsey, Lindsey, Hord, & Frank, 2016). Lindsey et al. (2016) stated that backwards mapping can be where teachers start to succeed for the Outcome Standard. To summarize, Lindsey et al. (2016) stated that, "we begin with the end-which relies also on Resources, Leadership, and Learning Community to support Learning Designs and Implementation to realize the Outcome" (p. 48). Additionally, Davies (2015) and Lindsey et al. (2016) observed that professional learning communities could be essential to linking curriculum, standards, and professional learning opportunities through backwards mapping. Figure 5 is shown below and displays the standards for *process*.
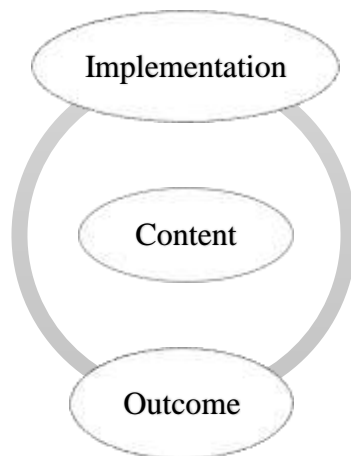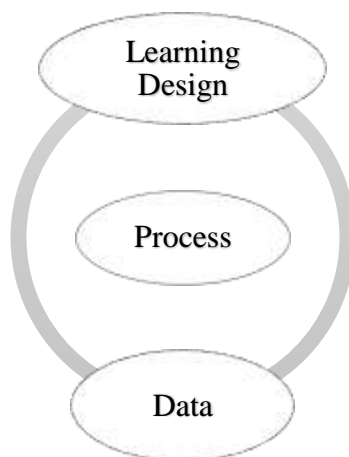
Figure 5. Standards for "process" of quality professional development ("Standards for Professional Learning," 2011).

The standards of "Process" answered the "how" (NSDC, 2008). The "how" question answered the professional learning of the "Process" in this standard. It is how the capability in new and more effective practices is acquired by teachers (Hall, 2015; Widener, 2014). The "Process" Standards are Data and Learning Designs ("Standards for Professional Learning," 2011). Data is "professional learning that increase educator effectiveness and result from all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning" ("Standards for Professional Learning," 2011, para. 1). Guskey, Roy, and Frank (2014) agreed Lieberman that for the goal set forth by Professional Learning to guide educators to increase effectiveness and student learning; relevant data must be used for planning, assessing, and evaluating. The data used to guide and support PDWs must be based on "the context in which it is gathered, processed, and applied" (Guskey et al., 2014, p. 2). Data by itself is not good or bad (Guskey et al., 2014).

The data must be reliable and appropriate. Data should be up to date when used to guide and make decisions. Data driven decisions can produce baseline data to aid in defining growth and drive improvements by aiding future planning (Mosakowski, 2015). Furthermore, Guskey et al. (2014) agreed that, classroom level data consist of any analysis of types of strategies, materials used, or activities. Data gathered can be used by administrators to guide future PDWs.

Out of date data can be a mistake if used to make major decisions. According to Davies (2015), the effective use of data drives professional learning communities to continuous improvement. Data is a highly effective part of professional learning communities when teachers share the same students (Mishkind, 2014). When using data to guide PDWs, evaluations must have a role in the process. According to Guskey (2000), to ensure improvement, ongoing evaluations of PDWs are essential parts of the process.

Learning Designs is "professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes" ("Standards for Professional Learning," 2011, para. 1). The support of teachers' growth through effective PDWs will make schools become an effective learning environment for teachers and the students (Drago-Severson, Roy, & Frank, 2015). Hall (2015) agreed that when PDWs focus is targeting how teachers learn; the outcome will produce a better opportunity for an increase in students' academic achievement. Drago-Severson et al. (2015) stated that an integration of theory and research must "bridge between planning and implementation" (p. 39). Killon (2013)

summarized that as "The design of learning influences its outcomes, particularly when the design incorporates core elements of effective learning such as practice, feedback, and sustained support" (p. 12). Hall (2015) further stated that teachers are like students; when teachers engage, collaborate, have learning opportunities specifically designed for them, have time to reflect, find something relevant, provide follow up and support when needed, and implement what they learned.

Accordingly, I focused on the "Process" standards and characteristics, which examined the relationship between mandated PDWs and 10th graders' academic achievement levels in the reading portion of the DC CAS at the research site for three academic school years. Leaders associated with the NSDC (2009) indicated that an effective PD reflects process standards' vision and principles. The characteristics of the process standards focused on the "how" of PDWs including (a) data driven, (b) evaluation, (c) research based, (d) design, (e) learning, and (f) collaboration (NSDC, 2008), as depicted in Figure 6 below.

data driven

collaboration

evaluation

Process

learning

research based

design
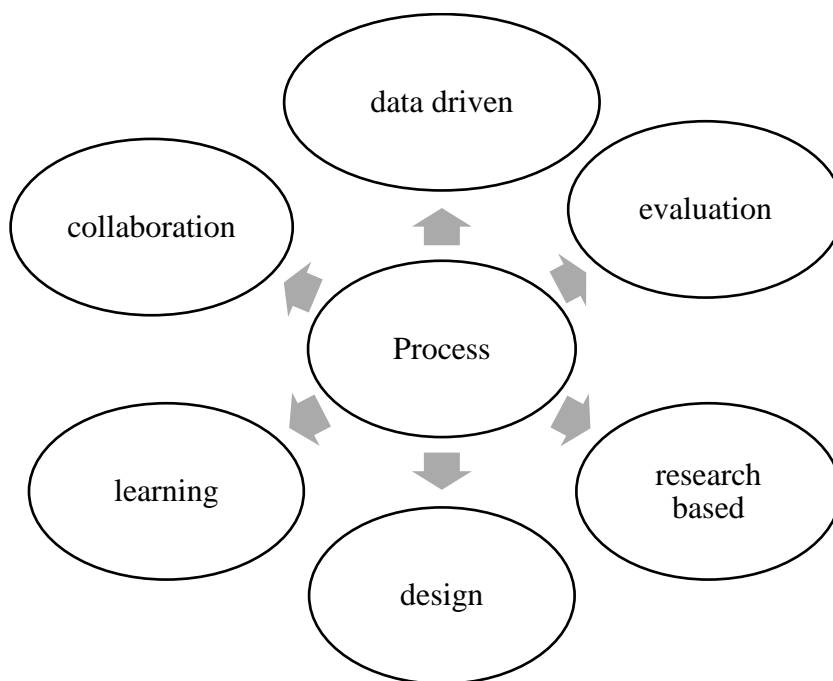
Figure 6. Process characteristics of quality professional development workshops (NSDC, 2008).

Data Driven

To improve the students' learning the use of "disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement" are used (NSDC, 2001, p. 10). An effective PDW is designed from collected and evaluated student data making it data driven. The student data results are used as a guide in developing the PDW for teachers. Abbott (2008) agreed that, having student data has minimum effects on improving classroom strategies noted by the U.S. Department of Education. The collected data is valuable only if teachers understand how to interpret and use it to improve instruction (Abbott, 2008). The use of data driven to plan quality PDWs is a process that should occur often and purposefully to ensure

positive changes in classroom practices (Guskey, 2000, 2002) Improving instruction in the classroom will aid in improving student achievement (NSDC, 2009).

The collected and analyzed student data can guide teachers' instruction (Hidden Curriculum, 2014). Teachers need the skill to turn the significant data from the standardized test results into useable data. Schools can develop goals to improve student achievement from student generated data, standardized test results, student work samples, and informal assessments (NSDC, 2009). The skill gained from PDWs are to examine student work, and the results are used as a guide to instructing students (Hidden Curriculum, 2014). Teachers were informed on collecting, analyzing, and evaluating student work to determine strategies PDWs can be used. The strategy will be used in the classroom to improve student achievement (NSDC, 2009).

There is a positive correlation between content focused PDWS and increased student academic achievement (Education Northwest, 2014). In a single PDW, teachers may learn two or three different concepts. The time between one PDW and the next may be too short for them to practice before new material is presented in the next PDW. Teachers will feel the PDW is a short-term opportunity and does not reflect classroom practices (Miller, 2013; Pinho & Andrade, 2015; Zwart et al., 2015). It also makes it difficult for teachers to reflect fully and plan after each workshop. Additionally, many teachers believe that PDWs do not contain practical information (Cody, 2009).

The effectiveness of PDWs is a widespread topic in educational research. Balan, Manko, and Phillips (2011) conducted a study on how to improve and create effective PDWs. Teachers noted they are overwhelmed by day to day challenges and find having

to attending additional PDWs a negative add to their already heavy workload (Lieberman & Miller, 2014). Teachers do understand and welcome new strategies for their classroom that are needed. However, the time needed for designing quality PDWs and teachers to learn and implement the strategies learned are often lacking time for the preparation and implementation (Glynne, 2015; Mosakowski, 2015). An increase in student academic achievement happens when PDWs are comprehensive, focused on content knowledge, characterized by active learning, and offered over several hours or on going over time, with follow up support (McPhail, 2013).

Furthermore, Moorewood and Bean (2009) study investigated the viewpoint of teachers. Teachers need time to understand, master, and implement new strategies from PDWs. From a teacher's standpoint, numerous back to back PDWs will be less than effective. All PDWs should be "sustained, (not stand-alone, 10-day, and short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom focused" (Every Student Succeeds Act, 2015). In addition, there was language added to highlight teachers should participate in collaboration to identify their locally needs based their students' needs, be reflective in nature, and be in a cycle of continuous improvement ("ESSA and Professional Learning," 2017; Greene, 2015). Saunders (2014) agreed that an implementation of PDWs conducted on consistent bases, contains teacher collaboration, and has structure will translate to improving teacher quality and improving student academic achievement.

Evaluation

On December 10, 2015, President Obama signed Every Student Succeeds Act (ESSA). The ESSA was reenacted the Elementary and Secondary Education Act (ESEA), which reenacted as the NCLB in 2001 (U. S. Department of Education, n.d.). The Act was developed with a single aim of ensuring quality education among the children. Of the many changes between NCLB and ESSA, one was defining what PD is under the law. In ESSA, PDWs are defined as activities that "are sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom focused" (ESSA, 2015, p. 295). The purpose of PD was emphasized in the Act as to increase and improve teachers' knowledge of academic content, ability to analyze student work to adjust teaching strategies, understanding how students learn, effective classroom management skills, and effective instructional strategies (ESSA, 2015). The Act also emphasized requirements that PDWs are regularly evaluated for their impact on teacher practices and improvement to student academic achievement (ESSA, 2015).

With the mandate to create standards as a guide to create quality PDWs, evaluating PDWs results was essential to creating positive student academic achievement (Blank, 2013; Earley & Porritt, 2014; ESSA, 2015; Guskey, 2000; Hidden Curriculum, 2014). The second process standard focuses on the evaluation of data from PDWs. According to Guskey (2000), "evaluation must be based on the acquisition of specific, relevant, and valid evidence examined through appropriate methods and techniques" (p. 42). Evaluations can be an outstanding tool to examine PDWs' impact on student

achievement (NSDC, 2009). Improving students learning "multiple sources of information to guide improvement and demonstrate its impact" should be used (NSDC, 2001, p. 2). Through PDWs, teachers can use the results obtained from the workshop's evaluation to create lessons to improve student achievement (Earley & Porritt, 2014; Hidden Curriculum, 2014; Jansen, van de Grift, & Vries, 2013; Mentese, 2014; Mizell, 2007; NSDC, 2009).

Earley and Porritt (2014) and Nishimura (2014) agreed that an effective PDWs involves examining data to identify and collaborate strategies needed for teachers to learn and develop useful tools to improve students' academic achievement. Teachers need to be trained and equipped with strategies to have the most significant impact on increasing their students' academic achievement (Earley & Porritt, 2014). PDWs need to be effective as they are costly, and desirable results are anticipated. An ongoing evaluation process is to have substantial PDWs (Blank, 2013; Earley & Porritt, 2014; Hidden Curriculum, 2014; Mizell, 2007; NSDC, 2009). Mann and Smith (2013) reported that the best evaluation focuses on multiple aspects. To change student learning the evaluation process must go further than the initial collection of PDWs data (Blank, 2013; Earley & Porritt, 2014; Guskey, 2000; NSDC, 2001).

As suggested by NSDC (2009), PD programs should be evaluated over time to address teacher concerns. According to "ESSA and Professional Learning" (2017) and Greene (2015), teachers require collaboration where they can identify their local needs based on their student needs. Besides, PDWs should be reflective and a continuous cycle of improvement ("ESSA and Professional Learning," 2017; Greene, 2015). The priority

of PDWs is to improve student learning (Hill, 2007; NSDC, 2009). In agreement, Blank (2013) suggested that PDWs are designed with these three components teacher coaching and evaluation, classroom demonstration of training, and follow up program with feedback. These components give teachers an opportunity to develop their learning, and this will translate to improving their teaching strategies and improving student academic achievement (Owusu & Yiboe 2014).

Research Based

The third process standard focuses on PDWs supported by research evidence. Hill (2007) suggested that research validated PDWs need to support schools identifying and making plans to improve student achievement. To improve student academic achievement, the PDWs should prepare teachers to apply research to their chosen classroom practices. Teachers should be trained on how to analyze literature (NSDC, 2001).

Education Northwest's (2014) researchers reported that, "teachers need professional development, coaching, mentoring, and other supports to develop a strong sense of their efficacy based on high quality teaching skills and experience" (p. 25). NSDC (2009) suggested that conducting pilot studies to test new ideas before adopting a new approach. Teachers who participle in pilot studies may learn how to identify relevant research findings, adapt, and implement strategies to improve student achievement.

Burridge and Carpenter (2013) conducted a longitudinal study that examined PDW. The study collected over three years of data that concluded that different

educational settings offer teachers' different teaching practices and strategies to implement. Furthermore, a longitudinal study conducted by Gunn and Hollingsworth (2013) implemented that intensive PDWs, educational technology upgrades, and monitored the district wide effectiveness of initiatives to promote 21st century teaching methods and strategies. The study results suggest there was success from the PDWs because they were created using a systematic approach.

Design

The fourth process standard addresses the design. The design of the PDWs based on teachers' learning needs and provides appropriate strategies for teachers to learn (NSDC, 2009). Approaches to the designing of PDWs can be designing lessons, critiquing student work, and developing strategies based on student work. NSDC (2001) states, "staff development that improves the learning of all students uses learning strategies appropriate to the intended goal" (p. 7). Typically, teachers will attend a PDW to meet a requirement (Guskey, 2000). It is vital for PDWs to focus on the exact need of teachers to guarantee teacher professional growth. According to Calvert (2016), "teacher agency is the capacity of teachers to act purposefully and constructively to direct their professional growth and contribute to the growth of their colleagues" (p. 4). Teachers want to have an active part in their learning.

Wallace (2014) suggested that PDW planning committees should include teachers in the planning of PDWs and that PDWs should address teachers' needs rather than taking a "one size fits all" approach. The PDWs can potentially change teachers' cognitive skills, knowledge, and beliefs. School districts offered support for teachers to

improve their effectiveness through PD (Gulamhussein, 2013). The design of PDWs should be based on the needs of various learners. The workshops should offer multiple learning strategies for teachers to learn positively (NSDC, 2009).

The design of PDWs should provide teachers with resources they need to improve student academic achievement. Gokmenoglu and Clark (2015) examined teacher PDWs, change, education reform, and teacher performance. The study included 352 Turkish schools and 1,730 teachers teaching kindergarten through 8th grade. The results showed teachers had limited time to engage in PDWs and felt the PDWs were not explicitly designed for them. The results indicated teachers described the current PDWs models as "sub-standard and did not meet their needs" (Gokmenoglu & Clark, 2015, p. 447). Teachers want to know how the PDWs they are attending will affect them, and the lessons they are providing their students. Teachers do not have an interest in PDWs if it does not modify their mindset, add value to their classroom lessons or help them accomplish their ultimate goal of increasing students' academic achievement (Pennington, 2013).

Teachers expect to know how PDWs will affect their classroom practices. Teachers understand they are expected to use the strategies and information they learned from their PDWs to increase their students' academic achievement (Hsieh, 2015). Hargreaves and Fullen (2012) believed that incorporating teachers' in the design of PDWs using their existing knowledge, experiences, and needs can increase the effectiveness of PDWs. The planning and designing of PDWs should include teachers (Hargreaves & Fullan, 2012; Potolea & Toma, 2015; Wadesango & Bayaga, 2013).

Learning from PDWs must be authentic. Schulte (2016) argued that it is essential for PDWs to be authentic and educators' experiences, PD context and purpose need to be taking into consideration when designing PDWs. Parker, Bush, and Yendol-Hoppey, (2016), and Fuentes, Switzer, and Jimerson (2015) agreed that PDW design must consider the participant's prior experience, knowledge level, and willingness to participate. For participants to have an expanded and enhancement of knowledge, the PDWs should be designed with clear and planned outcome (Pella, 2015; Schulte, 2016). A successful PDW is designed with planning authentic content, sustainability, and differentiated formatting (Jenkins & Agamba, 2013; Parker et al., 2016; Pella, 2015).

Learning

The fifth process standard focuses on learning. According to NSDC (2001), "staff development that improves the learning of all students applies knowledge about human learning and change" (p.8). Holyoke and Larson (2009) study suggested that adult learners with different histories, preferences, values, and learning characteristics can affect their perception and ability to learn. The study results revealed teachers must be aware and conscious of their learners when developing their lesson plans and design them according to each learner they are teaching (Holyoke et al., 2009). Bobies et al. (2016) noted that if change is viewed as a challenge to led teachers to conceptual change their beliefs towards student engagement, it can lead to an increase in student academic achievement.

Furthermore, Turner et al. (2014) observed that two out of the three teachers form the study responded to PDW content in a challenging way to strengthen their

instructional practices. The PDWs prompted the teachers to initiate change in their

practices. In particular, the teachers reflected on their students' responses and changed

their instructional approach to obtain their teaching goals (Turner et al, 2014). Being

aware of a teacher's perception of PDWs is critical to guarantee that the learning given is

meaningful and relevant (Colwell, MacIsaac, Tichenor, Heins, & Piechura, 2014; Qablan,

Mansour, Alshamrani, Aldahmash, & Sabbah, 2015).

Today in the 21st century, PDWs learning for teachers is different. Student

academic success is connected to PDWs' effectiveness to provide content knowledge,

sustainable skills for educators, authentic, pedagogical practices, and continuous

professional development (Jenkins & Agamba, 2013; Whitworth & Chiu, 2015).

Teachers must receive authentic and scaffolded PDWs; in turn, teachers will use these

new gain skills in their classroom practices (Jenkins & Agamba, 2013; Parker et al.,

2016). The learning framework of 21st century learners requires a range of expertise

(Parker et al., 2016). The designer of PDWs must consider each participant's prior

experience, willingness to participate, and knowledge level (Fuentes et al., 2015; Parker

et al., 2016).

Adults learners are diverse learners (Ahn, 2010). The study by Alamprese,

MacArthur, Price, and Knight (2011) reinforced adults' idea of being diverse learners.

The study found that adult learners scored lower on phonological tasks than students. The

study indicates teachers need specialized teaching and teaching that fits their learning

needs as students. In agreement, Zhang and Zheng (2013) and Knowles, Holton III, and

Swanson (2014) further agreed that adult learners have prior experiences, often very

pragmatic, self-directed, and individually driven. Furthermore, Emerick-Brown (2013) stated that adult learners have a "plethora of background knowledge, experience, and personalities, making for an incredibly diverse population" along with a range in students' preferred learning styles" (p. 128).

Teachers' feelings should be considered when PDWs are created (NSDC, 2009). Differentiating instruction in the PDW is needed to address teachers' perceptions of anxiety, fear, anger, and change (NSDC, 2009). Adults are like students when they learn they have different learning needs and need to be motivated. They need to be taught in different learning styles as students (O'Toole & Essex, 2012). Team teaching is one style, also known as the tag team approach (Laughlin, Nelson, & Donaldson, 2011). To help guarantee an effective PDW, it must be acknowledged teachers need to feel motivated to learn (Christesen & Turner, 2014; Hokka & Etelapelto, 2014; Qablan et al., 2015). Teachers want a variety of PDWs offered in various formats such as mentoring and workshops, onsite courses, sharing practices, observation of colleagues, and research and inquiry to address teachers' individual (Roseler & Dentzau, 2013). Brock and Carter (2013), Casey (2013), and Kelcey and Phelps (2013) agreed that traditional styled PDWs of extensive group sessions are not effective PDWs.

The definition of andragogy or adult learning guides adults through the learning process is considered an art and science (Knowles, 1975). Based on the theory, adults must (a) know why learning is needed, (b) understand that learning must be based on experience and observation, (c) know that adults learn best when what they learned is of immediate value, and (d) realize that adults approach learning as a problem to solve

(Knowles, 1975). The fundamental aspect of Knowles's theory of andragogy or adult learning theory is the idea that adults are self-directed and must take responsibility for their decisions (Knowles, 1975).

However, children learn differently than adults. Children (a) do not need to know why learning is happening; (b) have self-concepts that are dependent on their teacher; (c) do not bring life experiences into a learning environment; (d) do not need to have input in what the teacher should teach them; (e) take subject centered approach to learning; and (f) do not have external motivation (Knowles, Holton, & Swanson, 2005). The difference in the learners clarifies the need for a different method of instruction. Knowles (1984) suggested that these assumptions be considered when designing PDWs for adult learners. Nohl (2015) indicated that adults desire input and involvement in the planning and evaluation in the way they learn.

In a classic position paper by Oja (1980), the author proposed that PDWs should be based on four key elements to be successful for adult learning to occur (a) using of concrete experiences; (b) continuously available monitoring and feedback; (c) encouragement of adults to take on new roles; and (d) using instructional supports when implementing new instructional strategies. Concerning PDWs, Guskey (1994) claimed that, "we cannot improve schools without improving the skills and abilities of the teachers within them" (p. 9). When PDWs are successful, they address teachers' needs as learners, which enhances their effectiveness with students (Guskey, 2002b). The effectiveness of teachers' teaching is a variable in the impact of student academic achievement (Hartney & Flavin, 2013). PDWs offer teachers teaching tools based on

their needs to increase their students' academic achievement and for PDWs to be effective, they must be designed to meet adult learning needs (Frunzeanu, 2014; Owen, 2015).

The designer(s) of PDWs for teachers used to increase students' academic achievement; they must understand how adults learn and how to implement these needs in the PDWs. Adult learners need to test strategies learned with their input and experiences (Nohl, 2015). Providing adults with a choice "invites multiple voices for teacher professional learning" (Molitor, Burkett, Cunningham, Dell, & Presta, 2014, p. 54). Teachers do not have a choice to participate in PDWs. However, teachers' classroom knowledge and talent are a critical factor in the aiding in the success of student academic achievement (Anderson et al., 1985).

It is Knowles' (1984) belief that adult learners are self-directed. Knowles' (1984) description of adults self-directed learning is "a process in which individuals take the initiative, without the help of others, in diagnosing their learning needs, formulating their learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (p. 301). To seek knowledge and develop skills on their own, adults must engage in self learning based on their preferences and their timing options. When applying this theory's ideas to PDWs, it allows teachers to have input in the planning, implementing, and evaluation of PDWs they must participate in. In the study conducted by Potolea and Toma (2015), the results showed that success was made when adults could make decisions about their

learning sources, situations, and monitor their progress and suggests teachers' preferences should be considered when making decisions in PDWs they must attend.

Collaboration

The sixth and final process standard addresses collaboration. According to the NSDC (2001) report that, "staff development that improves the learning of all students provides educators with knowledge and skills to collaborate" (p. 9). Teachers should have multiple chances to collaborate for their knowledge to be enhanced and learning new strategies (Burke, 2013). Many and Sparks-Many (2015) argued that,

> When teachers work together on collaborative teams, they improve their practice
> in two crucial ways. First, they sharpen their pedagogy by sharing specific
> instructional strategies for teaching more effectively. Second, they deepen their
> content knowledge by identifying the specific standards students must master. (p.
> 83)

Structured social and professional support is fostered through collaboration (NSDC, 2009). Teachers felt there were benefits in collaborating with colleagues and reported value in sharing instructional strategies learned from each other (Parise, Finkelstein, & Alterman, 2015). Steeg and Lambson (2015) examined PDWs that were collaborative at Hermosa Elementary School. The PDW was designed to promote teachers to take charge of their learning and learn from each other. The results of the student indicated teachers' responses were favorable to the collaborative PDWs. This PDW model usage was continued for the rest of the school year.

Mintzes, Marcum, Messerschmidt-Yates, and Mark (2013) investigated teachers' engagement in collaborative learning to identify a change in their instructional methods to increase student academic achievement. The study results indicated an increase in teacher knowledge based on information presented at teacher collaboration meetings. Christiansen and Robey (2015) agreed that teachers' accountability impacting students' academic achievement can be provided through professional learning communities (PLCs). The benefits of teachers collaborating are essential. Teachers' practices and beliefs are established through their professional training and experiences (Riojas-Cortez, Alanis, & Flores, 2013).

Wells and Feun (2013) examined the effectiveness of PLCs implemented in two school districts. The participants completed a survey based on PLC's five domains which were supportive and shared leadership, collective creativity, shared vision and values, supportive conditions, and shared personal practice to assess the effectiveness. The results demonstrated a significant benefit gain from attending PLCs. Student learning increased in one district where the PLCs were successfully established, supporting Guskey's model of teacher change. According to Guskey (2000), teachers' attitudes and beliefs of teachers bring a change in learners' academic achievement.

In a mixed methods study conducted in Philadelphia by Schiff, Herzog, Farley-Ripple, and Iannuccilli (2015), effective teacher networking was studied. It indicated the value of teachers sharing best practices and resources. In a PLC case study by Owen (2014), teachers' experiences of Australia were studied. The study's interviews and focus groups revealed teaching practices were changed because of PLC processes of

planning, observing, and having time for teacher to work together. In both studies, PLCs increased student academic achievement by changing teacher instructional practices. The change resulted in an increase in student academic achievement.

Collaboration during PDW is needed to improve student achievement and ensure effective PDWs (NSDC, 2009). While collaborating, teachers share ideas and concepts about best practices for the benefit of students. White, Roberts, Rees, and Read (2014) agreed that teachers' beginning their careers can develop and improve their teaching abilities by collaborating with experts in the field. Fox and Wilson (2015) concurred that teachers can learn from both formal and informal learning networks. At PDWs, teachers should have the opportunity to communicate with their colleagues to share classroom experiences and reflect on practices (Fox & Wilson, 2015).

Furthermore, when teachers begin their career, or veteran teachers are allowed to collaborate with colleagues are more will to take risks (Curwood, 2014; Dever & Lash, 2013; Farooq, Zeshan, Hafeez, & UI Hassan, 2015; Hsieh, 2015; Janssen, Kreijns, Bastiaens, Stijnen, & Vermeulen, 2013; Lattuca et al., 2014). These risks have an impact on the increase of student academic achievement. Teachers will be willing to explore various learning styles to aid in the increase in student academic achievement. The lack of teacher collaboration can minimize of teachers developing and overcoming the fear of taking risk and changing instructional practices (Bartolini, Worth, & Jensen LaConte, 2014; Colwell et al., 2014; Hokka & Etelapelto, 2014). An effective PDW promotes teachers' growth and learning experiences through meaningful collaboration. To deepen teachers' understandings, teachers must have the opportunity to participant in PDWs that

are engaging, and learner centered (Jenkins & Agamba, 2013; Pella, 2015; Soebari & Aldridge, 2015). Additionally, teachers will have access to professional development setting where they can explore several ways in which they can share and exchange information of new knowledge (Jenkins & Agamba, 2013; Pella, 2015; Soebari & Aldridge, 2015).

Karge, Phillips, Jessee, and McCabe (2011) study recommended using proven methods to teach at all education levels. The two types of motivators are intrinsic and extrinsic teaching motivation. The intrinsically motivated learner is engaged in academic tasks to learn for the sake of learning a new idea, concept, or building on an existing idea or concept. The extrinsically motivated learner is engaged in tasks to earn a reward (Karge et al., 2011). These two types of motivators will keep learners motivated to learn and to continue to learn. Teachers' beliefs and practices in the classroom come from their professional training and experiences (Riojas-Cortez et al., 2013).

For example, a teacher may want to attend a PDW to learn new ideas or concepts to increase their abilities to teach their students. In this scenario, the teacher has intrinsic motivation. A student may attend a school and complete his/her work for the reward of gaining a high school diploma. In this scenario, the student has extrinsic motivation. Collaboration at PDWs is needed to expose teachers to different ideas and strategies.

Professional Development and Teaching Quality Effects on Student Achievement

Teachers' perceptions and involvement in PDWs are important and essential to have positively effect on student academic achievement. Effective PDWs must spark a fundamental change in teaching practices to yield an increase in student academic

achievement (Gulamhussein, 2013). PDWs should be continuous, have a clear and meaningful purpose, and be viewed by teachers' as their professional responsibility to increase their students' performance (Wei et al., 2010). These recommendations support the use of Guskey's (2000) model of teacher change in this dissertation.

Today, PDWs are delivered in a variety of forms. Researchers have been interested in whether teachers' attendance in PDWs can impact student achievement (Kisa & Correnti, 2015; Lord, 2017; Wallace, 2009; Washington, 2015). Due to the various forms of PDWs, they are delivered, teachers' perceptions and involvement in PDWs are significant. It will determine teachers' change in their mindset and attitude towards their instructional approaches (Gulamhussein, 2013).

Professional Development Effects on Teaching Quality

Existing research studies have indicated that PDWs can positively effect on teaching quality (DeMonte, 2013; Robinson, 2011). Based on the prior research and published literature, the following studies demonstrate a positive impact of PDWs on teaching quality. The perceptions and personalities of teachers should be considered when developing PDWs to ensure a positive outcome from the PDW for teachers (Bleicher, 2014; Cook, 2014; Haug & Sands, 2013; Jansen in de Wal, Den Brok, Hooijer, Martens, & Van den Beemt, 2014; Liu, Jehng, Chen, & Fang, 2014). In a study that was conducted in western North Carolina middle school by Robinson (2011), teachers' perceptions of their experiences they had with PDWs was investigated. The PDWs focused on student achievement and positive affects in classroom practice. Through the study, it was found, the PDWs were pleasing to teachers. Teachers indicated the highest

impact on student achievement was due to specific instructional PDWs and the ability
and the time to collaborate with other teachers (Robinson, 2011).

In addition, the more hours the PDWs, it is more likely teachers can implement
new skills effectively. According to DeMonte (2013), PDWs with a duration of fourteen
hours or longer will likely increase teachers' capability to retain the new information
provided. Research in a report through Center of American Progress found PDWs
important impact for teachers in aligning the goals with the school and ensuring an active
learning environment (DeMonte, 2013). Including active learning experience at PDWs
for teachers, allow them to internalize new knowledge and understanding. It also allows
them to understand how to implement new strategies into their classroom teachings.

Impact of Teaching Quality on Student Achievement

The PDWs can positively impact teaching quality and, in turn, increase student
academic achievement. The quality of a teacher is measured by student academic
achievement (Gerritsen & Steeg, 2016). Effective teaching is relevant for students to
achieve and schools improve student achievement (Mincu, 2015). Teachers have
opportunities at PDWs to learn approaches on how to implement strategies in their
classrooms to change student learning positively. The quality of teaching a teacher can
impact students' academic achievement (Warring, 2015).

In following Guskey's model of teacher change is the process of changing
teachers' beliefs and attitudes can potentially bring change to students' academic
achievement. The ideal change in students' academic achievement is desired for a
positive change. In the study, Washington (2015) conducted that at urban and rural South

Carolina elementary schools providing significant positive results on student achievement in math and reading. This study used a casual comparative model comparing the Measure of Academic Progress (MAP) achievement scores of students. A group of students were assigned to traditional classrooms, and another group of students was assigned to looping classes (Washington, 2015). The students in the looping classes reading and math MAP scores are significantly high except for the initial second grade school year (Washington, 2015). The looping classroom group's lack of significant impact, the looping classroom produced positive student achievement outcomes.

A definition of PD is to provide opportunities to teachers to improve their instructional practice which will make their lesson more effective, aiding students to learn at a higher level (Lee et al., 2013). PDWs should be an essential part of increasing student academic achievement (Desimone et al., 2017) because the quality of teachers' instruction has been linked to student academic achievement. Best practices and instructional strategies need to be used to close the achievement gap (Lord, 2017). Following this recommendation, Lord (2017) conducted a best practices study in an urban North Carolina middle school , and the study focused on increasing math achievement scores for minority students and closing the achievement gap. The results of the study yielded four themes, identified as varied assessment format, student engagement, social interaction, and differentiated activities (Lord, 2017).

Similarly, in a comparative case study conducted by Wilkins (2015) yielded results similar to the study conducted later by Lord (2017). The study was conducted in North Carolina but at two elementary schools, focusing on minority student achievement

scores. Student achievement scores increased when teachers used the following classroom based instructional strategies to combine whole group instruction, learning stations, peer tutoring, cooperative groups, and individual tutoring (Wilkins, 2015, p.118).

When teachers' attitudes and mindset changed, students' academic achievement increased. The study's conclusion revealed the classroom based instructional strategies increased the achievement levels for students (Wilkins, 2015). Both Lord (2017) and Wilkins (2015) studies were descriptions of Guskey's model of teacher change. Neither of the studies' theoretical foundation was support by Guskey's model of teacher change. However, studies show that teacher instruction change results in a positive increase in students' academic achievement.

Reeves (2010) suggested that high impact professional learning has three essential characteristics (a) focus on student learning, (b) rigorous measurement of adult decisions, and (c) focus on people and practices, not programs. For PDWs to be effective, they must be linked observable student learning. Changes in student achievement are linked to high impacted learning (Reeves, 2010). DuFour (2015) and Reeves (2010) found that effective PDWs are intensive and sustained. They should relate directly to the teacher and student needs; along with providing opportunities for application, practice, reflection, and reinforcement (Reeves, 2010).

Wallace (2009) investigated the effects of PDWs on students' math and reading along with the effects of PDWs on students' math and reading achievement. The students and the educators were pooled from six databases. The variable for the study

was mentorship quality, along with measuring the mentoring activities. Wallace (2009) examined the impact, frequency, and mentoring quality based on how helpful the educators felt about the activities. These were the predictors in a structural equation model.

The expectations set forth by the government and the results of standardized test scores, yield a concern for increasing PDWs to increase student achievement (Earley & Porritt, 2014; Gleason & Gerzon, 2014). At the research site for this dissertation, 10th grade students continued to score below proficient on the reading portion of the DC CAS. To address this problem, the district implemented diverse PDWs to increase students' reading skills. Earley and Porritt (2014) supported the results in the decrease of the understanding of individualized adult learning needs is the quantitative growth of students. Gemeda, Fiorucci, and Catarci (2014) agreed that, the "quantitative growth of students a devastating effect on the quality of education" (p. 80) for students being served which links to the quality teachers' teachings. This could be interpreted that the decrease in understanding adult learners' needs to learn has caused some disconnection in the link of PDWS, teachers' instructional practices, and the increase of student achievement through PDWs. A one size fits all PDW has limited potential fostering teacher learning and growth (Caddle, Bautista, Brizuela, & Sharpe, 2016).

Furthermore, Wallace's (2009) study suggested that moderate effects on teachers' practices occurred, and with a small significant effect on student achievement. A modest increase in the average frequency of math teachers' classroom practices resulted from the PDWs. Also, the reading PDWs had small effects on student academic achievement.

Liljedahl (2014) agreed that a lack of instructional practice would yield from PDWs

conducted for one session, and the workshops would not improve student academic

achievement. Likewise, Bartolini et al. (2014), Pehmer et al. (2015), and Tam (2015)

reported that increasing student academic achievement is the purpose of PDWs. Wallace

(2009) concluded that there were small, moderate increases in student achievement based

on the effects of PDWs; there were increases in student achievement.

Critical Analysis of the Reviewed Literature

The literature review provided insight to conclude a strategy for improving

student academic achievement can be done by improving instruction in the classroom. A

solution for improving instruction in the classroom is to provide PDWs. An effective

PDW will vary based on the context and the culture of the school (DiPaola & Hoy, 2014).

Desimone's (2009) study implied that any learning opportunity can be considered a PD.

These include formal and informal learning opportunities. Changes in instructional

practices are linked to teachers participating in effective PDWs (Lieberman & Pointer

Mace, 2008). For teachers to be successful and improve student academic achievement,

effective PDWs are needed and an official evaluation system to incorporate revisions as

needed.

An assumption drawn from this literature is PDWs will lead to instruction that

results in an increase in student understanding ultimately improving student academic

achievement. This will be evident in this study through students' test scores on the state

standardized test's reading portion. It can be hard to solidly link instruction with student

performance. Therefore, if a change happens in the instruction, and if student academic

achievement rises, it could be impossible to identify exactly the cause of the increase in

student academic achievement.

Summary and Conclusions

Accordingly, the literature review identified significant key elements that are

basic and essential to the dissertation, which is essential and critical to the development

of PDWs and its contribution to the advancement of students' academic achievement

(Darling-Hammond & Mclaughlin, 2011; Mackay, 2015; Smylie, 2014). Existing

completed research studies across teaching fields have indicated PDWs can positively

effect on teaching quality (Earley & Porritt, 2014; Gleason & Gerzon, 2014). The

theoretical framework used is also well analyzed through the literature review, and this is

important in the development of the dissertation. Although a critical approach of

advancing and improving learners' performance well-articulated and planned, according

to studies teachers felt overwhelmed (Berliner, 2009). This chapter created a foundation

and an understanding of the research problem by looking at length and depth of all the

major issues related to this dissertation.

There have been various studies conducted that support what influences the

effectiveness of PDWs (Blank, 2013; Burridge & Carpenter 2013; Francis & Jacobson,

2013; Nishimura, 2014; Potolea & Toma, 2015; Shaha et al., 2015; Wallace, 2014; Wells

& Feun, 2013). This dissertation was conducted to determine the relationship between

the number of mandated PDWs and 10th grade student academic achievement levels in

reading. This problem was essential to this dissertation to investigate if resources were

being properly used, and students were being given the support needed for their academic

success. The design was a quantitative correlational design. I investigated the

relationship of the number of mandated PDWs for 3 years and 10th grade students'

academic achievement levels in the reading portion on DC CAS at the research site. This

study's framework embraced the philosophical framework of an action-oriented approach

(Lodico et al., 2010). The theoretical framework for this study is based on Guskey's

(2000) model of teacher change.

The next chapter details this study's methodology. The methodology includes the

following subsections introduction, research design, data collection procedures, data

analysis procedures, validity, and ethical considerations.

Chapter 3: Research Method

A quantitative correlational study was implemented to examine the relationship

between the number of mandated PDWs and 10th grade student academic achievement

levels in reading on the DC CAS at the research site for the academic school years 2010

to 2011, 2011 to 2012, and 2012 to 2013. In this dissertation, the archival data of 10th

grade student academic achievement levels in reading on the DC CAS were collected for

statistical analysis. The archival data is stored in a database at the Office of the State

Superintendent of Education.

In this section, information is presented about the research design and rationale of

the study, the methodology including the population, sampling, and sampling procedures,

use of archival data, instrumentation and operationalization of constructs, and analysis

plan. The section concludes with the threats to validity, ethical procedures, and the

summary.

Research Design and Rationale

The purpose of this quantitative correlational design is to examine the relationship

between the number of mandated PDWs and 10th grade student academic achievement

levels in reading on the DC CAS at the research site for the academic school years 2010

to 2011, 2011 to 2012, and 2012 to 2013. This study was guided by a theoretical

framework developed from Guskey's (2000) model of teacher change. Originally

theorized by Guskey, the model of teacher change posits that a positive change to

teachers' knowledge, skills, attitude, and beliefs can emerge from PDWs. Guskey's

model is founded on the idea that when a positive change to teachers' attitudes and

beliefs occur, it is a continuous and endless learning process and not a onetime event. A study conducted by Bobis et al. (2016) applied Guskey's (2000) model of teacher change. It concluded that the increase of student academic achievement resulted from changes in teachers' knowledge and beliefs. Furthermore, a positive change in teachers' belief and classroom practices stemming from PDWs will directly influence positive change in student academic achievement (Guskey, 2000). The main reason for this theory's choice is because of an assumed relationship between teacher mandated PDWs and student academic achievement.

A quantitative research methodology with correlation statistic testing was used for this dissertation. The most appropriate method for this dissertation was quantitative because it allowed for examination of variables observed. The numeric archival data were collected to identify any relationships between the number of mandated PDWs and 10th grade student academic achievement levels in reading (see Field, 2013; Goertzen, 2017). This method's results are best displayed in graphs or tables to provide a pictorial view of the correlation between the independent and dependent variables (see Field, 2013; Goertzen, 2017). I have displayed results of the statistical analysis on graphs and tables.

A quantitative method was appropriate instead of a qualitative design because the purpose of this dissertation was to examine the relationship between the number of mandated PDWs and10th grade student academic achievement levels in reading for a selected amount of academic school years. While a qualitative method could have been chosen to identify the relationships between the variables, this method could not provide

the statistical analysis required to remove subjectivity from the dissertation, while this could be achieved using a quantitative method (see Krathwohl, 2009). Using a quantitative approach, I developed an initial idea of a relationship between the variables. In addition, a quantitative research design was used because it is described as collecting and analyzing data that is structured and represented numerically (Goertzen, 2017). Qualitative methodology is known to provide a narrative explanation with limited graphical views. Concise graphs and tables were used in this dissertation for conclusive data for this project.

A correlational design was used to examine the relationship between the variables the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. Correlational methods are the most widely used type of statistical approach in quantitative research that seeks to determine the explicit or implicit relationship between two or more variables of interest (Chen & Popovich, 2002; Goertzen, 2017; Wienclaw, 2015). A descriptive and ordinal logistic regression correlational approach was the appropriate statistical methods selected to investigate the relationship or association between the number of mandated PDWs and 10th grade student academic achievement levels in reading.

Methodology

Population

The 10th grade students attending the research site for the studied academic school years and took the DC CAS were the selected population. The research site is considered

an urban school. Urban schools are defined as schools located 20 miles of an inner city

with a significantly high poverty rate and, in many cased, labeled as a high need school

(Russo, 2004). The student demographics include African Americans, Hispanic/Latino

Americans, and Asian Americans. Historically, at the research site, African Americans

are the largest population by more than 65% of the students. The research site is a Title 1

school because 100% of the students receive free lunch. There were 370 10th grade

students, and all students' academic achievement levels from the reading portion of the

DC CAS were included in this dissertation.

All teachers at the research site participated in the mandated PDWs. The subjects

taught at the research site are English Language Arts, math, science, history, music, art,

electives, health, and physical education. The teachers included teach Grades 9, 10, 11,

and 12 and are deemed highly effective teachers. A highly effective teacher has satisfied

the criteria to obtain his or her teacher's license in Washington, D.C.

Sampling and Sampling Procedures

Lodico et al. (2010) addressed population and sampling as methodological

entities allowing the researcher to explore a specific group of individuals or

organizations. The population represents the entire group being considered for the

project study. The sample is the portion of the population selected for the study (Lodico

et al., 2010).

Intervention

At the research site, the number of mandated PDWs were increased under the

assumption that better prepared teachers will result in better reading scores on the DC

CAS. The mandated PDWs' focused on concepts for teachers to master and implement in their classroom lessons. The mandated PDWs were designed inhouse by an administrative team that included the principal, three assistant principals, and two instructional coaches.

The content of the mandated PDWs supported strategies to increase the reading portion of the state standardized test. The content of the mandated PDWs included but was not limited to reading strategies, vocabulary builder exercises, classroom design to improve student performance in reading, reading and comprehension improvements, lesson planning, shared reading strategies, techniques for effectively working with English language learners and special education students, and differentiated instruction in the classroom. The mandated PDWs were created and administered by the assistant principals and the instructional coaches. They were offered throughout the school year and during the summer. The workshops lasted for thirty minutes.

Archival Data

The data collected from the archived database were test scores from the state standardized test, DC CAS. The student academic achievement levels in reading on the DC CAS from the past three academic school years including 2010 to 2011, 2011 to 2012, and 2012 to 2013. I contacted the previous and current testing coordinator at the research site who helped me retrieve the archive data. The student performance data for this study were retrieved from archival records located on the district website. The data were categorical in nature and ordinal/rank in nature. The specific categories for the students' academic achievement levels in reading are Level 1 (Below Basic), Level 2

(Basic), Level 3 (Proficient), and Level 4 (Advanced). I retrieved the content and number of the mandated PDWs from the previous and current curriculum developers at the research site.

Instrumentation and Operationalization of Constructs

The instrumentation used in this dissertation to gather the reading portion of student achievement data was the DC CAS, a statewide testing program in which the high school being studied identified as an accountability measurement tool under the NCLB of 2001. This test is used as a tool of evidence of student academic achievement.

The DC CAS has four performance level descriptors. The lowest level category a student can be placed in is Below Basic (i.e., a score between 900 and 929). The summary descriptor for Level 1 Below Basic is as follows:

> Students are able to use vocabulary skills, such as determining meanings of words when given specific context. Students are able to read some tenth grade informational and literary texts and can demonstrate a minimal understanding of main idea and details that supports it, identify author's stated purpose, draw conclusions based on literal reading of text, identify differences among explicitly stated details, paraphrase a statement, summarize a simple narrative, identify the relationship between character and setting, and identify a stated detail in a poem for a specific purpose. (Office of the State Superintendent of Education [OSSE], 2011, p. 1)

The next, and better, category is Level 2 Basic. To be a student in the Basic category, a student must score in the 940 to 955 range. The summary descriptor for Basic is

Students are able to use vocabulary skills, such as using context clues to

determine meanings of words and interpreting figurative language that uses

simple, familiar words. Students are able to read some tenth grade informational

and literary texts and can identify the main idea and author's purpose, draw

conclusions based on stated details, make simple inferences, identify relationships

among stated ideas, summarize a narrative poem, identify character traits and

motivation, make simple predictions about characters, draw conclusions about

how a character resolves a conflict, and make connections between real life and

characters in texts. (OSSE, 2011, p. 1)

The next best, and better, category is Level 3 Proficient. To be in the Proficient category,

a student must score a range of 956 to 969. The summary descriptor for the *Proficient*

level is as follows:

Students are able to use vocabulary skills, such as using context and grammar

clues to determine definitions of multiple meaning words and distinguishing

between literal and implied meanings of words. Students are able to read tenth

grade, complex informational and literary texts and can identify details that

support a main idea, draw and support conclusions based on text, identify and

explain author's purpose, make and support inferences, respond to clarifying

questions about text, analyze subtly stated relationships among ideas, identify and

explain author's use of literary devices, explain how author's word choice

illustrates an idea or concept, and determine how point of view and language

affect reader interpretation of text. (OSSE, 2011, p. 1)

The next, and best or highest category is Level 4 Advanced. To be in the Advanced

category, a student must score between 970 to 999. The summary descriptor for the

Advanced category is

> Students are able to use vocabulary skills, such as determining meaning of words
>
> in challenging texts (e.g., poetry, allegory) by using context clues, analytic
>
> deduction, and prior knowledge. Students are able to read tenth grade, complex
>
> informational and literary texts and can analyze and cite text elements that support
>
> a main idea, explain author's implied purpose, synthesize concepts across text,
>
> analyze interrelationships among concepts and ideas, interpret subtle statements
>
> made by characters, analyze the theme and meaning of a literary text, interpret
>
> figurative language, and explain the implied motivations of character. (OSSE,
>
> 2011, p. 1)

The level descriptors provide a brief summary of each level's typical performance

(OSSE, 2011, p. 1). As displayed by CTB/McGraw-Hill LLC (2010), the data instrument

was reliable and valid. CTB/McGraw-Hill LLC (2010) suggested that Standards and

Assessment Peer Review Guidance mandates states to develop evidence in multiple

categories to support the validity of the state assessment results' interpretations. There are

five standards and assessment categories: (a) test content, (b) test's relationship with

other variables, (c) examinee response processes, (d) test's internal structure, and (e)

positive and negative consequences of interpreting and using the test scores.

In accordance with CTB/McGraw-Hill LLC (2010), reliability must be

established. The state requires evidence on three sections which are score reliability and

sources of error, examinee proficiency level classification accuracy and consistency

estimates, and estimates of the accuracy of year to year changes in scores. Lastly,

characteristics of state assessments that support the valid interpretation of test scores are

identified. These include fairness and accessibility, comparability of results, and

procedures for testing administration, scoring, analysis, and reporting.

Table 2 below provides the number and content of the mandated PDWs for the

school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. Each school year, the

number of mandated PDWs increased. The school's curriculum developer at the school,

the workshops included but were not limited to reading strategies, vocabulary builder

exercises, and classroom design to improve student performance in reading.

Table 2

Professional Development Workshops Topics offered for School Year 2011to 2013

School Year	Content of PDWs	Total Number of PDWs
2010 to 2011	Included but not limited to reading strategies, vocabulary builder exercises, and classroom design to improve student performance in reading	65
2011 to 2012	Included but not limited to reading and comprehension improvements, classroom management, and lesson planning	75
2012 to 2013	Included but not limited to shared readings, make work procedure, techniques for effectively working with English Language Learners (ELL) students, effective methods on working with special education (SPED) students, differentiated instruction in the classroom, and the importance of collaboration and documentation.	100

The school's (i.e., research site's) curriculum developer stated that all teachers (50 staff members in academic school year 2012 to 2013) were required to attend, master the new concepts, and implement in their classroom the strategies and concepts learned in the mandated PDWs. Additionally, in previous school years, all teachers attended all mandated PDWs (55 staff members in academic school year 2011 to 2012, and 50 staff members in academic school year 2010 to 2011). There was no consistent systemic process used to track if teachers mastered the new concepts or implemented them properly. The consistent follow up message to teachers in each session was for teachers to make sure they were implementing the learned concepts in case someone came into their classroom to check.

According to the school curriculum developer, there was no consistent follow up schedule or documentation on the classroom visits. The mandated PDWs teachers attended increased from 65 to 100. Throughout the year (academic school year and summer), the workshops were offered at school buildings where the teachers work, and at offsite locations. Teachers had to attend these courses three to four days out of a five day workweek. Reported by the school curriculum developer, teachers said being overwhelmed three months into the school year due to excessive mandated PDWs.

Data Analysis Plan

The focus of this dissertation was to examine the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. The following research questions and hypotheses were addressed in

this dissertation. Upon completion of the data collection, I reviewed all the data retrieved. I used Microsoft Excel spreadsheets to compile the assessment data in a table form. These data were loaded into Statistical Package for the Social Sciences (SPSS) version 25 for Windows.

There were two research questions asked and answered in this dissertation. RQ1 was answered using ordinal logistic regression analysis. The DV was the 10th grade student academic achievement levels in reading on the DC CAS and ordinal in nature. The IV was the number of mandated PDWs. The IV data was ratio in nature. RQ2 was answered using descriptive correlational analysis to understand the relationship between the variables (a) 10th graders' student academic achievement levels in reading on the DC CAS, and (b) the number of mandated PDWs.

Ordinal Logistic Regression Analysis

To answer Research Question 1, an ordinal logistic regression analysis was conducted. It determined if the significance of associative relationships among the two variables that were being tested. I subsequently conducted an ordinal logistic regression analysis that measured the relationship between the number of mandated PDWs and 10th grade students' academic achievement levels in reading to answer the two following Research Questions.

RQ1: Does the number of mandated PDWs for the 3 academic school years predict the 10th grade student academic achievement levels in reading on the DC CAS?

H_0: The number of mandated PDWs is not a significant predictor for 3 academic school years 10th grade student academic achievement levels in reading.

H_A: The number of mandated PDWs is a significant predictor for 3 academic school years 10th grade student academic achievement levels in reading.

The DV was the 10th grade student academic achievement levels in reading on the DC CAS. The DV were ordinal as the levels are increasing in order of implied value. The IV was the number of mandated PDWs. The IV was the ratio in nature as the PDWs were the number of mandated PDWs each academic school year.

An ordinal logistic regression analysis was appropriate for the statistical testing of RQ1. Logistic regression models are typically measured using Pearson's R^2. According to Field (2009), logistic regression cannot use Pearson's R^2 when the OV is categorical, measured as a nominal or ordinal. The PV is likely to be measured on a different scale than the OV making Pearson's R^2 inappropriate.

The statistical model used to answer RQ1 was ordinal logistic regression analysis. The outcome variable (OV) was the 10th grade academic achievement levels in the reading portion on the DC CAS. The OV were ordinal in nature as the levels are increasing in order of implied value. The predictor variable (PV) was the number of mandated PDWs. The PV was the ratio in nature as the mandated PDWs were the number of mandated PDWs each academic school year. This test evaluates categorical data to see how likely any observed difference between two variables arises by chance. This procedure will analyze whether there is a difference in the 10th grade student academic achievement levels in reading on the DC CAS from one academic school year to the next are significant.

Descriptive Correlational Analysis

To answer RQ2 (see below), a Spearman's *rho* nonparametric correlation analysis was conducted. Spearman's rho measured the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS. The variables being tested (number of mandated PDWs) and total student academic achievement levels on a rating scale (10th grade academic achievement levels in reading portion on the DC CAS). The curriculum developer from the research site provided students' reading test scores in categories. The specific categories assigned to the student academic achievement levels in reading were (a) Level 1 Below Basic, (b) Level 2 Basic, (c) Level 3 Proficient, and (d) Level 4 Advanced. It was not justifiable to use parametric correlation because the data were categorical in nature. Agresti (2007) stated that nonparametric statistics is appropriate when data are categorical and suggested by Field (2009) to use as a protocol in the SPSS. I conducted a descriptive correlational analysis that measured the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS to answer the following Research Question 2.

RQ2: What is the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC CAS and the number of mandated PDWs for the 3 academic school years?

The statistical method used to answer RQ2 to determine the relationship between the number of mandated PDWs and 10th grade academic achievement levels in reading on the DC CAS, a Spearman rho descriptive analysis. These variables being the number of

mandated PDWs and 10th grade student academic achievement levels in reading on DC

CAS. The curriculum developer from the research site provided me with students'

reading test *levels* instead of standardized test scores. The specific ordered categories

assigned to the academic achievement levels were (a) Level 1 Below Basic, (b) Level 2

Basic, (c) Level 3 Proficient, and (d) Level 4 Advanced. Since the data were already

categorized in this manner when I received it, I could not use a parametric approach, such

as the Pearson product moment correlation. A nonparametric statistical procedure was

appropriate because the data was ordered in categorically (Agresti, 2007).

The relationship will be tested using a Spearman rho nonparametric correlation

analysis (also referred to as a rank correlation). A categorical variable in which values

are ordered is considered an ordinal variable (Agresti, 2007). The Spearman correlation

is an alternative to the Pearson *r* even when original scores are on an interval/ratio scale

(Gravetter & Wallnau, 2013). While the Pearson *r* measures the linear relationship

between variables or how well the data form/fit on a linear, straight line, the nature of the

ordinal data being correlated in this study is not likely to be linear. As a result, the

Spearman is being used to "measure the consistency of the relationship, independent of

the form" (Gravetter & Wallnau, 2013, p. 536). This study's variables were measured to

see if there was a significant relationship between the number of mandated PDWs

(quantitative/interval in nature) and the 10th grade student academic achievement levels in

reading on DC CAS (ordinal/ rank in nature).

In a Spearman rho correlation, the data is ordinal, and at least one variable is

monotonically related (only increasing or only decreasing) to the other variable (Chen &

Popovich, 2012; Corder & Foreman, 2014). Spearman's rho correlation coefficient

measured the strength of the association of two variables in a single measure ranging

from -1 to +1. If the results measure -1 a perfect negative association. If the results

measure +1 indicates a perfect positive association. A positive correlation in this study

would indicate a positive relationship between the number of mandated PDWs and the

10th grade student academic achievement levels in reading on the DC CAS (Corder &

Foreman, 2014). No relationship between the variables exists at all if the correlation

coefficient is at or near 0.

Threats to Validity

The variables in this dissertation were the number of mandated PDWs and 10th

grade student academic achievement levels in reading on the DC CAS. I used archival

data in this dissertation, and it was generated using a valid and reliable instrument. The

validity of the state assessment results' interpretations were mandated by the Standards

and Assessment Peer Review Guidance. In accordance with CTB/McGraw-Hill LLC

(2010), the Standards and Assessment Peer Review Guidance stated to support the

validity of interpreting the test, developed evidence in five categories was a mandate. In

addition, reliability must be established. The state required three sections of evidence for

reliability to be established. Finally, to support the students' test scores' valid

interpretation, characteristics of the state assessments are identified. For these reasons,

there was no threat to construct validity. However, threats to the dissertation's internal

and external validity exist. I discussed these threats and how to minimize the impact of

the threats.

Creswell (2015) suggested that maturation is the growth or change in a population that can occur over time naturally. Meaning the 10th grade students for each academic school year could be "wiser, stronger, and more experienced" (Creswell, 2015, p. 304). The 10th grade student academic achievement levels in reading on the DC CAS were collected over 3 academic school years. Each academic school year, the numbers of mandated PDWs were increased. The delivery and implementation of the new strategies learned in the mandated PDWs could have variations from teacher to teacher, impeding the student receiving it. This could threaten my study's internal validity because it could have an impact on the measured outcomes. There is a possibility all participants would have similar maturation experiences.

Lodico et al. (2010) stated that the external validity is findings from your study that can be generalized to large populations beyond the population in your study. In this section, I discuss one external validity threats, selection treatment interaction. Selection treatment interaction is when "differences between groups due to lack of random assignment or use of already formed groups interact with the treatment variable, limiting generalizability to the general population" (Lodico et al., 2010, p. 192). I used data that was preexisting, the 10th grade students' reading test scores. This is a threat because the group is already formed, and the preexisting group could impact the outcome of a treatment or intervention (Lodico et al., 2010).

Ethical Procedures

For all aspects of my dissertation, I used ethical procedures to collect and manage my data. I obtained approval from the Institutional Review Board (IRB) to conduct my

research (approval number 08-15-0111075). Under the principal's approval, the administrative team furnished me with the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS. No names of students, high school assessed, teachers, or staff members were mentioned. The words "the research site" was used to identify the school, and the student data were coded to ensure anonymity. The original data are kept at my residence in a locked and password protected laptop computer in my home office. The student academic achievement level in reading from the DC CAS data were archived on an internal hard drive and secured in my locked home office. The 10th grade students' academic achievement level in reading from the DC CAS data will be deleted 5 years after the completion of the study. For these reasons, informed consent was not needed, and there was no concern about the participants.

Summary

A correlation quantitative research design was used in this dissertation. An ordinal logistic regression analysis and descriptive correlational analysis were used to answer the research questions. The variables in this dissertation were the number of mandated PDWs and the 10th grade student academic achievement levels in reading on the DC CAS. The target population for this dissertation was Grade 10 students from an urban high school in Washington state who were enrolled during 2010 to 2011, 2011 to 2012, and 2012 to 2013 academic school years. Archival data were used in this dissertation were the number of mandated PDWs. For RQ1, an ordinal logistic regression analysis was conducted to check if there was a predictive relationship between the 10th grade student academic achievement levels in reading on the DC CAS and the

number of mandated PDWs for 3 academic school years. For RQ2, because students'

reading scores were categorized as (a) Level 1 Below Basic, (b) Level 2 Basic, (c) Level

3 Proficient, and (d) Level 4 Advanced, a Spearman rho nonparametric correlation

analysis was performed. The results of the descriptive and analyses are presented in

Chapter 4.

     In the next chapter, I review the research methods used for this dissertation. This

chapter discusses are the research design and rationale, methodology, sampling and

sampling procedures, intervention, archival data, instrumentation and operationalization

of constructs, data analysis plan, threats to validity, ethical procedures, and summary.

Chapter 4: Reflections and Conclusions

The purpose of this ordinal logistic regression analysis and descriptive correlational dissertation was to examine the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. I examined the academic school years in relation to the number of mandated PDWs. The specific 10th grade student academic achievement levels in reading on the DC CAS are (a) Level 1 (Below Basic, with a DC CAS score at 900 or below 939), (b) Level 2 (Basic, with a DC CAS score range of 940 to 955), (c) Level 3 (Proficient, with a DC CAS score range of 956 to 969), and (d) Level 4 (Advanced, with a DC CAS score at 970 or above 999). The predictor variable (PV) was the number of mandated PDWs. The outcome variable (OV) was the 10th grade academic achievement levels in reading on the DC CAS. This dissertation aimed to investigate if there was a significant correlation (i.e., relationship) between the number of mandated PDWs offered over 3 academic school years at the research site and 10th grade student academic achievement levels in reading on the DC CAS.

A total of two research questions were asked. RQ1 focused on whether there was a prediction between the mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site and whether the relationships were significant or not. RQ2 focused on the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC

CAS and the number of mandated PDWs for the 3 academic school years. This chapter

includes sections, data collection, results, and concludes with a summary.

Data Collection

The IRB defined this study as "not human subjects research"; no students were

recruited as "participants" or interacted with in a face to face manner. I obtained the

archived data the archived 10th grade student academic achievement levels in reading on

the DC CAS data for academic school years 2010 to 2011, 2011 to 2012, and 2012 to

2013. I requested explicitly the data/information related to all 10th graders, the

population and sample size are the same, at 370.

For the academic school year 2010 to 2011, Table 3 below displays the 10th grade

student demographics information. The total number of students were 120. The

percentage of males in the 10th grade was 55% ($n = 66$) and 10th grade female was 45%

($n = 54$). The percentage of 10th who received IEP services were 23% ($n = 27$). There

were 30% of the 10th graders for the academic school year 2010 to 2011 that were

regarded as English Language Learners ($n = 36$). Out of 120 students in the 10th grade,

64% received free or red price meal ($n = 77$). The research site is considered a Title 1

school because at least 40% of the student population came from a low-income family.

Table 3

10th Grade Student Demographic Data for the School Year 2010 to 2011

Category	N	Percent of Total Sample
Anglo/White	0	0%
Asian American	2	2%
African American	90	75%
Hispanic or Latino American	28	23%
Receiving IEP Services	27	23%
English Language Learners	36	30%
Free/Reduced Meal Recipients	77	64%
Males	66	55%
Females	54	45%
DC CAS Reading *n* of Test Takers	120	100%

Note. $N = 370$

Table 4 below displays the 10th grade student demographics information for the academic school years 2011 to 2012 and 2012 to 2013. In the first year represented there were 117 total number of students and in the second year 133 total number of students. In both academic school years there are more male students than female student making them overrepresented. The largest two ethnicities reported are African Americans and Hispanic or Latinos Americans. In both academic school years, there are three times as many African Americans as Latinos. The research site is considered a Title 1 school because at least 40% of the student population came from a low-income family. The research site is considered a Title 1 school because at least 40% of the student population came from a low-income family.

Table 4

10th Grade Student Demographic Data for the School Years 2011 to 2012 and 2012 to 2013

Category	*n* 2011 to 2012	*n* 2012 to 2013	Percent of Total Sample 2011 to 2012	Percent of Total Sample 2012 to 2013
Anglo/White	0	0	0%	0%
Asian American	1	0	1%	0%
African American	85	99	73%	74%
African Indians	0	1	0%	1%
Multiracial	0	1	0%	1%
Hispanic or Latino American	31	32	26%	24%
Receiving IEP Services	33	39	28%	29%
English Language Learners	22	22	30%	17%
Free Red Price Meal Recipients	78	133	67%	100%
Males	55	77	47%	58%
Females	62	56	53%	42%
DC CAS Reading *n* of Test Takers	117	133	100%	100%

Note. N = 370

Results

RQ1 was answered using ordinal logistic regression analysis. The outcome variable (OV) was the 10th grade student academic achievement levels in reading on the DC CAS. The predictor variable (PV) was the number of mandated PDWs. RQ2 was answered using nonparametric Spearman rho correlation analysis. The correlation coefficients describe the direction and magnitude of the relationship between the variable 10th grade student academic achievement levels (ordinal/rank data) and the variable the number of mandated PDWs (ratio data). Descriptive statistics were calculated to give an overview of the measured variables.

Professional Development Workshops

During the school year of 2010 to 2011, some of the mandated PDWs were reading and comprehension improvements, classroom management, and lesson planning. During the school year of 2011 to 2012, teachers were mandated to attend a minimum of three meetings weekly that lasted at least thirty minutes. The workshops' content included new and enhanced concepts for teachers to master and implement in their classrooms.

Student Academic Achievement Levels

Table 5 provides the 10th grade students' academic achievement levels in reading for academic school years 2011 to 2011, 2011 to 2012, and 2012 to 2013. The table includes the number of students and the percent of students for each category that took the test for each academic school year. Across the 3 academic school years, the total number of students tested was 370. The reading placement categories include Level 1 (Below Basic), Basic (Level 2), Proficient (Level 3), and Advanced (Level 4). The Advanced category is the highest scoring category earned by students. The lowest scoring category students can earn is Below Basic.

The total of students in the reading placement category who earned Level 1 (Below Basic) increased from academic school year 2010 to 2011 and 2011 to 2012. In academic school year 2010 to 2011 there were 36 students and 56 in 2011 to 2012 who earned Level 1 (Below Basic). There were 20 more students from academic school year 2011 to 2012 who earned Level 1 (Below Basic). However, the total of student earned Level 1 (Below Basic) in the reading placement category decreased in academic school

year 2012 to 2013. The decrease was 11 from academic school year 2012 to 2013 and 2011 to 2012.

There was a similar trend for the total number of students in both reading placement categories who earned Level 2 (Basic) and Level 3 (Proficient). From the first academic school year 2010 to 2011 to academic school year 2011 to 2012, the number of students who earned Level 2 (Basic) and in academic school year 2011 to 2012 the number of students was 43. In academic school year 2010 to 2011 the number of students who earned Level 3 (Proficient) was 24, but then the number decreased to 16 students in academic school year 2011 to 2012. For both academic school years and for both levels, students who earned Level 2 (Basic) and Level 3 (Proficient) decreased.

Similarly, in academic school year 2012 to 2013, the number of students who earned Level 2 (Basic) and Level 3 (Proficient) decreased. More students tested in academic school year 2012 to 2013 than in both previous academic school years. The number of students tested in academic school year 2010 to 2011 was 120, academic school year 2011 to 2012 was 117, and academic school year 2012 to 2013 was 133.

In the academic school year 2012 to 2013, more students earned Advanced than the other two academic school years. In both academic school years 2010 to 2011 and 2012 to 2013, students earned 20% in the Proficient category. Overall, the Basic category's highest scoring academic school year was 2012 to 2013. The largest gap between all the categories and academic school years occurred in the Below Basic category. In the academic school year 2010 to 2011, 34% of students scored in the Below Basic category compared to students in academic school year 2012 to 2013 of

which 30% scored in the Below Basic category. In the academic school year 2011 to 2012, 48% of students scored in the Below Basic category. From academic school year 2010 to 2011 to the academic school year 2011 to 2012, students' percentage in the Below Basic category increased by 18%. The following academic school year, 2012 to 2013, 14% of students placed in the Below Basic category.

Table 5

District of Columbia Comprehensive Assessment System Reading Portion Test Results

Reading Placement Categories	School Year 2010 to 2011 (N=120)	School Year 2011 to 2012 (N=117)	School Year 2012 to 2013 (N=133)
Level 1 (Below Basic)	36 (30%)	56 (48%)	45 (34%)
Level 2 (Basic)	57 (47%)	43 (37%)	60 (45%)
Level 3 (Proficient)	24 (20%)	16 (14%)	27 (20%)
Level 4 (Advanced)	3 (2%)	2 (2%)	1 (.8%)

Figure 7 below displays the 10th grade students' academic achievement levels in reading for school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. The figure shows the number of students that took the DC CAS for each school year and includes the number of students for each reading placement category. Most students earned Proficient in school years 2010 to 2011. In academic school year 2012 to 2013 the number of students who earned Proficient decreased from academic school year 2010 to 2011, but it increased from the number of students who earned Proficient from academic school year 2011 to 2012.

The number of students who earned Below Basic in academic school year 2011 to 2012 increased from the previous academic school year 2010 to 2011. In academic school year 2012 to 2013 students who earned Below Basic decreased from academic school year 2011 to 2012. However, it was not lower than the students who earned Below Basic in academic school year 2010 to 2011. In the academic school year 2010 to 2011, more students earned Level 4 (Advanced) than in the other two academic school years. The number of students' who earned Advanced decreased every academic school year are 2010 to 2011. The Advanced category is the highest level a student can earn.
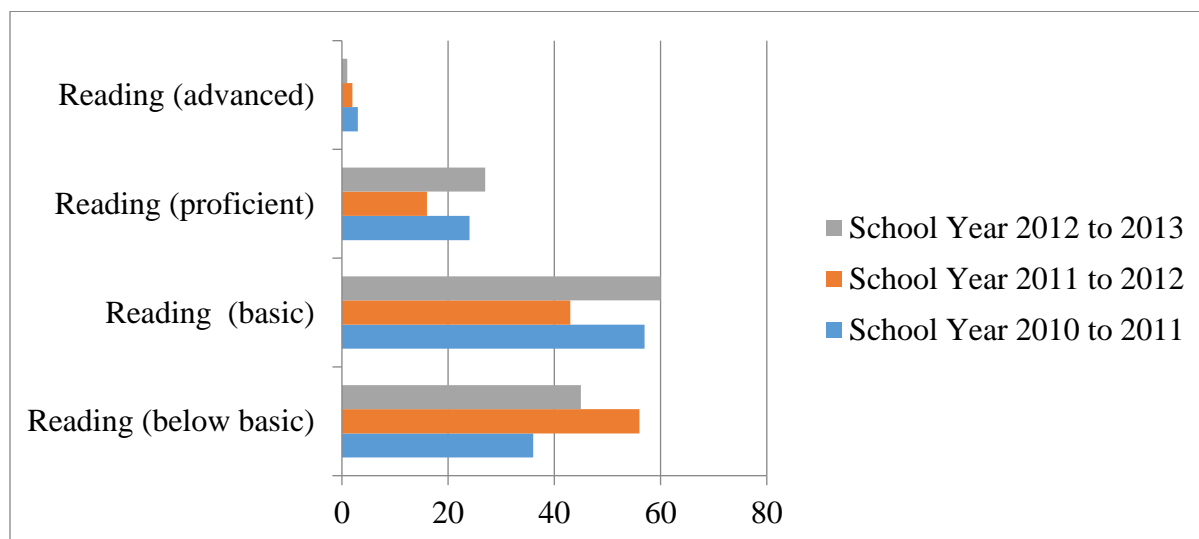
Figure 7. Bar graph shows the Reading portion of DC CAS students' academic achievement levels. The reading placement categories include *Below Basic* (Level 1), *Basic* (Level 2), *Proficient* (Level 3), and *Advanced* (Level 4).

Figure 8 below displays the number of mandated PDWs for 3academic school years. The number of mandated PDWs from one academic school year to the next continued to increase for 3 years. In the school year 2010 to 2011, 65 mandated PDWs for all teachers were conducted. There were 10 additionally mandated PDWs the

following year making the number of mandated PDWs for academic school year 2011 to

2012 a total of 75. During the 2012 to 2013 school year, the school curriculum developer

increased the number of mandated PDWs for teachers to 100.
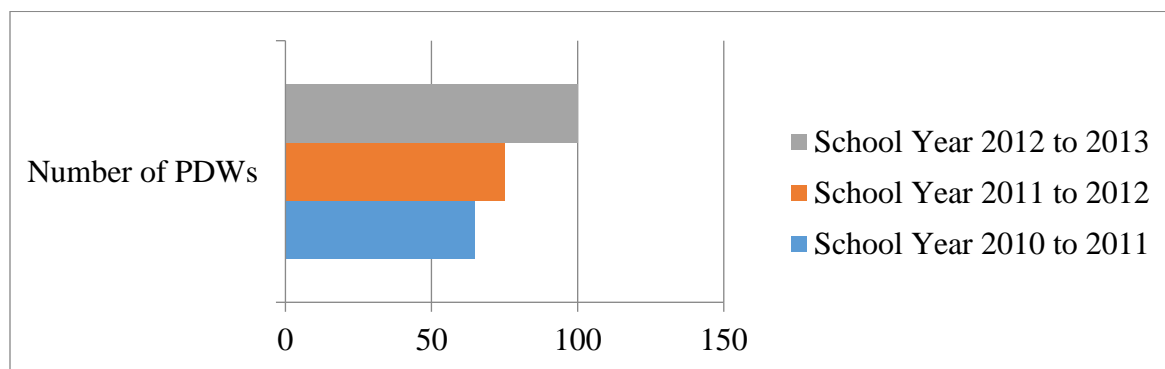
Figure 8. Bar graph shows the number of mandated PDWs over a period of 3 academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013.

Logistic Regression Analysis Research Question 1

To answer RQ1, an ordinal logistic regression analysis was conducted to

investigate if the number of mandated PDWs for the 3 academic school years predict the

10th grade student academic achievement levels in reading on the DC CAS.

RQ1: Does the number of mandated PDWs for the 3 academic school years

predict the 10th grade student academic achievement levels in reading on the DC CAS?

H_0: The number of mandated PDWs is not a significant predictor for 3 academic

school years 10th grade student academic achievement levels in reading.

H_A: The number of mandated PDWs is a significant predictor for 3 academic

school years 10th grade student academic achievement levels in reading.

Figure 9 below displays the ordinal logistic regression analysis results that

measured the relationship between the number of mandated PDWs and 10th grade student

academic achievement levels in reading on the DC CAS. The x-axis displays the total

number of mandated PDWs for 3 academic school years 2010 to 2011, 2011 to 2012, and

2012 to 2013. The number of mandated PDWs over the 3 academic school years are 65

for the school year 2010 to 2011, 75 for the school year 2011 to 2012, and 100 for the

school year 2012 to 2013. The y-axis represents the number of mandated PDWs. The

total number of 10th graders were 370. The x-axis displays the four reading placement

category levels. The reading placement categories include Below Basic (Level 1), Basic

(Level 2), Proficient (Level 3), and Advanced (Level 4). The blue circles on the

scatterplot represent academic school year 2010 to 2011. The red circles on the

scatterplot represent academic school year 2011 to 2012. The green circles on the

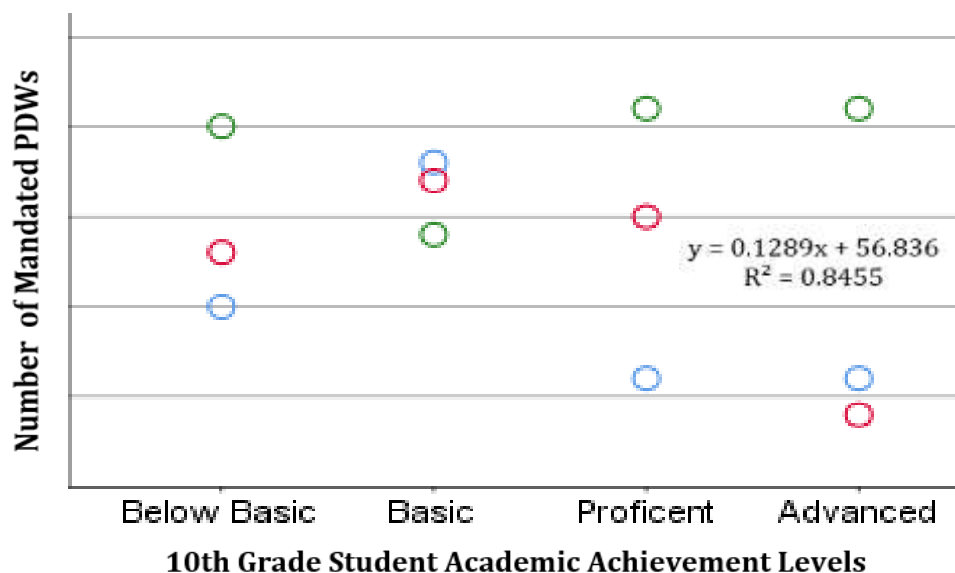scatterplot represent academic school year 2012 to 2013.

Figure 9. Scatter Plot Chart shows number of mandated PDWs and 10th grade students academic achievement levels in reading Level 1(Below Basic), Level 2 (Basic), Level 3 (Proficient), and Level 4 (Advanced) for 3 academic school years 2010 through 2011 (blue circles), 2011 through 2012 (red circles), and 2013 through 2014 (green circles).

Ordinal Logistic Regression Analysis Summary

To determine if there was significance of associative relationships among the variables an ordinal logistic regression analysis was completed. The ordinal logistic regression analysis summary output of levels 1 through 4 for academic school years includes three Tables of data Table 6, Table 7, and Table 8. Table 6 displays the Regression Statistics. Table 7 displays the ANOVA analysis. Lastly, Table 8 displayed the Residual Output.

Tables 6 displays the Regression Statistics results of the ordinal logistic regression analysis for the academic school years studied. In Table 6, the regression statistics displays both the Multiple R and R Square. The Multiple R yields the correlation coefficient, which measures how well the data clusters around the regression line. The data is more linear when the value is closer to 1. The number of mandated PDWs were used to predict 10th grade students' academic achievement levels in reading on the DC CAS. No linear relationship between the IV and DV as evidenced by the Multiple R value of 0.05219, which was close to the value of 0.

The R^2 in Table 6 was 0.00272. The R^2 is the coefficient of determination. It is the measurement of the percentage of variation in the DV. This can be explained by the linear relationship between the IV and the DV. The linear regression model predicts the 10th grade student academic achievement levels in reading on the number of mandated PDWs.

Table 6

Regression Statistics	
Multiple *R*	0.05219
R²	0.00272
Adjusted *R* Square	5.95900
Standard Error	14.9884
Observations	370

Table 7 displays the ANOVA results of the summary output of the ordinal logistic regression analysis. The *SS* is the sum of squares, and the *MS* is the regression degrees of freedom. The *F* is the overall null hypothesis. The *Significance F* is the significance associated with the *p*-value. The Coefficients tell the reader the least squares estimate. The *t* Statistics provides information for accepting the null hypothesis or the alternate hypothesis. The *P* Value gives the *p*-value for the hypothesis test. Lastly, the *Lower 95%* and the *Upper 95%* provided a boundary for the confidence interval.

The 95% confidence intervals can be found in Table 7 under the column labeled Lower 95% and Upper 95% and the row number of mandated PDWs. The Lower 95% is 0, and the Upper 95% is 0. The mandated number of mandated PDWs at the .05 level of significance. When there is no linear relationship between the IV and the DV, "b" in the expression equals 0. If there is a linear relationship, then the "b" in the expression does not equal 0. The DV increase by 0 for every 1 point increased in the IV.

Table 7

ANOVA

Source	*df*	SS	MS	*F*	Significance *F*
Regression	1	225.144	225.144	1.002192927	0.31744
Residual	368	82446.9	224.651		
Total	369	82672.1			

Source	Coefficients	Standard Errors	*t* Stat	*P*-Value	Lower 95%	Upper 95%
Intercept	80.7859	0.78026	103.537	1.481796	79.2516	82.3202
Number of PDWs	0	0	65535	5.95900	0	0

Table 8 displays the Residual Output results of the summary output of the ordinal logistic regression analysis. The vertical distance between a data point and the regression line is a residual. There is one residual for each data point. When the residuals are above the regression line, they are positive and negative if they are below the regression line.

Table 8

Residual Output

Observation	Predicted *Y* = Level 1 through 4	Residuals
1 through 119	80.7859	-15.7859
120 through 236	80.7859	-5.78591
237 through 370	80.7859	19.2141

Descriptive Correlational Analysis for Research Question 2

To answer RQ2, a descriptive, Spearman rho correlational analysis was conducted which helped determine the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC CAS and the

number of mandated PDWs for the 3 academic school years. I conducted a descriptive

correlational analysis that measured the magnitude and direction of the correlation

between 10th grade student academic achievement levels on the reading portion of the DC

CAS and the number of mandated PDWs for the 3 academic school years.

RQ2: What is the magnitude and direction of the correlation between 10th grade

student academic achievement levels on the reading portion of the DC CAS and the

number of mandated PDWs for the 3 academic school years?

Table 9 displays the results from the descriptive statistics. To answer RQ2, the

relationship between the number of mandated PDWs and 10th grade student academic

achievement levels in reading was analyzed. RQ2 addressed the magnitude and direction

of the correlations between the 10th grade academic achievement levels in reading on the

DC CAS and the mandated PDWs for the academic school years 2010 to 2011, 2011 to

2012, and 2012 to 2013. Table 9 also includes the number of students that took the test

for the school year academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013.

It includes the students' academic results for each category.

Table 9

Descriptive Statistics

Statistics	School Year 2010 to 2011	School Year 2011 to 2012	School Year 2012 to 2013
N	120	117	133
Mean	1.95	1.69	1.88
Median	2.00	2.00	2.00
Std. Deviation	.776	.771	.749
Variance	.603	.594	.561
Range	3	3	3
Minimum	1	1	1
Maximum	4	4	4

Table 10 displays the Spearman rho correlation data. The relationship (i.e.,

statistical dependence) between the number of mandated PDWs and 10th grade student

academic achievement levels in reading to answer RQ2 was measured. RQ2 addressed

the magnitude and direction of the correlations between the 10th grade academic

achievement levels in reading on the DC CAS and the mandated PDWs for the academic

school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. Table 10 includes the

number of students that took the test for the school year academic school years 2010 to

2011, 2011 to 2012; and 2012 to 2013. It includes the students' academic results for each

category. The reading placement categories include Level 1 (Below Basic), Level 2

(Basic), Level 3 (Proficient), and Level 4 (Advanced). The *Advanced* category is the

highest scoring category the students can achieve. The *Below Basic* category is the

lowest scoring category the students can achieve.

The Spearman's *rho* correlations were calculated between the number of required

mandated PDWs academic school year and students' academic achievement levels for the

academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. Table 10 below

displays the correlation coefficients and significance level (i.e., 2-tailed test) and includes

the number of students who took the test each school year. For the three academics

school years, the total number of students who took the DC CAS was 370. The

Spearman correlation coefficient for the first academic school year 2010 to 2011 was

+.897. For the academic school year 2011 to 2012, the correlation was +.816, and for the

academic school year 2012 to 2013, the correlation coefficient was +.503. The alpha risk

levels for the correlations reported in Table 10 are all statistically significant. Because

these correlations result from nonparametric/ordinal analysis (i.e., Spearman rho), the

coefficients cannot be used to interpret the amount of variance explained by the

relationship or dependence between the two variables.

Table 10

Spearman's Rho Correlations for Academic School Year 2010 to 2011, 2011 to 2012, and 2012 to 2013

Source		School Year 2010 to 2011 65 Mandated PDWs	School Year 2011 to 2012 75 Mandated PDWs	School Year 2012 to 2013 100 Mandated PDWs
10th Grade Student Academic Achievement Levels	Correlation Coefficient	+.897	+.816	+.503
	Sig. (2-tailed)	$p < .01$	$p < .01$	$p < .01$
	N	120	117	133

Because the data analyzed and presented in Table 10 are ordinal/rank (i.e.,

nonparametric), the significant correlations may be spurious and misleading; thus, a more

conservative, follow-up Spearman rho analysis was conducted using the mean of 10th

grade student academic achievement levels for 3 academic school years 2010 to 2011,

2011 to 2012, and 2012 to 2013 is displayed in Table 11. The coefficient for the

correlation between the 3 academic school years and the mean of 10th grade students'

academic achievement levels is -.020, a result that is essentially a nonsignificant, null

correlation (i.e., no "relationship or dependence") between the variables.

Table 11

Correlation Between Mean Achievement Level And 3 School Years of PDWs

Source	3 Years of PDWs	Mean of 10th Grade Students' Academic Achievement Levels
Mean of 10th Grade Students' Academic Achievement Levels	-0.020	1
N	240	370

Summary

The purpose of this dissertation study was to understand the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for three academic school years. The IV is the number of mandated PDWs, and the DV is the 10th grade student academic achievement levels in reading. The data could be tested to understand if the IV variables predicted the DV levels. For Research Question 1, no statistically significant relationship was found between the increase of the number of mandated PDWs and 10th grade students' DC CAS scores at the research site. Based on these data for RQ1, the H_0 was accepted.

For Research Question 2, the descriptive nonparametric (i.e., Spearman rho) correlational analysis demonstrated that no significant relationship exists between the number of mandated PDWs and 10th grade students' DC CAS academic achievement levels at the research site. Based on these findings for Research Question 2, the H_o was accepted. Multiple Figures and Tables were provided for a clear pictorial interpretation of the data and visually confirmed the lack of relationship between variables.

The primary purpose of this quantitative correlational design was to examine the relationship between of the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for the academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013. In Chapter 4, a statistical analysis of the data was conducted, and the findings were reported. See Chapter 5 for the presentation of the interpretation of the findings, limitations of the study, recommendations, discussion of implications, and the conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative correlational dissertation was designed to (a) examine whether the number of mandated PDWs teachers had to attend over the 2010 to 2011, 2011 to 2012, and 2012 to 2013 school years predicted 10th grade student academic achievement levels in reading as measured by the DC CAS, and (b) investigate what the relationship between the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC CAS and the number of mandated PDWs for the 3 academic school years. An ordinal logistic regression analysis was used to answer RQ1 and its hypotheses. To answer RQ2, a Spearman's *rho* nonparametric correlation analysis was conducted.

The variables under investigation in this study were the number of mandated PDWs teachers were mandated to attend over 3 school years and 10th grade student academic achievement levels in reading. At the time this dissertation study was started, there was scant evidence and information about whether 10th grade student reading levels, as measured by the DC CAS, could be predicted by the number of mandated PDWs teachers were mandated by the state and district to attend. At the time that these PDWs were mandated, the state and district were under the impression that increasing the number of trainings would lead to better academic outcomes in reading. The goal of PDWs is to help teachers learn how to improve learning of their students (Hargreaves & Fullan, 2013). The effectiveness of teachers' teaching is a potential variable for improving student academic achievement (Hartney & Flavin, 2013). Furthermore,

Frunzeanu (2014) and Owen (2015) both agreed that PDWs offers teachers instructional strategies/methods for improving their students' academic achievement.

The primary goal of this study was to investigate whether the increased number of mandated PDWs lead to any measurable educational benefit for the district and students, the results of which would hold potential implications for whether district and state resources had been used effectively or not (i.e., as it relates to cost benefit/analysis). Results of analyses showed that while the number of mandated PDWs increased from year to year over an 3 year period, there was no predictive relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site. Similarly, there was no significant association or relationship between the two variables (per RQ2).

Interpretation of the Findings

The focus of this dissertation was to examine the relationship between the number of mandated PDWs and 10th grade student academic achievement levels in reading on the DC CAS at the research site for 3 academic school years. For RQ1, the obtained ordinal logistic regression analysis results led to the acceptance of the H_0: Students' academic achievement levels in reading are not predicted by the number of mandated PDWs related to reading instruction over the course of three academic school years. For RQ2, the results of the Spearman rho correlational analysis demonstrated that 10th grade students' mean academic achievement level (i.e., across academic years 2010 to 2011, 2011 to 2012, and 2012 to 2013) is not correlated with the total number of mandated PDWs, meaning there is no relationship between the variables.

Conceptual Framework

The conceptual framework for this dissertation was built on Guskey's (2000) suggested model of teacher change that guided the development of the two research questions, data analysis, and discussion. Since the 1950s, educators have been studying how to effectively and efficiently teach adults to learn new materials and use it in their day to day routines (Knowles, 1970). Teachers' professional development and trainings are mainly administered through PDWs. Guskey (2000) suggested that when PDWs are successful they address the needs of teachers as learners, which enhances their effectiveness with students. All PDWs must consider how adults learn and what motivates the adults. To improve student academic achievement, PDWs must be engaging to stakeholders in needs based and strength-based learning in the planning, implementation, and evaluation strategies (DuFour, 2015; Hargreaves & Fullan, 2013).

At the research site, 10th grade students continuously scored below proficiency in the reading portion of the DC CAS. To address this problem, the district implemented diverse PDWs to increase reading skills. Furthermore, Frunzeanu (2014) and Owen (2015) agreed that PDWs offer teachers' teaching tools based on their needs to increase their students' academic achievement. However, based on the findings from this dissertation, there was no statistically significant relationship between the increase of the number of mandated PDWs and 10th grade students' DC CAS levels at the research site. The implementation of effective and efficient PDWs at the research site may have concluded a positive increase in student academic achievement levels.

Definition of professional development. There are various definitions of PDWs. All definitions of PDWs are based on the change in teachers' knowledge, beliefs, and practices which results in the improvement of student academic achievement. Guskey (2000) defined PD as "those processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might in turn improve the learning of students" (p.16) also aligns with Guskey's (2000) own model of teacher change. When teachers attend PDWs, it is hoped that change occurs in teachers' classroom practices occur that will affect student learning; when teachers then observe improvements occur in student learning, it leads to positive changes in teachers' attitudes and beliefs about teaching, increasing the likelihood teachers will keep attending PDWs and apply the strategies they are taught to use with students. Teachers taking risks and being willing to change will likely influence and increase students' academic achievement (Fullan et al., 2015).

In addition, Darling-Hammond and McLauglin (2011) and Moon et al. (2013) agreed PDWs provide a range of educational experiences to design improvement in teachers' practices and outcomes for both personal development and career advancement. Although findings showed no statistically significant relationship between the increased number of mandated PDWs and 10th grade students' DC CAS levels at the research site, the explanation for this may be due to the type/level of data I was given by the research site to analyze and does not suggest that the mandated PDWs should be discontinued. It stands to reason that PD should be implemented effectively; however, best practice recommendations and research related to PDs is inconsistent and contradictory which

means the research site (and other districts using PDs to improve teachers' teaching effectiveness) needs to at least agree on what the criteria are for determining/measuring effectiveness and provide a clear contextual definition of the training elements and procedures (Gusky, 2003).

Data driven. The improvement of student learning uses "disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement" (NSDC, 2001, p. 1). Effective PDWs are designed from student data. Teachers gain skills from PDWs to examine student work and use the results as a guide for instruction (Hidden Curriculum, 2014). Teachers learn strategies on how to collect, analyze, and evaluate student work to determine strategies to implement in their classrooms from PDWs. These strategies will be used in the classroom to improve student achievement (NSDC, 2009). To ensure improvement are made, ongoing evaluations of PDWs need to be an essential part of the process if teachers' instructional behaviors/practices and student achievement is to occur (Gusky, 2000). During PDWs, teachers are informed on how to collect, analyze, and evaluate student work to determine teaching strategies which will then be used in the classroom where student learning happens (NSDC, 2009). This process follows Guskey's (2000) model of teacher change where teachers' attitudes and beliefs are changed and ultimately improves student achievement (NSDC, 2009). Based on the information presented in Chapter 2, instructional lessons that are based on students' performance data yield better instruction improves overall student academic achievement.

Evaluation. The ESEA was reenacted by Congress in 2001 as the NCLB (U.S. Department of Education, n.d.). The NCLB was developed to ensure quality of education among school age children. A major change between NCLB and ESEA was defining what a PD is under the law. The ESEA (2015) emphasized that the purpose of PD is to increase and improve teachers' knowledge of academic content, ability to analyze student work to adjust teaching strategies, understand how students learn, effective classroom management skills, and effective instructional strategies. In addition, the ESEA requires PDWs be regularly evaluated for the impact they have on teacher practices and the improvement to student academic achievement (ESSA, 2015).

According to Guskey (2000), "evaluations must be based on the acquisition of specific, relevant, and valid evidence examined through appropriate methods and techniques" (p. 42). Evaluations can be an outstanding tool to examine the impact of PDWs on student achievement (NSDC, 2009). From PDWs, teachers can use their new gain knowledge to evaluation and create lessons to improve student achievement (Earley & Porritt, 2014; Hidden Curriculum, 2014; Jansen et al., 2013; Mentese, 2014; Mizell, 2007; NSDC, 2009). Evaluating the results of PDWs supports Guskey's model of teacher change, that teachers' attitudes and beliefs are change and ultimately improves student achievement (NSDC, 2009). As discussed in Chapter 2, through evaluation processes, the opportunity for teachers to develop their teaching strategies can result in a positive impact their students' academic achievement (Owuss & Yiboe, 2014). The implementation of mandated PDWs at the research site did not result in a positive relationship with the mandated PDWs and student academic achievement levels over the

three academic school years, but this does not suggest a significant correlation between the variables is nonexistent. The findings may be spurious because of the type/level of data that was analyzed. If I had been given continuous/interval type of data to analyze (instead of data that was nonparametric and discontinuous in nature), it could have resulted in a different statistical outcome and conclusion.

Research based. The research literature reviewed and presented in Chapter 2 suggests that PDWs can improve student academic achievement in reading by applying research that validates reading instruction practices in their classroom. Teachers should be trained on analyzing literature (NSDC, 2001). Teachers may learn how to identify appropriate research findings, adapt, and implement strategies to improve student achievement. The research literature indicated that effectively implemented PDWs is related to student improvements in student achievement. The drawn conclusion from Chapter 2 is PDWs supported by research evidence would increase student academic achievement.

Design. The design of PDWs are based on teachers' learning needs and provides appropriate strategies for teachers to learn (NSDC, 2009). NSDC (2001) stated that, "staff development that improves the learning of all students uses learning strategies appropriate to the intended goal" (p. 7). According to Calvert (2016), "teacher agency is the capacity of teachers to act purposefully and constructively to direct their professional growth and contribute to the growth of their colleagues" (p. 4). Schulte (2016) argued that it is essential for PDWs to be authentic as well as educators' experiences, context,

and purpose must be considered. In conclusion as stated in Chapter 2, PDWs should be designed with teachers involved in the process of creating it.

As discussed in Chapter 2, the planning and designing of PDWs should include teachers (Hargreaves & Fullan, 2012; Potolea & Toma, 2015; Wadesango & Bayaga, 2013). Hargreaves and Fullen (2012) agreed that incorporating teachers' in the design of PDWs, using their existing knowledge, experiences, and their needs can increase the effectiveness of PDWs. The expectation of teachers is to know how PDWs will affect their classroom practices. Teachers are expected to use the strategies and information they gain from their PDWs in their classrooms to increase their students' academic achievement (Hsieh, 2015).

Learning. Adults learners are diverse learners (Ahn, 2010). They learn in different ways and have different styles of learning. When teachers attend PDWs, they are designed to initiate change in teachers' practices. Holyoke and Larson (2009) suggested that adult learners with different histories, preferences, values, and learning characteristics can affect their perception and ability to learn. Being aware of a teacher's perception of PDWs is important to guarantee that the learning given is meaningful and relevant to them (Colwell et al., 2014; Qablan et al., 2015). As noted in Chapter 2, if change is viewed as a challenge to led teachers to conceptual change their beliefs towards student engagement can lead to an increase in student academic achievement (Bobies et al., 2016).

Collaboration. According to the NSDC (2001) reported that, "staff development that improves the learning of all students provides educators with knowledge and skills to

collaborate" (p. 9). Teachers should have multiple chances to collaborate for their knowledge to be enhanced and learning new strategies (Burke, 2013). At PDWs, teacher should have the opportunities to communicate with their colleagues to share classroom experiences and reflect on practices (Fox & Wilson, 2015). While collaborating, teachers share ideas and concepts about best practices for the benefit of students. Fox and Wilson (2015) agreed that teachers can learn from both formal and informal learning networks. In summary, as discussed in Chapter 2, collaboration during PDW is needed to improve student achievement and ensure effective PDWs (NSDC, 2009). Yet the data supporting this dissertation does not favor this conclusion. Findings in Chapter 4, yielded no statistically significant relationship between the increase of the number of mandated PDWs and 10th grade students' DC CAS levels at the research site.

Professional development and teaching quality effects on student achievement. Teachers' perception and involvement in PDWs are important and essential to have positive effects on student academic achievement. Effective PDWs must spark a fundamental change in teaching practices to yield an increase in student academic achievement (Gulamhussein, 2013). In conclusion as stated in Chapter 2, PDWs should be continuous, have a clear and meaningful purpose, and be viewed by teachers' as their professional responsibility to increase their students' performance (Wei et al., 2010).

Professional development effects on teaching quality. As discussed in Chapter 2, both DeMonte (2013) and Robinson (2011) agreed that PDWs have a positive effect on teach quality. Building on the prior research and published literature presented in

Chapter 2, they demonstrate a positive impact of PDWs on teaching quality. Teachers indicated that the highest impact on student achievement was due to specific instructional PDWs and the ability as well as the time to collaborate with other teachers (Robinson, 2011).

Impact of teaching quality on student achievement. The PDWs can positively impact teaching quality and in turn increase student academic achievement. The definition of a PD is to provide opportunities to teachers to improve their instructional practice which will make their lesson more effective, aiding students to learn at a higher level (Lee et al., 2013). Mincu (2015) concurred that for students and schools to improve student achievement, effective teaching is relevant. In following Guskey's (2000) model of teacher change, the process of changing teachers' beliefs and attitudes can potentially bring change to students' academic achievement. The ideal change in students' academic achievement is a positive change. As discussed in Chapter 2, the quality of teaching a teacher provides can impact students' academic achievement (Warring, 2015).

Research Question 1. RQ1: Does the number of mandated PDWs for the 3 academic school years predict the 10th grade student academic achievement levels in reading on the DC CAS? The hypotheses were:

H_0: The number of mandated PDWs is not a significant predictor for 3 academic school years 10th grade student academic achievement levels in reading.

H_A: The number of mandated PDWs is a significant predictor for 3 academic school years 10th grade student academic achievement levels in reading.

To answer RQ1, an ordinal logistic regression analysis was conducted. The literature presented in this dissertation suggests PDWs can improve students' academic achievement levels. Nicolae (2014) and Pehmer et al. (2015) studies supported the notion that teachers who engage in a positive PDW, implement what they learned, and there will be an increase in their students' academic achievement. In support, the conceptual framework of this dissertation, was Guskey's (2000) model of teacher change. A change in classroom practices, makes change in student learning, and finally change in teachers' attitudes and beliefs will occur. Improving teachers' teaching quality increases students' academic achievement (Harris et al., 2014; Youngs, 2013).

In Chapter 4, the results of the ordinal logistics regression analysis for the Multiple R were 0.05219 and the R^2 was 0.00272. Both results of the Multiple R and the R^2 yielded no linear statistically significant relationship between the IV and DV. The ordinal logistic regression analysis revealed a small and nonsignificant relationship between the variables. Results surpassed the $p > .05$ cutoff, revealing that relationship between the number of mandated PDWs for the 3 academic school years and the 10th grade student academic achievement levels in reading on the DC CAS at the research site was due to chance. While the results do not support the research, evidence synthesized in Chapter 2, it tends to support Nicolae's (2014) findings indicating that declines observed in students' academic achievement *may* be the result of poorly designed/delivered PDWs. Even as far back as 2001, Garet, Porter, Desimone, Birman, and Yoon (2001) demonstrated that effective improvements in student learning, as a function of teacher PDWs, are related to PDs that focus on combining (a) content knowledge, (b)

opportunities for active learning, and (c) making logical interconnections with other learning activities with PD. These elements, combined with structural aspects such the form of the PD activity, the duration of activities, and grouping teachers together form the same school, subject, and grade levels, would increase the potency of PDWs as an intervention. So, while this study did not result in any statistically significant results, extant research evidence already exists to show how school districts should develop PDWs in order to "pay off" in the form of improvements in student achievement.

Based on the data and concerning the H_0, the number of mandated PDWs was not a significant predictor for academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013 10th grade student academic achievement levels Level 1 (Below Basic), Level 2 (Basic), Level 3 (Proficient), and Level 4 (Advanced) was accepted. The H_A: The number of mandated PDWs is a significant predictor for academic school years 2010 to 2011, 2011 to 2012, and 2012 to 2013 and 10th grade student academic achievement levels in reading on the DC CAS Level 1 (Below Basic), Level 2 (Basic), Level 3 (Proficient), and Level 4 (Advanced) was rejected.

Research question 2. What is the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC CAS and the number of mandated PDWs for the 3 academic school years?

A descriptive Spearman rho correlational analysis was used to answer RQ2. The basis for the question related to whether increasing mandated PDWs was significantly related to student academic achievement. Both Guskey (2004) and Desimone (2011b) agreed that the best strategy to improve student academic achievement is to implement

professional development. Guskey (2004) stated that, "One constant finding in the

research literature is that notable improvements in education almost never take place in

the absence of professional development" (p. 4). Findings from Bartolini et al. (2014),

Bayar (2014), Christesen and Turner (2014), and Curwood (2014) suggested that multiple

components of effective PDWs should focus on teachers' engagement and involvement.

A successful PDW is designed with planning, authentic content, sustainability, and

differentiated formatting (Pella, 2015).

The results of the correlational analysis (see Table 10) shows a significant ($p <$

.01) positive association between variables. For school years 2010 to 2011 the coefficient

was +0.897, from 2011 to 2012 it was +0.816, and from 2012 to 2013 it was +0.503.

However, because the data analyzed and presented in Table 10 are ordinal/rank (i.e.,

nonparametric and skewed), the significant correlations may be spurious and misleading;

thus, a more conservative, follow up Spearman rho analysis was conducted using the

mean of 10th grade student academic achievement levels for 3 academic school years

2010 to 2011, 2011 to 2012, and 2012 to 2013 and is displayed in Table 11. The

coefficient for the correlation between the three academic school years and the mean of

10th grade students' academic achievement levels is -.020, a result that is essentially a

nonsignificant, null correlation (i.e., "no relationship or dependence") between the

variables.

The results of the analysis do not support the literature of either Lord (2017) and

Wilkins (2015) studies that are descriptions of Guskey's model of teacher change.

Neither of the studies' theoretical foundation was support by Guskey's model of teacher

change. Though, both studies show that a change in teacher instruction results in positive

outcomes for students' academic achievement. At the research site, the mandated PDWs

continued to increase over the three academic school years with the goal of increasing the

10th grade student academic achievement levels. However, there is no support from the

research literature that simply increasing the number of PDWs (as opposed to improving

the quality and effectiveness of PDWs) is related to improved student achievement.

Based on the data and concerning RQ2, results from the descriptive

nonparametric (i.e., Spearman rho) correlational analysis demonstrated that no significant

relationship exists between the number of mandated PDWs and 10th grade students' DC

CAS academic achievement levels at the research site. Based on these findings for

Research Question 2, the H_0 was accepted and the alternative hypothesis was rejected.

Limitations of the Study

There were several limitations in this dissertation including, but not limited to, the

district giving the researcher access only to three academic school years' worth

categorical type, ordinal data (as opposed to standardized and/or percentile scores) and

did not permit any input from teachers and students. Additionally, the number and

frequency of mandated PDWs for the three studied academic school year was correlated

with only the reading portion of the state standardized test. Moreover, the data were

archival in nature as opposed to being collected "live" when teachers were attending the

PDWs.

Secondly, the lack of student or teacher level data restricted the ability to

understand, on a personal level, the perceptions and experiences related to the problem of

poor reading outcomes and why mandated PDWs do not appear to be working in the

district. Due to logistical and site-based reasons, researcher decided not to proceed in

collecting such data. There are multiple studies showing that if teachers engage positively

in PDWs and implement instructional practices from PDWs, an increase in their students'

academic achievement will occur (e.g., Nicolae, 2014; Pehmer et al, 2015). The study

was limited by the fact that teacher level data was not obtained as it could have provided

insight into their thoughts about the mandated PDWs, their content, and whether

requiring increased attendance was cost beneficial.

Lastly, the focus of the study was limited in that only reading achievement scores

were analyzed. While schools/districts are mainly focused on reading outcomes,

analyzing PDW attendance and its relationship with students' math and English/language

arts scores could potentially have given broader insight into whether the government's

requirement was time well spent or not. The expectations set forth by the government and

the results of standardized test scores led to a concern for increasing PDWs to increase

student achievement (Earley & Porritt, 2014; Gleason & Gerzon, 2014); however, simply

increasing PDWs may not be the best solution at all to address 10th graders' declining

reading scores on the DC CAS.

Recommendations

While the findings in this dissertation do not support the relationship between the

number of mandated PDWS and 10th grade student academic achievement levels in

reading on DC CAS, the evidence in the literature does support the relationship,

suggesting PDWs, implemented effectively, is indirectly related to student improve in

academic achievement. Teachers who apply instructional practices they learn about from

PDWs are also able to increase student academic achievement in their classroom (see

Nicolae, 2014; Pehmer et al., 2015). It is possible that one contributing factor for the lack

of significant findings was the result of the poor quality and implementation of all the

PDWs teachers in the district received. Desimone (2011b) stated "the final test of the

effectiveness of professional development is whether it has led to improved student

learning" (p. 71).

One recommendation for replicating the dissertation would be to include personal

interviews and viewpoints from the teachers, staff, and students that took the state

standardized test. Hall (2015) stated that teachers are like students; when teachers

engage, collaborate, have learning opportunities specifically designed for them, have time

to reflect, find something relevant as well as provided follow up and support when

needed; they are more likely to learn and implement what they learned. Nappi (2014)

agreed that, teacher have an assortment of attributes, abilities, and experiences.

The literature reviewed in this dissertation suggest that correctly implemented and

effectively designed PDWs can indirectly increase student achievement, and that there is

a positive correlation between content focused PDWs and observed increases in student

academic achievement (Education Northwest, 2014). Lastly, I recommend additional

studies be conducted to explore the potential relationships of PDWs and students'

achievement. Earley and Porritt (2014) and Nishimura (2014) point out that an effective

PDWs involves examining data in order to identify and collaborate strategies needed for

teachers to learn and develop useful tools to improve students' academic achievement.

Implications

The purpose of the research in this dissertation was to inform others and encourage purposeful changes. This dissertation contributes to both positive social change as well as the purpose, frequency, and implementation of PDWs. Below, I have shared potential social change that impacts various stakeholders. As well, I have identified recommendations to encourage purposeful, well thought out PDWs.

Positive Social Change

This dissertation brings potential social change as it may open the eyes of administrators and teachers. It may contribute to social change by providing supporting evidence for the school administrative team to consider the number of mandated PDWs in one school ear. It may aid the school administrative team in deciding when planning how to increase student academic achievement levels in reading.

Findings from this dissertation did not support the existence of a relationship between the number of mandated PDWS and 10th grade student academic achievement levels in reading on DC CAS. There were several challenges faced in this dissertation. The nature of the data made answering the RQs difficult to answer in a meaningful or significant way. As previously discussed in this dissertation, the limitations of this study did not allow addressing the RQs with any sense of confidence or validity. This dissertation attempted to understand the relationship of the number of mandated PDWs and 10th grade student academic achievement levels to provide the benefit to not only teachers but also students. Due to the limitations in this study many factors have impeded or clouded valid judgements about social change.

While it is difficult to conclude that this study lead to positive social change outcomes, such outcomes may potentially occur when administrators and teachers collaborate and become actively involved in the process of the creation, implementation, evaluation, and determined duration of PDWs. This happens when a problem is identified and mitigated through the implementation of scientifically validated interventions. At the research site for this dissertation, 10th grade students continued to score below proficient in the reading portion of the DC CAS. To address this problem, the district implemented diverse mandated PDWs to increase students' reading skills. While it is clear that PDWs can improve student academic achievement (see Bartolini et al., 2014; Pehmer et al., 2015; Tam, 2015), it is still not well understood whether this solution worked well or not in the district seeing as reading scores did not improve over time or as a result of requiring teachers to attend many PDWs.

Teachers are the driving force in educating our students. The development of teachers' skills needs to be developed and maintained through updated and effective PDWs as described in Chapter 2. Existing completed research studies across teaching fields have indicated PDWs can have a positive effect on teaching quality (Earley & Porritt, 2014; Gleason & Gerzon, 2014). An effective PDW promotes teachers' growth and learning experiences through meaningful collaboration. In order to deepen teachers' understanding of how to teach effectively, teachers must have the opportunity to participant in engaging, learner centered, and have access to professional development setting where they can explore several ways in which they can share and exchange information of new knowledge (Jenkins & Agamba, 2013; Pella, 2015; Soebari &

Aldridge, 2015). PDW planning committees should include teachers in the planning

process as well as teachers' needs rather than taking a "one size fits all" approach

(Wallace, 2014). As Demonte (2013) remarked,

> Teachers may need different supports or activities to improve their practice since
>
> what works in one school might not work in another. Moreover, all teaching and
>
> development activities must be integrated with the day-to-day work of teaching
>
> and the standards guiding that work. (p. 3)

Teachers influence students' academic achievement differently. They need to be

prepared to teach students in ways to influence them through their teaching and to

increase student academic achievement. To expose teachers to different ideas and

strategies, collaboration is needed at PDWs. Teachers' beliefs and practices in the

classroom come from their professional training and experiences (Riojas-Cortez et al,

2013). All PDWs should be sustained (not stand alone, 10 day, and short-term

workshops), intensive, collaborative, job embedded, data driven, and classroom focused

(Every Student Succeeds Act, 2015).

As Wei et al. (2010) recommended, PDWs should be continuous, have a clear and

meaningful purpose, and be viewed by teachers' as their professional responsibility to

increase their students' performance. Based on the literature from Chapter 2, for students

to achieve and schools improve student achievement, effective teaching is relevant

(Mincu, 2015). PDWs should offer teachers teaching tools based on their needs to

increase their students' academic achievement (Frunzeanu, 2014; Owen, 2015).

The findings from this dissertation revealed no statistically significant correlations leading to any educationally practical conclusions. While the results of this dissertation did not answer the research questions and nothing meaningful can be shared with stakeholders, the researcher still plans on sharing with the administrative team what the research suggests should be done to develop and implement effective, quality PDWs. The solution to the problem may not be the number of PDWs that teachers attend (i.e., a "shotgun approach"), but whether the design of the PDW curriculum/program is based on the prevailing research evidence (e.g., Garet et al., 2001; Penuel et al., 2007).

Theoretical and Empirical Implications

This dissertation addressed the need for the local community (teachers, administrators, and community partners) to step up and get involve. The local community should be a part of deeming what is important in their local schools. The planning of content and frequency of the number of mandated PDW was completed by the administrative team at the research site. It is important for the administration team to allow opportunities for teachers to weigh in the decision-making process (Cook, 2014).

Applied in this dissertation was Guskey's (2000) conceptual framework known as the model of teacher change. Guskey's model is founded on the idea that when a positive change to teachers' attitudes and beliefs occur, it is a continuous and endless learning process and not a onetime event. Thus, leading to change in teachers from PDWs has a direct impact on student academic achievement (Guskey, 2000). In agreement McPhail (2013) An increase in student academic achievement happens when PDWs are comprehensive, focused on content knowledge, characterized by active learning, and

offered over several hours or ongoing over time, with follow up support. The definition

of a PDW is a range of educational experiences to design improved practices and

outcomes for both personal development and career advancement (Darling-Hammond &

McLaughlin, 2011; Moon et al, 2013).

There are many definitions for PDW but the focus at school districts were change

in teacher knowledge, beliefs, and practices which leads to improving student academic

achievement. PDWs offer teachers' teaching tools based on their needs to increase their

students' academic achievement (Frunzeanu, 2014). Overloading teachers with

mandated PDWs that included new concepts as well as not giving them enough time to

implement and reflect on the new concepts between the mandated workshops was not

effective. The goal to increase students' state standardized test score but no official

evaluation was done to evaluate if the goal was met. According to NCDC (2009),

evaluations can be an outstanding tool to examine the impact of PDWs on student

academic achievement. Through PDWs, teachers can use the results obtained from the

PDWs evaluation to create lessons to improve student academic achievement (Earley &

Porritt, 2014; Hidden Curriculum, 2014; Mentese, 2014; NSDC, 2009).

Recommendations for Practice

A potentially far reaching recommendation would be to provide a research-based

solution to all schools faced with the requirement of increasing their students'

standardized test scores. The research evidence points to the fact that PDWs are not the

only solution to the issue; it is not enough to simply increase teacher awareness. Instead,

districts need to provide in service training to teachers on how to effectively teach their

students. Specifically, at this research site, the focus would be to teach teachers how to improve high school level students' reading skills so that they would perform well no matter what high stakes test is given to them. PDWs need to provide teachers opportunities to improve their instruction in the area of reading, approaches that will make their lesson more effective, enabling students to learn content and processes more efficiently (Lee, Kinzie, & Whittaker, 2013). As Guskey (1994) pointed out, "we cannot improve schools without improving the skills and abilities of the teachers within them" (p. 9).

The success of PDWs is attributed to how well it is planned, implemented, and evaluated; something that cannot be achieved in a district without a collective team approach. The primary method to bring change and to help educators refine and acquire skills is through PDWs (Guskey, 1994). So, if the district wants to see an increase in student academic achievement then the mandated PDWs they implement must be comprehensive, focused on content knowledge, characterized by active learning, and offered over several hours or ongoing over time with follow up support (McPhail, 2013).

Teachers can be come overwhelmed by day-to-day challenges so an important practical approach to improving teachers' skills would be to schedule PDWs in such a way that would not add additional burden and stress to an already heavy workload (Balan et al., 2011; Lieberman & Miller, 2014). It is essential to take a collaborative approach with teachers. Teachers want to share their ideas and experiences as well as they certainly want their voices to be heard. For teachers to buy into the idea of a program they must be involved in the PDW development/scheduling process. Their "wants and

needs" should be addressed and incorporated into the decision making. Teachers will be more willing to participate and give their full support if they have some "say" in the program (i.e., "skin in the game"). By doing this, PDWs will be more personalized and help schools become an effective learning environment for teachers and for students (Drago-Severson et al., 2015; Hall, 2015).

Conclusion

In conclusion, Research Question 1 explored if the number of mandated PDWs for the 3 academic school years predicted the 10th grade student academic achievement levels in reading on DC CAS. The results showed there was no statistically significant relationship between the increase in the mandated PDWs and student academic achievement levels. Research Question 2 explored the magnitude and direction of the correlation between 10th grade student academic achievement levels on the reading portion of the DC CAS and the number of mandated PDWs for the 3 academic school years.

The conceptual framework used to guide this research was Guskey's (2000) model of teacher change. Guskey (2000) claimed that PDWs provide positive changes to teachers' knowledge, skills, attitudes, and beliefs. The theory also predicts that positive change should have a direct impact on student academic achievement (Guskey, 2000). This theory was chosen and appropriate because it focuses on PDWs for adults and PDWs' relationship to students' academic achievement.

In the final Chapter 5, a discussion, conclusions, and recommendation were discussed. The interpretation of the findings for research of mandated PDWs and student

academic achievement levels as well as the supported theory were discussed. Findings from this dissertation can enhance the contribution to positive social change as well as the purpose, frequency, and implementation of mandated PDWs.

It is imperative a ready to use PD evaluation system is developed to ensure PDWs yield positive increase student academic achievement. The collaboration of all stakeholder should be included in the creation, implementation, and evaluation of the PDWs frequency and content. Most importantly teacher should be involved as they are the stakeholders that are responsible for directly improving student academic achievement. In order to use mandated PDWs to improve student academic achievements many factors must be considered.

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