

Teacher Perception of Professional Development and Impact on Instructional
Practice and Student Achievement

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Abstract (Academic)

Professional development (PD) is an instrument that provides educators with knowledge, strategies, and skills to meet the needs of today's student learners. To ensure professional learning experiences serve their intended purpose, an investigation into teacher perception of PD and its impact on student achievement was conducted. This dissertation examined teacher perceptions and their impact on PD topics and delivery methods and its impact on changes in instructional practices and student achievement. Sampled were 207 classroom teachers from one rural, suburban, and urban Virginia high school. The findings relative to the sample size suggest that overall PD is impactful on instructional practice and student achievement and that technology integration followed by student learning styles is most impactful. Targeted traditional and reform professional learning activities may offer a means of impacting instruction and student achievement. Findings also suggest that if policymakers and school leaders want to impact instruction and student achievement, they must be strategic in delivering PD hours towards initiatives that will yield the most significant results for instruction and student achievement. To enhance teaching and learning through PD, educational leaders must continue to see the significance in PD as well as provide sustained, on-going, job-embedded PD experiences. This study provides educational leaders with a teacher perspective on the impact of PD on instructional practice and student achievement. These findings imply that PD could be a means of transforming teaching and learning. Few studies have examined teacher perception of PD, its correlation to changes in instructional practices, and its potential impact on student achievement.

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Abstract (Public)

Professional development (PD) is a tool that provides educators additional training to meet the needs of today's students. A more in-depth look into teacher feelings of PD and its effect on student learning was examined. This dissertation examined teacher perceptions and their impact on PD topics and delivery methods and its impact on changes in instructional practices and student achievement. Two-Hundred and seven educators from one rural, suburban, and urban Virginia high school were requested to participate in this study. The findings relative to the sample size suggest that overall PD is impactful on instructional practice and student achievement and that technology integration, followed by student learning styles has the most effect. Various professional learning activities may offer a means of impacting instruction and student achievement. Findings also suggest that if policymakers and school leaders want to impact instruction and student achievement, they must be intentional in delivering PD hours towards actions that will provide positive outcomes for instruction and highest results for student achievement. PD must be sustained, on-going, job-embedded learning experiences. This study provides educational leaders with a teacher perspective on the impact of PD on instructional practice and student achievement.

Dedication

I wrote this for you. For the curious and unaccounted child sitting in a class with big dreams and little support. For the mother who misses athletic events and parent-teacher conferences, because she works hard to provide for her family. For the dad who loves his children deeply but does not know how to show it. For the friends who have supported the dreams of another even when the manifestation of it was nowhere in sight. For the spouse who has missed date nights out so their partner could pursue their dreams. For the teacher who sacrifices her comforts; pouring time and finances into other people's children. For the prayer warrior who continuously prays for God's protective covering over the just and the unjust. For God, the father, from whom all blessings flow. For the dreams yet dreamt, and the goals yet achieved. This is for you.

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Chapter 1

Introduction

Chapter 1 provides an introduction to the study. This introduction chapter is outlined into the following topics: statement of the problem, the purpose of the study, research questions, study significance, conceptual framework, definitions, limitations/delimitations, and organization of the study.

Statement of the Problem

National and state mandates place teachers at the forefront of affecting student achievement (Elementary and Secondary Education Act of 1965 (ESEA), 2015; Standards of Quality of the Code of Virginia, 2016) Legislators have taken note of the vital role teachers play by carrying out policies that link their performance to student achievement (Virginia Department of Education, 2011). To meet this demand, high quality, job-embedded, and continuous professional development (PD) is needed (ESEA, 2015). Despite extensive research on teacher PD (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Desimone, Smith, & Phillips, 2013; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 2002; Guskey, 2003) few studies have examined teacher perceptions of PD, its correlation to changes in instructional practices, and its potential impact on student achievement.

Teacher PD is an essential instrument for improving instructional practices and student achievement. According to the Virginia Department of Education's (VDOE) Virginia State Quality Profile, State Snapshot (VDOE, n.d.) 13.7% of Virginia schools did not meet the minimum expectations for full accreditation for the 2017-2018 school year; 7.3% of schools did not meet the minimum expectations for full accreditation for the 2018-2019 school year (VDOE, n.d.). Teachers working in nonaccredited schools are working towards obtaining accreditation, while teachers working in fully accredited schools are working to maintain accreditation. This information presents a neverending cycle of continued PD to meet the ever-growing student achievement demands. Further research is needed on what types of PD experiences facilitate teacher change, and if teachers feel these changes in instructional practices impact student achievement. With the hope of better understanding the link between teacher perception of PD and instructional change, this research is essential.

Purpose of the Study

The purpose of this study using quantitative methods was to investigate teacher perception of the impact of PD topics and delivery methods, and its impact on changes in instructional practices and student achievement. This study may cultivate an understanding of how teachers' perception of PD influence instructional practice and student achievement.

Research Questions

The following questions were addressed in this study:

1. Which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?
2. In which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?
3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?
4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?

Significance of the Study

Global economic and political changes have affected the role and direction of public education. These new demands and legislative mandates call for useful PD experiences for teachers (ESEA, 2015). Researching teacher perception of PD experiences aid in developing and executing effective PD proposals that systematically facilitate instructional change and increase student achievement. The goal of PD is to have a positive impact on student achievement. Research has demonstrated that this is done by improving instructional practices through professional learning (Desimone, Smith, & Phillips, 2013; Foster, Toma, & Troske, 2013; Saxe, Gearhart, & Nasir, 2001; Tienken & Achilles, 2003).

Learning Forward (2011) Standards for Professional Learning “make explicit that the purpose of professional learning is for educators to develop the knowledge, skills, practices, and

dispositions they need to help students perform at high levels” (p.14). These standards specify that professional learning should increase teacher effectiveness and student achievement for all students. This study sought to address the gap in research concerning teacher perception of professional learning, changes in instructional practices, and student achievement. This study may benefit the field of education by suggesting ways administrators can improve student achievement through PD.

Conceptual Framework

Ravitch and Riggan (2017) stated: “a conceptual framework is an argument about why the topic one wishes to study matters, and why the means proposed to study it are appropriate and rigorous” (p. 5). The researcher created a visualization as a way of linking the potential impact of PD on instructional practice and student achievement. The components include: (1) the umbrella of PD; (2) the focus of PD as detailed in the Every Student Succeeds Act (ESEA, 2015); and (3) the delivery methods of PD as identified in the literature (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; ESEA, 2015; Robinson, 2011; Yoon et al., 2007). The core represents teachers experiencing PD activities. Finally, the framework funnels into the impact these variables have on student achievement. Moreover, Figure 1 highlights the association between these factors and a possible avenue to increase academic achievement. Research relevant to each factor of the conceptual framework is examined in the literature review, developed through the research questions and research design (Ravitch & Riggan, 2017).

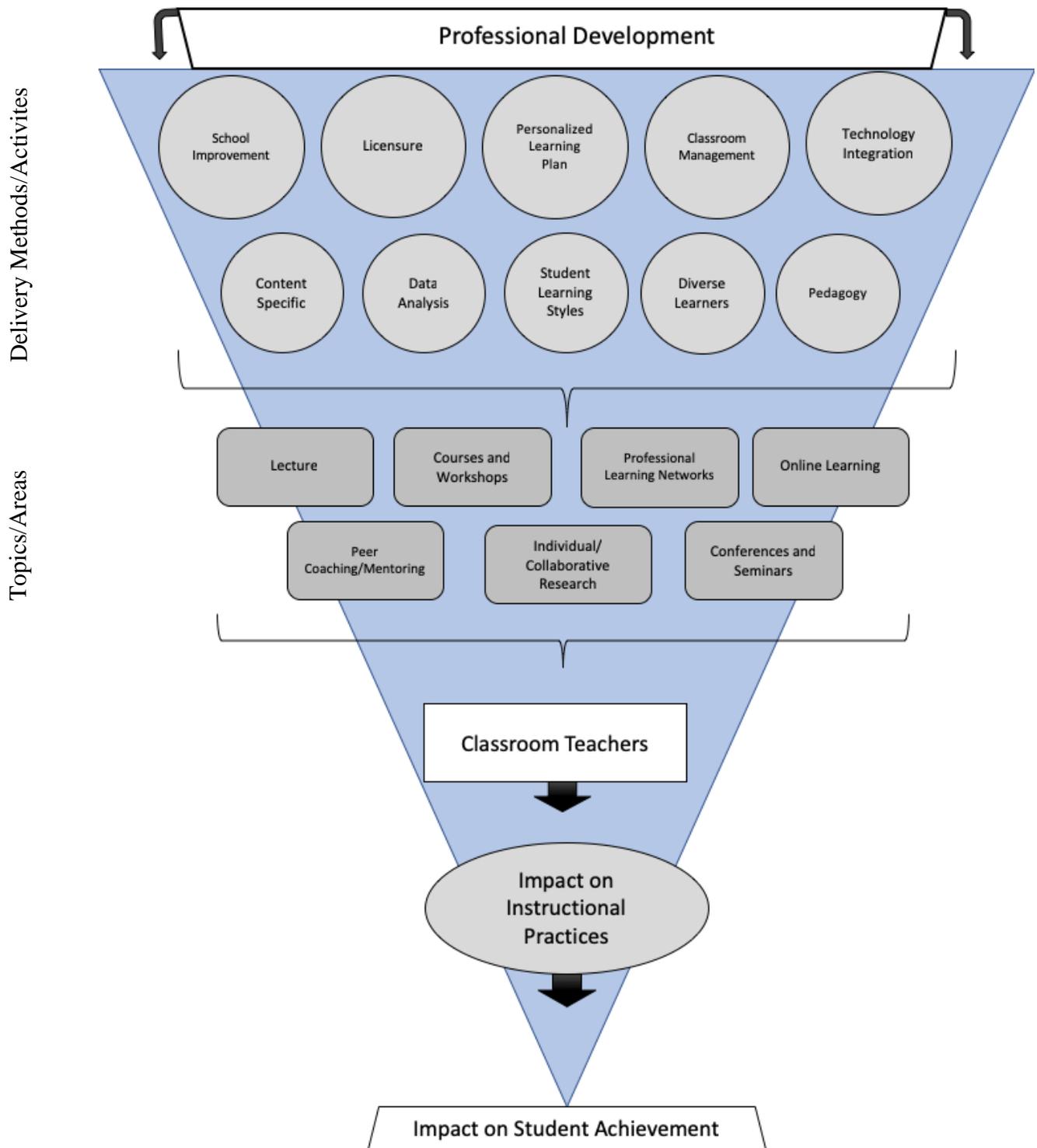


Figure 1. Impact of professional development conceptual framework.

Definition of Terms

Understanding and addressing the gap between teacher perceptions of professional learning, changes in instructional practices, and student achievement requires a universal language. Definitions of key terms and concepts used in this study are listed below:

- *Elementary and Secondary Education Act (ESEA)*. Federal legislation passed in 1965 to ensure minimum standards for quality education across the country. ESEA was reauthorized in 2015 as The Every Student Succeeds Act (ESSA).
- *Instructional Change*. An alteration in practice based on an increase of knowledge and skill to increase student achievement.
- *Learning Forward*. Formally known as the National Staff Development Council “is the only association devoted exclusively to advancing professional learning for student success” (Learning Forward, 2011).
- *Professional Development (PD)*. “Sustained (not stand-alone, one-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (Elementary and Secondary Education Act of 1965, 2015, p. 401). The term professional learning is used interchangeably with professional development.
- *Student Achievement*. Measures an increase in academic content knowledge and skill over a specific amount of time.

Limitations/Delimitations

Limitations. The researcher has identified limitations that could have influenced the results of this study. This study included a sample of teachers from one rural Virginia public school, one suburban Virginia public school, and one urban Virginia public school. The demographic composition of the participants may not reflect the typical characteristics of public schools throughout the United States.

According to the Federal Judicial Center (2011), statistical significance cannot be determined by the size of the sample. The response rate for this study was 19.32%. The response rate was calculated by dividing the number of responses returned by the total number of sample participants (Fincham, 2008). Fincham (2008) suggests a response rate goal of 60%. Following Fincham’s (2008) suggestion, the results from this study cannot be generalized to all

teachers in rural, suburban, and urban schools in the United States because the sample size is not representative of the larger population of educators.

Online surveys served to yield faster data distribution and analysis; however, teacher technology competency may influence their ability to participate in the online survey. Self-reported success may result in opinions of favorable evaluations.

Delimitations. This study intended to describe the perception of teachers at a Virginia rural, suburban, and urban school on PD and its impact on changes in their instructional practices and student achievement. The researcher intentionally controlled the geographic facets of the study. The barriers for this study included selecting teachers at a rural, suburban, and urban school with which the researcher had access. Therefore, the generalization of the study is limited. Only classroom teachers were selected for this study. This study was limited to public school teachers. Moreover, the researcher's professional role is to provide PD and training, and the researcher has presented at national, state, and local conferences/workshops. Accordingly, the study participants may have participated in one or more sessions with the researcher. Private schools and public charter schools were not considered for participation in this study

Organization of the Study

This dissertation is organized into five chapters. The current section, Chapter 1, represents the introduction of this project, followed by Chapter 2 that reviews relevant literature on the impact of PD, instructional change, and student achievement. Chapter 3 outlines the methodology, the population, the survey instrument, and analysis approach. Chapter 4 includes the study presentation, explanation of the data, and data analysis. Chapter 5 recapitulates the study, implications for the field, and recommendations for future research. The study concludes with references and appendixes.

Chapter 2

Literature Review

The objective of the literature review is to examine research specific to the field (Butin, 2010; Roberts, 2010). The literature review is a concise and comprehensive investigation of the past and present research on the topic, organized into themes that serve as a rationale for further study on the topic (Butin, 2010; Creswell, 2008; Creswell & Creswell, 2018; Roberts, 2010). Chapter 2 discusses the literature associated with the impact of professional development (PD) on instructional practice and student achievement. This section consists of an introduction, policy, and historical background, an explanation of what PD is, the effectiveness of PD, and a summary of the combined literature concerning the study.

An extensive search for literature relevant to PD and the impact on instructional practice was conducted through the use of online databases (Google Scholar, JSTOR, ProQuest, etc.) and academic resources to establish a valid selection of scholarly research. An initial search using Virginia Tech's Summon, a library database search engine, yielded 932,086 with the search term "professional development." This search included results from across all disciplines. his search included results from across all disciplines and produces a mix of large- and small-scale studies, case studies, and peer-reviewed research. Refining the search results with the use of the following key terms "professional development and teacher," "professional development, teacher practice," "professional development and impact," "professional development and teacher change," "professional development and barriers," "professional development and effectiveness," "professional development and teacher perceptions," narrowed the results. Professional learning was used interchangeably with professional development during the search for literature. The researcher reviewed the remaining results, abstracts, and reference lists to isolate the relevant studies used in this study.

From No Child Left Behind to Every Student Succeeds Act

United States educators are charged with the honor and responsibility of equipping American children with the necessary skills and knowledge to propel the next generation. It is no surprise that teachers are held to high standards of accountability and experience immense pressure for students to successfully perform on state and national assessments. For teachers to meet the demands placed upon them, they must be equipped with the necessary skills,

knowledge, and resources. PD is a tool that can assist in preparing teachers with the necessary skills, knowledge, and resources. PD is essential in enhancing classroom instruction to meet the needs of today's learners and ensuring academic success (Guskey, 2002; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Although researchers have concluded a need for high-quality training and development programs for educators to meet the ever-changing needs of today's learners, there continues to be a deficit of these professional learning opportunities (Birman, Floch, Klekotka, Ludwig, Taylor, Walters, Wayne, Yoon, American Institutes for Research, 2007; Parsad, Lewis, Farris, & Greene, 2001; USA Research, 1984; Yoon et al., 2007). Under the leadership of President George W. Bush, the Elementary and Secondary Education Act (ESEA) was reauthorized as the No Child Left Behind (NCLB) Act of 2001. NCLB mandated that states provide "high-quality" PD opportunities for all teachers. NCLB did not, however, provide specifications for what high-quality PD looked like, nor established guidelines for providing teachers access to PD (Borko, 2004). "Teaching at Risk," a report released by the Teaching Commission (2004), agreed that PD is essential to future investment in the education system. In the "Teaching at Risk" (The Teaching Commission, 2004) report, Louis V. Gerstner, Jr., the chairman of the teaching commission, stated that "helping our teachers to succeed and enabling our children to learn is an investment in human potential, one that is essential to guaranteeing America's future freedom and prosperity" (p. 11). In 2009, President Barack Obama took on education reform by seeking to provide clarity to the gaps in the NCLB PD mandate. President Obama launched a public education initiative designated as Race to the Top to enhance teaching and learning. According to the United States Department of Education (2015):

Teachers and leaders in Race to the Top states received training and support to improve teaching and learning in their classrooms. States developed high-quality professional development opportunities in multiple formats, such as on-the-job coaching, problem-solving sessions with colleagues and online learning modules. Race to the Top states are using professional development opportunities to recruit, retain and grow effective teachers and leaders in high-need schools" (p. xv)

Enhancing teacher quality is a principal component of the Race to the Top grant (Hourigan, 2011; U.S. Department of Education, 2015). The Race to the Top grant stated that PD must be data-driven, job-embedded, and continuous (Hourigan, 2011; Whitcomb, Borko, &

Liston, 2009). The initiative mandated that the recipient States of the Race to the Top grant connect what is happening in the classroom to how teachers are being developed. The incentive was a resource for States that were recipients of the grant; however, what about the States that were not grant recipients? Were their teachers and students in less need? In December 2015, President Obama and federal lawmakers responded to the call to fix the gaps of previous legislation through the reauthorization of ESEA as the Every Student Succeeds Act (ESSA). To increase student learning, achievement, and educator retention, Title II, Part A was established to support mentorship programs, evidence-based PD, professional learning networks, and the development and support of career path programs for teachers to grow professionally (U.S. Department of Education, 2016). Throughout the legislation, high-quality PD is seen as a central instrument to improve the implementation of instructional practice and student achievement (ESEA, 2015).

ESSA's call for high-quality PD may be associated with national academic achievement scores of eighth-grade students in reading and math. The Nation's Report Card (2015) indicated that the national average for the number of students proficient in eighth-grade math was 32%. Twenty states performed considerably higher in eighth-grade math than the national average, while 16 states performed substantially lower than the national average. Similarly, the national average for proficiency in eighth-grade reading was 33%. Twenty states performed noticeably higher in eighth-grade reading than the national average, while 12 states performed noticeably lower than the national average. Virginia exceeded the national average in both eighth-grade reading and math. The Nation's Report Card (2015) computed that 38% of Virginia students performed at or above the national average for proficiency for math. Comparatively, 36% of eighth-grade Virginia students performed at or above the national average in reading. Student achievement rests in the hands of the teachers and their instructional practice. School systems must take action to equip students with the knowledge and skills needed to operate in our advancing society. Consequently, PD is a means to increase student achievement (Desimone, 2009; Foster, Toma, & Troske, 2013; Yoon et al., 2007)

The Virginia Department of Education (VDOE) state plan timeline for implementing ESSA guidelines were presented on their website. In the Virginia Title I, Part A, Crosswalk from No Child Left Behind (NCLB) to the Every Student Succeeds Act (ESSA) (U.S. Department of Education, n.d.) under the statewide programs section, Virginia commits to

conducting PD activities for educators that are data driven and focus on improving instruction. Consistently, the Virginia code 8VAC20-22-110 for licensure renewal required teachers to attain 180 PD points within five years. Effective July 1, 2018, HB 1125 and SB 349 of the Virginia General Assembly enacted a ten-year renewable license. At the time of this study, after educators renew their expiring five-year license, they will be required to obtain up to 360 professional learning points when they pursue their next ten-year licensure renewal (VDOE, 2018). In January 2019, the Virginia Board of Education (2019) approved 270 PD points for the ten-year licensure renewal until a comprehensive review of the new process can be reviewed. Local education agencies and public education agencies must also provide evidence that they have administered high-quality PD to educators every year (Licensure Regulations for School Personnel, 2007).

According to research, PD can lead to changes in instructional practice that contribute to an increase in student achievement (Camburn & Han, 2015; Darling-Hammond & McLaughlin, 1995; Foster et al., 2013; Garet et al., 2001; Meissel et al., 2016; Robinson, 2011; Yoon et al., 2007). Therefore, PD must be data-driven, job-embedded, and constant for all educators to gauge effectiveness and continued professional growth (Birman et al., 2007; ESEA, 2015; Hourigan, 2011; Learning Forward, 2011; U.S. Department of Education, 2004; U.S. Department of Education, n.d.; Whitcomb et al., 2009; Yoon et al., 2007).

Professional Development Defined

Researchers have defined and redefined PD. Darling-Hammond and McLaughlin (1995) stated that PD should require educators to serve as learners and leaders. It is an ongoing participant-driven practice that engages teachers in inquiry, reflection, experiments, and evaluation of their practice and learning. Desimone (2009) described PD as a variety of activities and interactions that intend to increase educators' knowledge and skills, in addition to their personal, social, and emotional growth.

Based on the reauthorization of ESSA in 2015, Congress and the Obama administration set and approved new guidelines for PD. Learning Forward, formerly known as The National Staff Development Council, has changed its definition to reflect the new federal priorities. Before the revision of ESEA, Learning Forward defined PD "as a comprehensive, sustained, intensive, and collaborative approach to improving teachers' and principals' effectiveness in

raising student achievement” (Slabine, 2011, p. 1). ESSA (2015) defined PD as “sustained (not stand-alone, one-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (p. 401). The document continues by providing examples for the focus of PD experiences. These activities are designed to improve and enhance teacher knowledge and skill substantially, resulting in promoting the success of the whole child. Activities may be content-focused, connected to classroom practices, advance teacher pedagogical knowledge focused on strategies for improving student achievement, technology-centered, address the needs of student disabilities or limited English skills, or focus on evidence-based instructional strategies. Legislation, national organizations, and research provide examples of the types of PD activities. University courses, instructional observations, workshops, training sessions or conferences, coaching and mentoring, and virtual teacher-learning activities are examples of the different delivery methods of PD teachers engage in every year (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; ESEA, 2015; Robinson, 2011; Yoon et al., 2007).

Researchers have separated PD activities into two categories: reform activities and traditional activities. Garet et al. (2001) described reform activities as collaborative initiatives and traditional activities as settings with a speaker and teacher audience. Garet et al. (2001) asserted that the most common form of PD is workshop activities. Conferences, seminars, and university courses share similar traits to workshops and may also be grouped as traditional PD experiences, which often take place after school, during the weekend, or over the summer. Reform activities work towards building collaboration with other teachers such as mentoring, coaching, professional learning networks, and virtual learning experiences. These activities often take place during the regular work day (Garet et al., 2001). If professional learning experiences are connected to what teachers need in the classroom, the impact is more likely to be sustained over time (Garet et al., 2001) —Learning Forward published a report conducted by Darling-Hammond et al. (2009) examining the data from the federal Schools and Staffing Surveys. Their report concluded that 92% of teachers surveyed during the 2003-2004 cycle indicated that they participated in traditional PD activities, this was a decrease from the 1999-2000 survey cycle where 95% indicated they participated in traditional PD activities. The highest yielding participation rate for traditional PD was university courses at 35.5%. Participants expressed that attending the courses was for licensure recertification or advanced

certification. The traditional PD category with the least amount of participation was teachers presenting at a conference or workshop at 25.1% (Darling-Hammond et al., 2009). Research continues to indicate that there is a vast range of PD experiences teachers engage. Camburn and Han (2015) expressed that teaching and learning is uncertain territory. Education is an unpredictable occupation, especially engaging with students and teachers. Determining appropriate teaching pedagogical strategies, establishing mastery benchmarks, and creating a formula of known and unknown variables that will determine the academic success of students is a task of chance (Camburn & Han, 2015). Through their research, Camburn and Han (2015) believe that ongoing PD opportunities are needed to help educators develop.

The role of professional development. PD should provide a standards-based approach to expand teacher knowledge and skill with the primary purpose to improve classroom practice and learning outcomes (Borko, 2004; Guskey, 2002; Learning Forward, 2011; VDOE, 2004; Whitworth & Chiu, 2015). Throughout each education reform, from *A Nation at Risk* to *Race to the Top*, mediocre student performance and educator development remain at the forefront (Borko, 2004; Hourigan, 2011; Overbaugh & Lu, 2008; USA Research, 1984). As the need for PD continues to be a constant in enhancing instruction, Learning Forward expressed that increasing the efficacy of PD programs renders the most effective outcomes on changing of instructional practice (Learning Forward, 2011). Learning Forward set forth seven standards for professional learning. These seven standards include: (1) establishing learning communities; (2) experienced leadership; (3) access to needed resources; (4) data-driven; (5) purposefully selected learning experiences; (6) support for implementation of new knowledge and skills; and (7) outcomes aligned to teacher and student performance (Learning Forward, 2011). Learning Forward concluded that if these standards are accomplished, PD will increase educator effectiveness and student achievement (Learning Forward, 2011).

The Virginia Department of Education (VDOE) also provides guidelines for high-quality PD. These standards were established to offer educators with targeted learning experiences that have the potential to enhance teaching and learning (VDOE, 2004). Furthermore, VDOE (2004) outlined the expectations of standards to:

- a. improve and increase teachers' knowledge of the academic subjects the teachers teach, and enable teachers to become highly qualified if they are teaching in a federal core content area;

- b. be sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and teachers' performance in the classroom;
- c. be based on, aligned with, and directly related to Virginia's Standards of Learning;
- d. be structured on scientifically-based research demonstrated to improve student academic achievement or substantially increase the knowledge and teaching skills of teachers;
- e. be sponsored by school divisions, colleges, universities, organizations, associations, or other entities experienced in providing professional development activities to teachers and instructors;
- f. be delivered by individuals who have demonstrated qualifications and credentials in the focus area of the professional development;
- g. support the success of all learners including children with special needs and limited English proficiency;
- h. provide training for teachers in the use of technology so that technology and technology applications are effectively used in the classroom to improve teaching and learning in the curricula and federal core academic subjects in which the teachers teach;
- i. promote the use of data and assessments to improve instruction; and
- j. be reviewed for high-quality and evaluated after completion to determine if the intended results were achieved (p. 2).

Through Guskey's (2003) investigation of professional development including 13 teaching guidelines along with pedagogical guidelines from various national organizations as well as agencies/departments and other scholarly research in the field, he brought to light the inconsistency among scholars on the key elements of effective PD. Guskey (2003) also uncovered that although each of the 13 teaching and pedagogical guidelines varied in content, all echoed a similar chorus that PD provided to educators is seldom thoroughly planned. This led Guskey (2003) to three conclusions: 1) there is limited agreement amongst researchers on the criteria of effective PD; 2) professional learning differs from experience, participant, content, and other factors providing an endless amount of independent variables; 3) PD must be data-driven. Guskey's (2003) findings corroborate ESEA's current definition of PD (ESEA, 2015),

the Virginia guidelines for high-quality PD (VDOE, 2004), and Learning Forward's standards of professional learning (Learning Forward, 2011).

These criteria of PD standards reflect similarities in the expected implementation and outcome of professional learning. Furthermore, these standards infer that PD should be crafted in a manner that meets the adult learning needs of the participants and produces results (Gold, 2005; Guskey, 2003; 2014; Learning Forward, 2011; VDOE, 2004).

According to Gold (2005), school-aged learners are trained to comply with adherence to academic directions due to extrinsic academic motivation—a grade; adult learners need something different. Adults are often individuals providing directions and expectations. As learners, adults want to know the why behind the learning, and how it connects to the real world beyond their classrooms, tapping into intrinsic motivations (Gold, 2005).

Conducting a study using phenomenological qualitative methods, Al-Behaisi (2011) found that when teachers are exposed to job-related PD, it forces them to expand their thinking beyond what they already know and develop their teaching practices and communication skills to meet the needs of their students. Zepeda (2013) expressed a similar philosophy: “Teachers are professionals. Teachers grow, evolve, and emerge as professionals through the long-term and day-to-day work they do, and that is why job-embedded learning opportunities need to be the focal point of all professional development efforts” (p. 1). In a similar study, Shumack (2007) conducted a qualitative study of the impact of PD on business teachers’ instructional practices. Shumack (2007) concluded that on average, participants in their study undertook 158.1 hours of PD over a year. When asked questions about the professional learning opportunities and their impact on their instruction, Shumack (2007) concluded there was a correlation. Ninety-five and a half percent of participants “agreed” or “strongly agreed” that they were implementing new practices based on what they learned in PD sessions. Ninety-five and a third percent of respondents “agreed” or “strongly agreed” that they took the new ideas and techniques from their professional learning sessions and taught the new skill to their students. One participant from the study stated: “I take a more in-depth look at everything I teach and ask myself how it improves student learning. I also ask more often ‘What is the end product/goal of what I am trying to teach?’ ” (Shumack, 2007, p. 71). Researchers confirm that when PD is ongoing, job-embedded, and relate to classroom instruction; there is an improvement in professional practices and student learning (Al-Behaisi, 2011; Shumack, 2007; Tienken & Achilles, 2003; Zepeda, 2013).

Likewise, Desimone, Smith, and Phillips (2013) found in a three-year longitudinal study predicting the relationship between teacher participation in content-focused PD and student achievement; when third to fifth grade teachers focused on advanced math topics like operations with fractions, distance problems, solving equations with unknowns (compared to more basic math topics), students were significantly more likely to witness rapid growth in their achievement. PD should aim to improve teacher knowledge and practices towards the goal of student achievement (Whitworth & Chiu, 2015).

Zaidi, Khan, and Khan (2018) sought to determine if organizational factors and PD have an impact on teaching practices. Through their study using quantitative methods, they collected 377 completed surveys from female teachers working in seven schools in Karachi City, Pakistan. The education experiences and teaching levels varied amongst the participants. Highlighting whether focusing on PD and practices will have an impact on increasing student achievement, Zaidi et al. (2018) concluded that planned PD enhanced teachers' knowledge and skills, demonstrating a positive relationship among organizational factors, PD, and teaching practices.

Zaidi et al. (2018) stated that focusing on PD and practices will have an impact on increasing student achievement. The organizational factor impact teachers' participation in PD activities. Zaidi et al. (2018) concluded that planned PD enhances teachers knowledge and skills, and results demonstrate a positive relationship among organizational factors, PD, and teaching practices.

The need for PD begins before teachers enter the classroom. In their research study of 164 undergraduate pre-service teachers, Peterson-Ahmad et al. (2018) investigated areas of perceived need regarding professional learning opportunities among pre-service teachers during their pre-service time and subsequent full integration. When examining PD topics most useful to pre-service teachers, classroom management ($SD = .80$), culture, and diversity ($SD = .86$) were identified as most beneficial. Peterson-Ahmad et al. (2018) also highlighted PD for pre-service teachers should be embedded throughout their preparation program giving special attention to the interconnection of general and special education. In concert, these findings underscore the needs and feedback of pre-service teachers should be included in ongoing PD programming to improve the effectiveness of their professional learning opportunities before and after their full integration in the classroom.

Professional development: Time and funding. The research revealed due to a range of variables, finding time and resources to learn, plan, implement, and reflect on new practices can serve as a challenge for educators and schools (Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Foster et al., 2013; Garet et al., 2001). Darling-Hammond and McLaughlin (1995) asserted that although policy requires PD for educators, the learning environment is not always conducive for it. Educational institutions need to redesign scheduling, recruitment, and professional groupings to carve out times for teachers to work and learn together, fostering collaboration to tackle the challenges in education. The Virginia Standards of Quality (2016) confirm the responsibility of each local education agency in Virginia to provide high-quality PD for its educators every year in specific areas. Not only must they provide PD, but they must also review the programs provided for quality, effectiveness, participation, and relevancy (Standards of Quality of the Code of Virginia, 2016). The phrase “lifelong learner” manifests in the role of an educator. Virginia and several other states require ongoing PD to maintain state teaching credentials (Foster, Toma, & Troske, 2013; Standards of Quality of the Code of Virginia, 2016). Majority of teachers are not compensated for the time they spend outside of work meeting these PD obligations. A Darling-Hammond and McLaughlin (1995) study revealed policy must not only support PD but also require it as a part of the infrastructure to include funding. The financial commitment for PD has consistently been at the bottom of the allocation list. According to the United States Department of Labor in 1986, local education agencies spent 38% of their funds on teacher salaries and fewer than 1% on PD (as cited in Darling-Hammond & McLaughlin, 1995). With the escalating cost of teacher turnover, allocating funds to PD programs like mentoring and induction programs may reduce the cost of recruitment and training due to turnover (U.S. Department of Education, 2016).

Gulamhussein (2003), through the Center for Public Education, conducted a synthesis study. Through her investigation, she concluded that when school districts are faced with budget cuts; professional learning opportunities are usually the first on the chopping block. The Center on Budget and Policy Priorities (Leachman, Albares, Masterson, & Wallace, 2015) confirmed 31 states provided less state aid to schools in 2013-2014 compared to the 2007-2008 school year, with 15 states reducing their financial support by at least 10%. A study conducted by Miles, Odden, Fermanich, and Archibald (2004) developed a cost framework to exam the amount of money five school districts spent on professional learning activities. Through their investigation

into each district's budgets, they gleaned insight into school spending towards PD. The five school districts ranged in size from 47,000 - 85,000 students; all had a high population of low-achieving, poverty-stricken, and minority students, and four of the five schools districts had a superintendent hired within the last year. Through their investigation, Miles et al. (2004) determined the school district spent between 2.3% - 6.8% of their budget on PD activities. The school district, with the highest spending percent, had the most significant operating budget. However, this may not paint an accurate picture of PD spending. Each department and school within the district has its budget and sometimes did not coordinate its PD activities with the additional federal money can be allotted for PD activities. These practices make it difficult for districts to accurately track what they are spending (Gulamhussein, 2003; Miles et al., 2004).

Garet, Porter, Desimone, Birman, and Yoon (2001) analyzed data from the Eisenhower Professional Development Program (N=1,027 teachers; N=358 school districts; 72% response rate), a federal program supported the PD of educators, and the activities produce self-reported teacher increases in knowledge, skills, and instructional change. Garet et al. (2001) concluded that reform efforts had a significant and positive correlation with teacher change (.13). Likewise, extended contact hours spent in a PD activity (.26) and active learning opportunities (.48) were also positively correlated with instructional change. Content-focused activities were also positively associated with instructional change (.25). However, the authors noted when content focused activities did not add any increase to teachers' knowledge, and skill, a negative association to changes in teacher practice were evident. Finally, two factors were revealed to impact changes in instructional practices: (1) the degree to which activity was consistent with the teacher's goals and aligned with state standards and assessments; and (2) the extent to which an activity deepened a teacher's knowledge and skill, were positively associated with teacher change (.54 and .58 respectively). Garet et al. (2001) concluded the time and contact hours are essential in the development and implementation of high-quality PD. If PD is sustained over time and has an essential number of contact hours, participants are more likely to yield a higher quality of PD.

These objectives require time for educators to engage in PD as part of their traditional obligations. Time can only be availed through the creative restructuring of how schools use time and funds (Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Foster et al., 2013; Garet et al., 2001). The findings of Garet et al. (2001) indicate that high-quality PD cost \$512.00 per

teacher/PD experience, this is roughly twice the amount of average local education agency expenditures (Garet et al., 2001).

Barriers to Professional Development.

PD is intended to help educators become more impactful to benefit their students; however, not all PD results in teacher change (Whitcomb et al., 2009; Yoon et al., 2007). Regardless of the mandates, good intentions, and apparent need for high-quality PD, barriers to promoting changes in instructional practices still exist. In *Removing Barriers to Professional Development*, Feist (2003) identified three major barriers to PD: (1) hands-on learning, (2) continuous follow-up, and (3) adequate time. While studying the implementation of a collaborative PD program for art teachers, Lind (2007) discovered while time was allotted for participants to collaborate on their action research “lesson study,” time was still a barrier. Lind (2007) collected data on the effectiveness of the lesson implementation through classroom observations, PD observations, and video recordings. The researcher stated that participants admitted the positive impact of participating in the program and the work produced from it. However, participants could not routinely plan for teaching and learning in that manner (Lind, 2007). Another barrier Lind (2007) identified was not time-related, but reflected in traditional American teaching (i.e., direct teaching with large amounts of content in a short amount of time). The participants did not communicate this barrier directly; however, the barrier surfaced through her review of field-notes and video observations. Teachers’ original lesson plans intended to teach large quantities of content in a short period. Through the program, teachers learned to teach less content in a given period and increase the depth of the content they taught (Lind, 2007). Lind (2007) recognized a transition in planning and teaching; however, she also recognized a battle to completely transform their instructional practices to embrace the collaborative way of teaching they were learning in the professional learning program. In order for schools to adopt a collaborative way of teaching and learning, schools would need to restructure the school day to allow for this form of collaboration and intense professional learning to occur (Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Foster et al., 2013; Garet et al., 2001; Lind, 2007).

Similarly, Johnson (2006) conducted a qualitative case study investigating the causes of professional barriers and the impact on science teachers when implementing reform measures.

Two middle schools implemented PD specifically for science teachers. One school provided release time for teachers to participate. They maintained a 100% participation rate. The other middle school did not provide release time; however, teachers received a stipend for their participation. Teachers were required to attend the PD sessions after the school day and travel to another location. Johnson (2006) found that many of the teachers elected not to attend the PD sessions in the school that did not provide release time. This finding demonstrates that time is a consistent factor in providing effective PD (Johnson, 2006; Lind, 2007). The second barrier, Johnson (2006) encountered was political. During the second year of implementing the PD program, the school district was without a superintendent, treasurer, and human resources staff for the majority of the year. These vacancies resulted in a halt of spending for PD. Johnson (2006) suggested that political barriers are the most challenging for teachers because the barriers are often out of their control. Johnson (2006) suggested all schools might encounter some degree of political barriers when implementing effective PD. Johnson concluded even with high-quality PD and willing teachers, implementation of reform practices in some cases was still ineffective due to barriers that could not be addressed through PD. The major factors impeding effective instructional change were time for planning instruction, time for collaboration, and assessment issues (Johnson, 2006; Lind, 2007).

Guskey (2002) contended teachers anticipate leaving professional learning opportunities with ideas and strategies that directly relate to what they do in their classrooms, and when that does not occur it is unlikely that there will be any instructional change in their practice.

According to Guskey (2002):

Learning to be proficient at something new and finding meaning in a new way of doing things requires both time and effort. Any change that holds great promise for increasing teachers' competence and enhancing student learning is likely to require extra work, especially at first (p. 386).

The Effectiveness of Professional Development

Improvements in the quality of teaching and learning in America's public school system continue to be at the forefront of the education agenda (Yates, 2007). In order to quantify the effectiveness of learning activities, one must engage, document, reflect, and evaluate. A substantial change in instructional practices will not manifest into action solely because it is

inserted into legislation. In order for effective PD to result in changes in instructional practices, these policies must align with the learning goals of students and teachers (Darling-Hammond & McLaughlin, 1995).

Teachers have a meaningful role in the implementation of effective PD. Teachers are the change agents who enact the expected instructional transformation in the classroom. In Bandura's (1995) research of teacher change, he defines self-efficacy as "the beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). Change is not an easy process; successful change calls for intensive collaboration (Johnson, 2006). Merriam Webster Online (Change, n.d.) defined change as "to make different in some particular, to make radically different, [or] to make a shift from one to another." For this study, instructional change is defined as an alteration in practice based on an increase of knowledge and skill to increase student achievement.

Several researchers have studied the effectiveness of PD, and its impact on instructional practices. Foster et al. (2013) conducted a study in Kentucky school districts using specialized math and science PD programs for middle school teachers over seven years. Teachers who participated in the in-service program, with higher hours of participation, demonstrated improved quality of teaching and learning for math and science. They concluded content-focused PD targeted at middle school teachers enhanced teacher quality (Foster et al., 2013). Teachers who experience PD that is parallel to standards-aligned and interconnected to other PD experiences and foster professional communication are more likely to change their instructional practices (Garet et al., 2001). Robinson (2011) conducted a study which used a mixed-methods approach that surveyed teachers on their perceptions of staff development/resources while triangulating her quantitative findings with focus groups centering on teachers descriptions of PD experiences they deemed as most beneficial. Results indicated teachers identified PD experiences focused on assessment, were content-focused, technology related, or connected to a specific program, as the most impactful on their instructional activities, increasing student achievement (Robinson, 2011).

Meissel, Parr, and Timperley (2016) conducted a study to determine if PD through a specific literacy program produced considerable gains in student achievement. The researchers wanted to reduce the over-representation of low performance for specific student populations in New Zealand schools in reading and writing. Results indicated that schools that volunteered to

participate in reading and writing presented considerable improvement; this may be due to their recognized need for support. Schools that opted to participate in reading had high baseline data, although they showed gains, expected improvement was not as significant as schools with lower baseline data (Meissel et al., 2016.)

Camburn and Han (2015) conducted a study to measure “teachers’ engagement in reflective practice and self-reported change in English/Language Arts instructional practice.” (p. 517) The researcher sampled an urban school district in the southeastern United States using a questionnaire. The school district served 30, 000 students, 595 of them were eligible for free/reduced- priced lunch and 70% of students were non-white. The questionnaire results reflected that 895 of surveyed teachers agreed or strongly agreed that their professional learning experience made them mindful about the things they were doing in the classroom.

Additionally, 87% stated they participated in professional learning experiences that encouraged them to think about instruction in a new way. Camburn and Han (2015) concluded that teachers who attended more professional learning experiences were more likely to change their instruction. While professional learning experiences targeted school-improvement and collegial collaboration showed no significance, teachers were more likely to change their instructional practices.

Gaumer, Noonan, Brussow, and Carter (2017) conducted a synthesized study to provide a bridge between educational research and practice. They asserted that all professional learning experiences do not lead to learning or outcomes. Gaumer et al. (2017) stated most PD evaluation is done immediately following the learning experience; however, these assessments singularly do not provide evidence that teachers have to increase skills and knowledge to meet the needs of their students. Through their research, they developed a High-Quality PD Checklist (HQPD Checklist) to evaluate professional learning experiences on researched-based adult learning theory and provided guidance for improving PD. Gaumer et al. (2017) used common themes revealed in the literature to develop the HQPD Checklist. Their survey observed the following areas: preparation, introduction, demonstration, engagement, evaluation, and mastery. The researchers tested their survey over two years on 99 different professional learning experiences. Through their test, data denoted 92.7% of indicators were met across domains. Demonstration yielded the highest percentage, and mastery yielded the lowest percentage. Gaumer et al. (2017)

concluded that evidence-based professional learning experiences are fundamental to ensuring educators receive the knowledge, skills, and training they need to impact student achievement.

These studies differ in setting and goals; however, they all consistently demonstrate that PD can facilitate changes in instructional practices when educators are provided with the knowledge and skills they need. Teachers enter the PD setting with different expectations, backgrounds, and motivations. Under the right circumstances, PD may enhance teaching and learning (Camburn & Han, 2015; Darling-Hammond & McLaughlin, 1995; Foster et al., 2013; Garet et al., 2001; Meissel et al., 2016; Robinson, 2011; Yoon et al., 2007). Effective PD can lead to enhanced educator learning, changes in perspectives and beliefs, resulting in changes in instructional practices and student achievement (Al-Behaisi, 2011; Desimone, 2009; Desmone et al., 2013; Foster et al., 2013; Garet et al., 2001; Yoon et al., 2007).

Summary

Research supports the idea high-quality PD facilitates change in instructional practices (Al-Behaisi, 2011; Borko, 2004; Darling-Hammond & McLaughlin, 1995; Desimone 2009; Desmone et al., 2013; Feist, 2003; Foster et al., 2013; Garet et al., 2001; Guskey, 2002; Hourigan, 2011; Johnson, 2006; Shumack, 2007; Tienken & Achilles, 2003). Providing teachers with time and resources for PD yields changes in instructional practices (Darling-Hammond & McLaughlin, 1995; Garet et al., 2001; Robinson, 2011). These changes can lead to substantial advances in student achievement (Meissel et al., 2016) when barriers are removed (Johnson, 2006; Lind, 2007).

Noteworthy focus has been given to content focused improvement (Desimone et al., 2013; Foster et al. 2013; Garet et al. 2001; Lind, 2007). There is limited research to suggest increasing quality learning experiences for teachers in urban schools will influence instructional practice. Given the emergent themes in the literature, the researcher examined the relationship between PD and teacher change. The investigation of PD included identifying the type of PD offered to teachers and to what extent these learning opportunities impacted instructional practice and student achievement.

Chapter 2 discussed the literature relevant to the impact of PD on instructional practice. This investigation was conducted through the development of an introduction; policy and

historical background, an explanation of what PD is; and a synthesis of the literature on the effectiveness of PD. Chapter 3 discusses the methodology for the research.

Chapter 3

Methodology

Purpose of the Study

The purpose of this study using quantitative methods was to examine teacher perception on the impact in professional development (PD) topics and delivery methods, and its impact on changes in instructional practices and student achievement. Chapter 3 outlines the methodology of the study. Additionally, it provides a narrative of the population and the rationale for sample selection. A description of the survey instrument is also detailed. Finally, this chapter also specifies the procedures used to gather, manage, and analyze the data.

Research Design

The research design outlines the plans and procedures for the study. It narrows decisions from widespread speculations to a specific design of data collection and analysis (Creswell, 2009; Creswell & Creswell, 2018) Non-experimental designs seek to provide a numeric description of opinions on a population. Creswell (2009) defined studies using quantitative research methods as a “means for testing objective theories by examining the relationship among variables” (p. 233).

The researcher developed an electronic survey instrument to determine the perceptions of Virginia teachers at a rural, suburban, and urban public school on PD and the impact on instructional practice and student achievement. Surveys seek to aid in closing information gaps in the field and to minimize errors in data collection (Fowler, 2009). The use of an online survey removes the cost associated with mailed paper surveys, eliminates the wait time for delivery and return of surveys, provides ease of distribution, and manages participants responses. Possible challenges of using an online survey are the need for repeated reminders, and potentially limited technology skills of respondents (Fowler, 2009).

Research Questions

The following questions guide this study:

1. Which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?

2. In which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?
3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?
4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?

Sample

The sample population in this research consisted of classroom teachers from one Virginia rural high school (N=42), one Virginia urban high school (N=65), and one Virginia suburban high school (N=100) in session during the 2018-2019 school year. The researcher used a non-probability convenience sample method to provide representation from each of the developed environments. According to the Virginia Department of Education's (VDOE, n.d.) Virginia State Quality Profile, State Snapshot, both the rural and suburban high schools sampled in this study are fully accredited. The urban school was accredited with conditions. The VDOE (2008) accreditation system provided a rating of school quality with supports for continual growth. Schools labeled as accredited performed at or above minimum state standards on school quality indicators. School quality indicators were standards that measured school performance on multiple indexes; this was not limited to standardized assessments. Schools labeled as accredited with conditions performed at or below minimum state standards on school quality indicators (VDOE, 2008).

According to the VDOE's (n.d.) Virginia State Quality Profile, State Snapshot, the rural school had a student enrollment of 527 students for the 2018-2019 school year. The demographics included 65.3% White, 23.5% Black, 6.3% Hispanic, 4.2% multiracial, 0.4% Asian, and 0.4% American Indian. The percent of students who were reported as economically disadvantaged, determined by those eligible to receive free and reduced lunch, was 41.2%. The reported percent of teachers not properly licensed/endorsed for the 2018-2019 school year was 4.5%. The reported percent of provisionally licensed teachers for the 2018-2019 school year was 11.4%. VA Code §22.1-29.1 defines provisional licenses as a non-renewable license distributed

by the Board of Education to individuals who fall short of coursework or assessment requirements for a renewable license. Inexperienced teachers with fewer than one year of teaching experience were 4.5%. The school had a graduation rate of 91.9% and was fully accredited and not identified for ESSA support and improvement (VDOE, n.d.).

The suburban school had an enrollment of 1405 students for the 2018-2019 school year. The demographics included 80.9% White, 9.5% Black, 3.3% multiracial, 3.8% Hispanic, 2.1% Asian, and 0.4% American Indian. The percent of students who were reported as economically disadvantaged was 9.5%. The reported percent of teachers not properly licensed/endorsed for the 2018-2019 school year was 0.9%. The reported percent of provisionally licensed teachers for the 2018-2019 school year was 8.1%. Inexperienced teachers made up 4.5%. The school had a graduation rate of 98%, was fully accredited and not identified for ESSA support and improvement (VDOE, n.d.).

The urban school had an enrollment of 626 students for the 2018-2019 school year. The demographics included 8.3% White, 89.3% Black, 1.3% Hispanic, and 1% Asian. Students who were reported as economically disadvantaged were 79.1%. The reported percent of teachers not properly licensed/endorsed for the 2018-2019 school year was 3.6%. The reported percent of provisionally licensed teachers for the 2018-2019 school year was 16.1%. Inexperienced teachers were 7.1%. The school had a graduation rate of 91.8%, was accredited with conditions and not identified for ESSA support and improvement (VDOE, n.d.).

Table 1

Demographic Characteristic of Total Sample Population

Variable	School Type		
	Rural	Suburban	Urban
Classroom Teachers (Sample Size)	<i>N</i> =42	<i>N</i> =100	<i>N</i> =65
% Provisionally Licensed Teachers	11.4%	9.5%	16.1%
% Economically Disadvantaged Population	41.2%	9.5%	79.1%
% White Students	65.3%	80.9%	8.3%
% Black Students	23.5%	9.5%	89.3%
% Other Race Students	11.2%	9.6%	2.4%

Data Collection Procedure

After receiving approval from Virginia Tech's Institutional Review Board (IRB) (see Appendix A), the researcher, who received IRB training (see Appendix B), administered an online survey through Qualtrics. Qualtrics is an online platform that hosts surveys and maintains response data. The researcher used electronic mail (e-mail) to contact the school administration at a rural, suburban, and urban school in Virginia. The e-mail communicated the purpose of the study, the research methods, the link to the survey, the information on the confidentiality of respondents, and the contact information of the researcher and the faculty primary investigator. The researcher requested the school administrator allow faculty participation by forwarding an e-mail, including the survey link to all classroom teachers within their building to complete the survey (see Appendix C). The school administrator was requested to forward an initial e-mail to teachers requesting their participation in the study, and participants complete the survey within two weeks. A follow-up e-mail (see Appendix D) was sent ten days later to increase the response rate (see Appendix E). The data collection time was three weeks. The researcher was not able to identify the respondent's e-mail addresses or identity, increasing confidentiality. The study was conducted using ethical principles set forth for the protection of human subjects.

Instrument Design

The researcher designed and validated a digital survey instrument to answer the research questions presented in this study. The researcher used Saris and Gallhofer's (2014) process for designing a survey; select a topic, select variables that support the purpose of the study, identify data collection method, operationalization, or method of translating concepts to the questions, assess quality of questions, formulate final questions, and determine population and sample. The survey instrument (see Appendix F) incorporated findings from the literature review that examined the perception of PD effectiveness and the extent to which teachers' perceptions impact instructional change and student achievement. The survey questions were developed based on findings in the literature review, standards outlined in ESSA (2015), Learning Forward's standards (2011), and the VDOE (2011). Three primary areas of PD concentration were revealed through this examination to have the most significant impact on teaching and learning: data-driven professional learning (ESEA, 2015; Garet et al., 2001; Guskey, 2003; Learning Forward, 2011; VDOE, 2011); content specific professional learning (Desimone et al.,

2013; Foster et al., 2013; Garet et al., 2001; Lind, 2007; Robinson, 2011; VDOE, 2011); and pedagogy professional learning experiences (ESEA, 2015; Guskey, 2002; Learning Forward, 2011). Various delivery methods of PD were also revealed through the literature review as university courses, observational visits, workshops, training sessions or conferences, coaching and mentoring, and virtual teacher-learning activities (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009; ESEA, 2015; Robinson, 2011 Yoon et al., 2007).

The survey instrument included demographic data about sample participants as essential to further analysis of the data: number of years teaching, highest completed level of education, and gender. All questions designed for this study specifically address the purpose of the study and the research questions.

Instrument validation. The researcher used a validation process to determine appropriate content, wording, format, organization of the survey, and consistency. Messick (1990) states “content validity is evaluated by showing how well the content of the test samples the class of situations or subject matter about which conclusions are to be drawn” (p. 7). The process to determine if the measurement instrument is accurate and if it is measuring what it is intended to measure (Golafshani, 2003) was conducted by eight individuals working in various roles in education in the researcher’s doctoral cohort. All reviewers had teaching experience and were knowledgeable of PD. Some worked in leadership roles where they provided PD or approved PD for licensure. All were licensed to teach in the state of Virginia and participated in PD activities to maintain a current license. The researcher’s committee chair, an expert in the field of educational leadership, reviewed the survey and provided feedback. The reviewers were asked to provide comments and recommendations from a secondary teacher’s perspective. The instrument was revised based on the comments and recommendations of the reviewers. Upon the review of the survey instrument, one suggested changing question 4 to read “Highest completed level...” versus “Highest level...” which is reflected in the survey. Another reviewer suggested changing another question to read “I have received professional development on pedagogy...” versus “I have received professional development on classroom instructional strategies...” This change is also reflected in the survey. After reviewing all feedback, the researcher modified the survey to incorporate suggested revisions as appropriate to the study. In the instructions for the survey, participants were asked to reflect on their PD experiences from the past 12 months. Specifically, participants were asked to identify PD experiences they have

taken and identify which ones have had the most significant impact on their instructional practices and students' achievement. After revisions, additional recommendations were requested from reviewers to ensure validity. No further recommendations were made. Upon completion of survey revisions and IRB approval, the researcher finalized the survey using Qualtrics.

Data Management and Treatment

Data collected through this research investigation was stored on the researcher's personal computer. Additional backups of the data were stored on a cloud computing remote internet server under password protection. Returned surveys were stored on the Qualtrics system under password protection. Any identifiable participant information was converted to a numeric code to eliminate potential bias and protect the identity of the participants.

Data Analysis Techniques

The researcher selected a study using quantitative methods to investigate the perception of PD effectiveness on instructional practices and student achievement. Creswell (2009) defines quantitative research as “a means for testing objective theories by examining the relationship among variables” (p. 4). A descriptive analysis and frequency percentage were conducted to describe the results of the study through the means, standard deviations, and range of scores of the survey data (Creswell, 2009). The researcher ensured the collected data met the standards for a Spearman Rank-Order Correlation analysis to provide further statistical analysis.

The researcher utilized Microsoft Office Excel, a spreadsheet software, and JMP Pro 13, an interactive software program for desktop statistical analysis to conduct accurate statistical analyses proficiently. Analyses included various forms of descriptive and inferential statistics. Figure 2 provides an overview of the association of the research questions to the survey instrument and intended statistical analysis.

Research question(s)	Survey question(s)	Statistical analysis
1. Which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?	Q8, Q9, Q12	Frequency, Descriptive, Spearman Rank-Order Correlation
2. In which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?	Q10, Q11, Q13	Frequency, Descriptive, Spearman Rank-Order Correlation
3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?	Q7	Frequency, Descriptive
4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?	Q14	Frequency, Descriptive

Figure 2. Research question association and data analysis.

Timeline

Upon receiving IRB approval, the researcher opened the survey for three weeks for participants to take the survey. Ten days after the initial invitation e-mail, a reminder e-mail was

sent. The data analysis was conducted after the survey closed, and the final defense was planned for Spring 2019 semester.

Methodology Summary

Chapter 3 described the methodology used to execute the study. An explanation of the research design, description of the sample, data collection procedures, instrumentation design and validation, data management and treatment, data analysis techniques, and timeline were described. In Chapter 4, the researcher discusses the findings of the data.

Chapter 4

Presentation of Collected Data

The purpose of this study using quantitative methods was to examine teacher perceptions of the impact of professional development (PD) topics and delivery methods, as well as, its impact on changes in instructional practices and student achievement. Data from 40 teacher surveys were used.

This study answered four research questions:

1. Which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?
2. In which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?
3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?
4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?

Description of the Respondents

This study yielded a response rate of 19.32%. Table 2 displays the frequency counts for selected variables. Teachers were either from urban (37.5%), rural (32.5%), or suburban (30.0%) schools. Years of experience ranged from fewer than five years (32.5%) to 20-24 years (15.0%) ($M = 9.90$, $SD = 7.13$). Over half the teachers (57.5%) had bachelor's degrees only; 17 additional teachers (42.5%) had a master's degree or educational specialist degree. Majority of the respondents (70.0%) were female (see Table 2).

Table 2
Frequency Counts for Selected Variables (N = 40)

Variable	Category	<i>n</i>	%
Classroom Teachers	Rural	13	32.5
	Suburban	12	30.0
	Urban	15	37.5
Years of Experience ^a	Fewer than five years	13	32.5
	5 to 9 years	7	17.5
	10 to 19 years	14	35.0
	20 to 24 years	6	15.0
Highest Education	Bachelors	23	57.5
	Masters	16	40.0
	Educational Specialist	1	2.5
Gender:	Male	12	30.0
	Female	28	70.0

^a Years of Experience: $M = 9.90$, $SD = 7.13$.

Answering the Research Questions

The data associated with each of the research questions are presented within the context of the research question. The data are organized by survey question.

Research question 1. Which professional development areas/topics and delivery methods did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?

Professional development impact. The data related to this research question are presented in Tables 2, 3, and 4. Table 3 displays the descriptive statistics for areas/topics having the largest impact on instructional practices sorted by rank. These ratings were based on an 11-point scale: 1 = *Highest impact* to 11 = *Lowest impact*. Of highest impact were technology integration ($M = 3.37$) and student learning styles ($M = 4.30$). Lowest levels of impact were given for other areas/topics ($M = 9.93$) and licensure ($M = 7.67$) (see Table 3).

Table 3

*Descriptive Statistics for Areas/Topics Having the Largest Impact on Instructional Practices
Sorted by Rank (n = 30)*

Rating	<i>M</i>	<i>S</i>
8g. Technology Integration	3.37	2.72
8a. Student Learning Styles	4.30	2.15
8h. Content Specific	5.03	3.43
8b. School Improvement	5.13	2.34
8j. Pedagogy (Instructional Strategies)	5.33	3.51
8d. knowledge	6.07	2.43
8f. Diverse Learners	6.10	2.68
8c. Personalized Learning Plan	6.13	2.29
8i. Data	6.93	3.02
8e. Licensure	7.67	2.71
8k. Other	9.93	2.29

Note. Ratings based on an 11-point scale: 1 = *Highest impact* to 11 = *Lowest impact*.

Note. This table supports Research Question 1.

As additional findings, Spearman rank ordered correlations compared these responses based on the number of years they had been teaching, their highest level of education, and their gender. Cohen (1988) provided some protocol for interpreting the strength of linear correlations. Cohen (1988) advised a weak correlation typically had an absolute value of $r = .10$ ($r^2 =$ one percent of the variance explained), a moderate correlation typically had an absolute value of $r = .30$ ($r^2 = 9\%$ of the variance explained) and a strong correlation typically had an absolute value of $r = .50$ ($r^2 = 25\%$ percent of the variance explained). Therefore, for the sake of excessiveness, this chapter mainly focuses on those correlations that were of at least moderate strength to minimize the potential of numerous Type I errors stemming from interpreting and drawing conclusions based on potentially spurious correlations.

Spearman correlations were used to compare the 11 rankings for the areas/topics having largest impact on instructional practices (survey item 8) with the teacher's years of experience, level of education and gender. For the resulting 33 correlations, four were of moderate strength using the Cohen (1988) criteria. Those teachers with higher levels of education found less impact from personalized learning plans ($r_s = .45, p = .01$) (see Figure 3) and agement ($r_s = .36, p = .05$) (see Figure 4) but higher impact from data areas/topics ($r_s = -.34, p = .07$) (see Figure 5) and pedagogy/instructional strategies ($r_s = -.41, p = .03$) (see Figure 6).

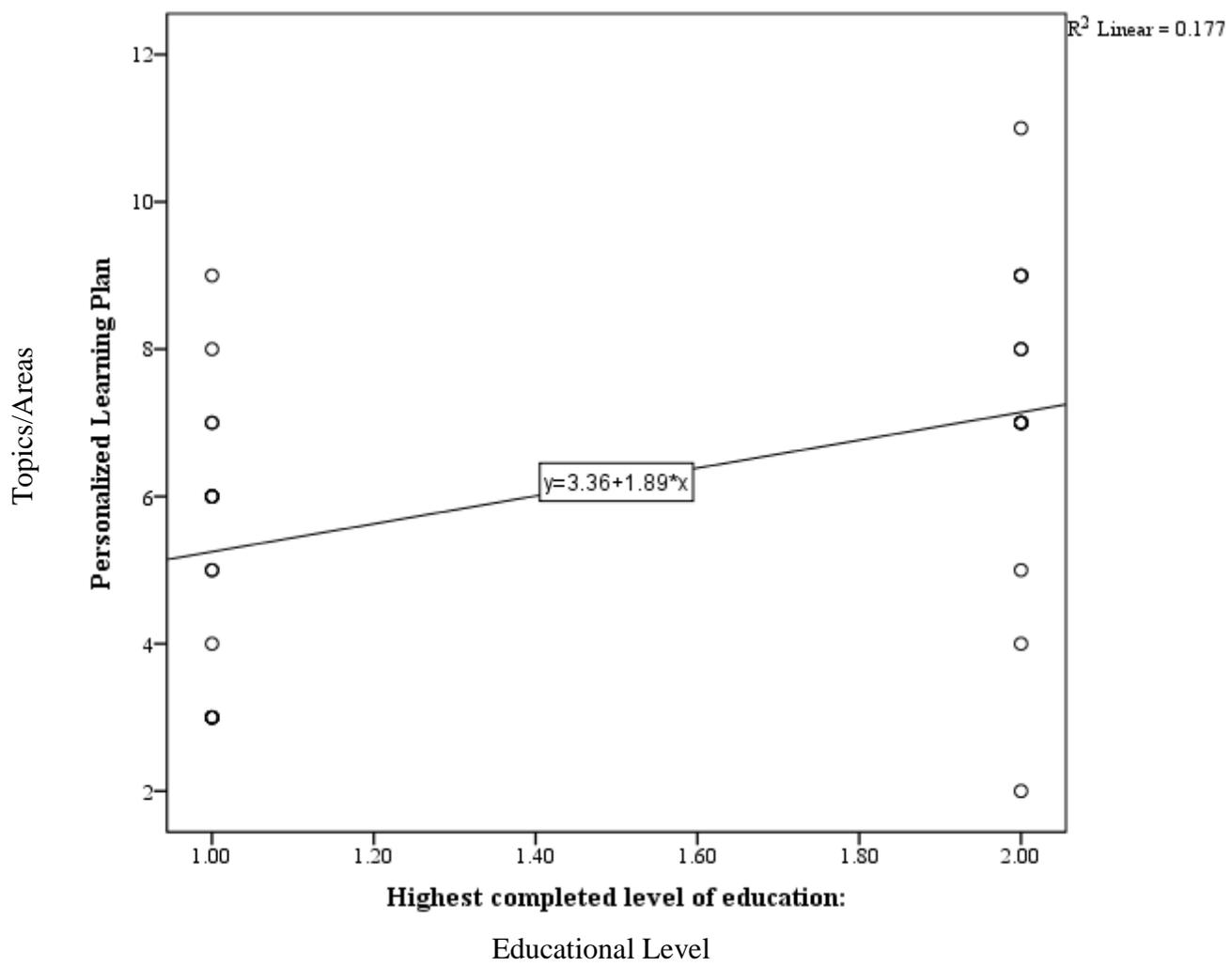


Figure 3. Personalized learning, instructional practices, and educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

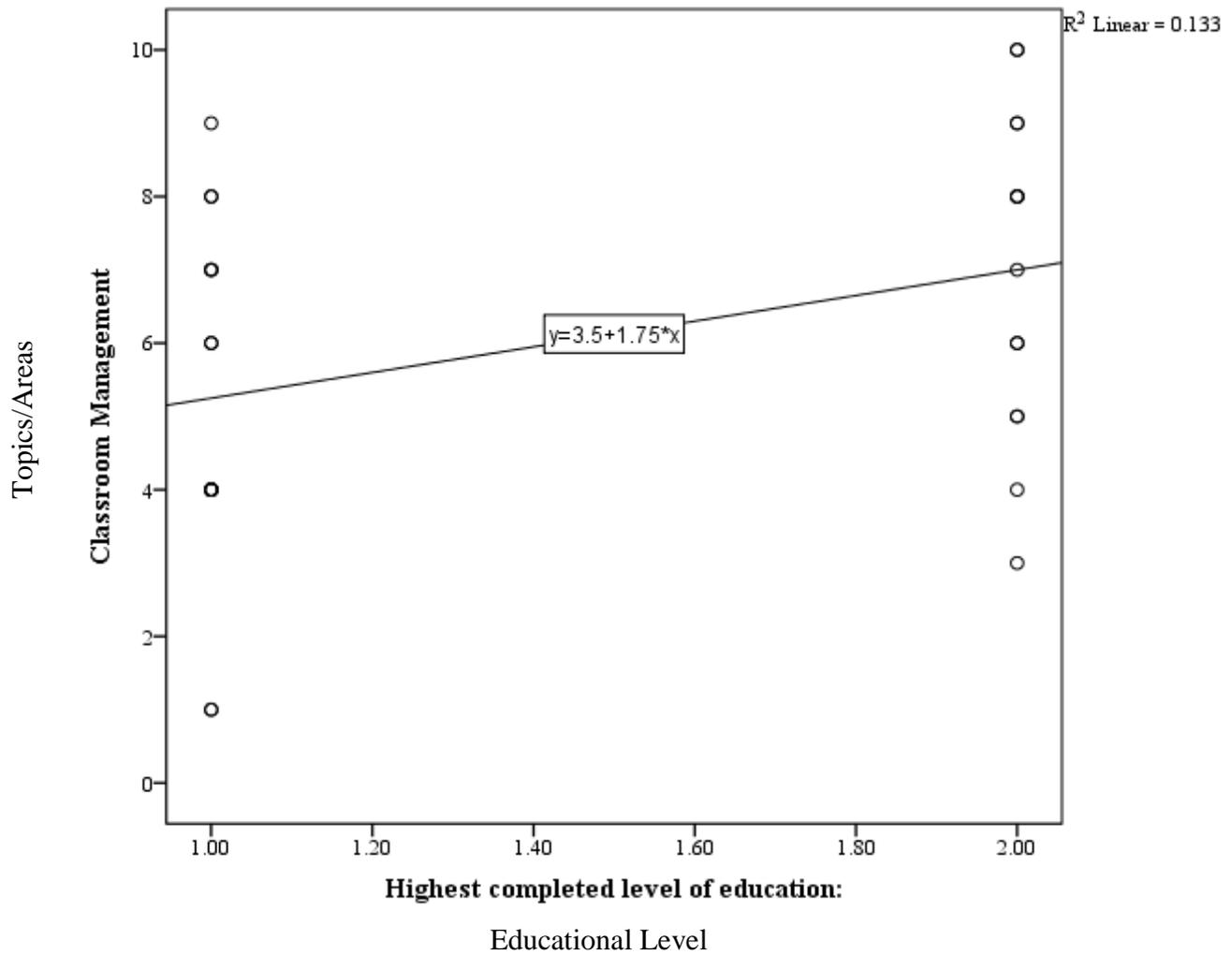


Figure 4. Classroom management, instructional practices, and educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

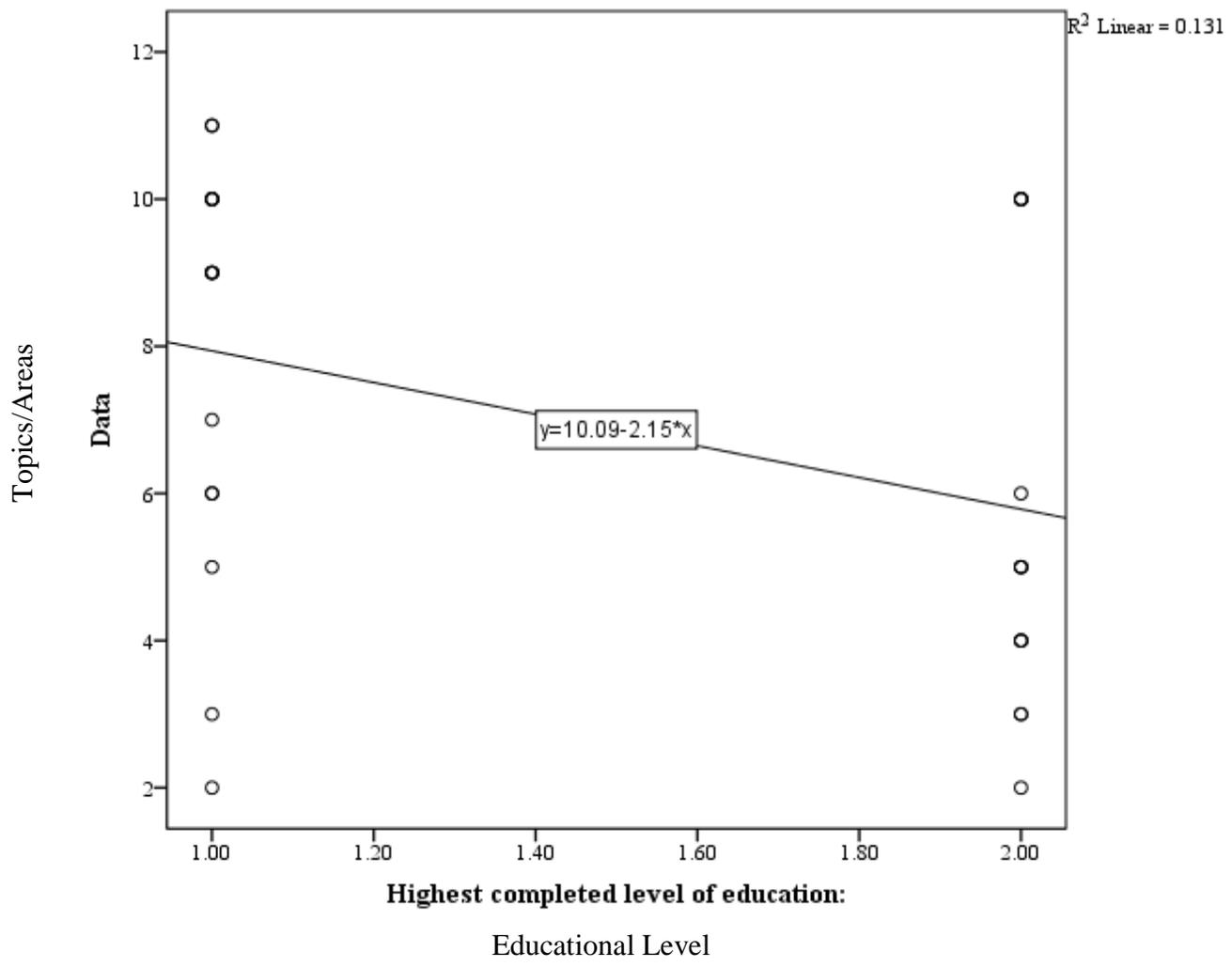


Figure 5. Data, instructional practices, and educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

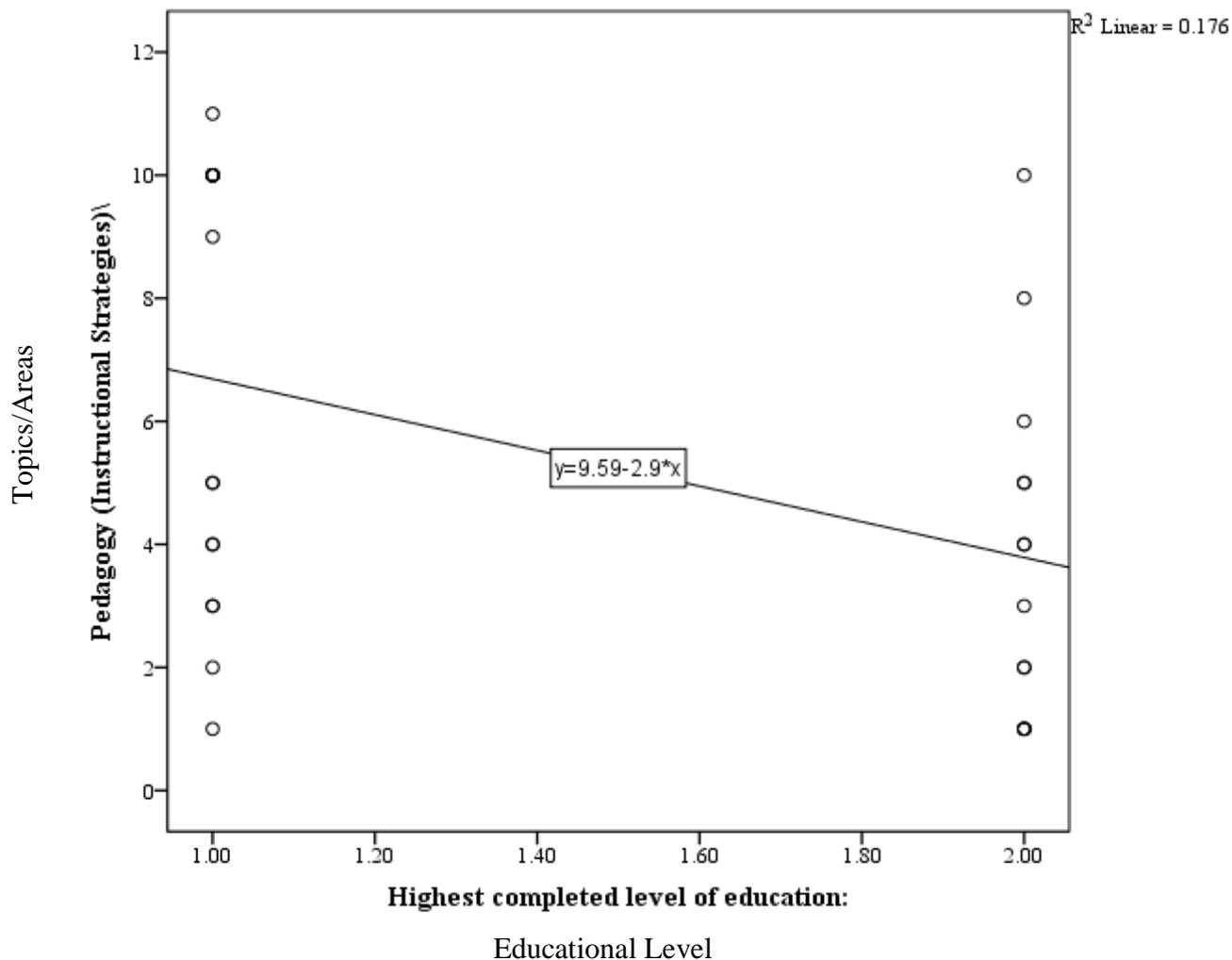


Figure 6. Pedagogy, instructional practices, and educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

Table 4 displays the descriptive statistics for delivery methods having the largest impact on instructional practices sorted by rank. These ratings were based on a 9-point scale: 1 = Highest impact to 9 = Lowest impact. Highest impact was for courses and workshops ($M = 2.90$) followed by peer coaching/mentoring ($M = 3.76$) and online learning ($M = 3.79$). Lowest levels of impact were given for other activities ($M = 8.62$) and self-study ($M = 6.55$) (see Table 4).

Table 4

Descriptive Statistics for Delivery Methods/Activities Having the Largest Impact on Instructional Practices Sorted by Rank (n = 29)

Rating	<i>M</i>	<i>SD</i>
9e. Courses and Workshops	2.90	1.70
9a. Peer Coaching/Mentoring	3.76	2.31
9b. Online Learning	3.79	2.16
9f. Conferences and Seminars	4.17	2.02
9c. Individual/Collaborative Research	4.31	2.11
9g. Professional Learning Networks	5.34	2.14
9d. Lecture	5.55	2.29
9h. Self-Study	6.55	2.03
9i. Other	8.62	1.18

Note. Ratings based on a 9-point scale: 1 = *Highest impact* to 9=*Lowest impact*.

Note. This table supports Research Question 1.

Spearman correlations were used to compare the 9 rankings for delivery methods having the largest impact on instructional practices (survey item 9) with the teacher's years of experience, level of education and gender. For the resulting 27 correlations, four were of moderate strength using the Cohen (1988) criteria. Specifically, those with more years of teaching experience found self-study to be less impactful ($r_s = .41, p = .03$) (see Figure 7). Those with higher levels of education found lecture to be less impactful ($r_s = .34, p = .07$) (see Figure 8) but found conferences/seminars ($r_s = -.37, p = .05$) (see Figure 9) and other activities ($r_s = -.47, p = .01$) (see Figure 10) to be of greater impact.

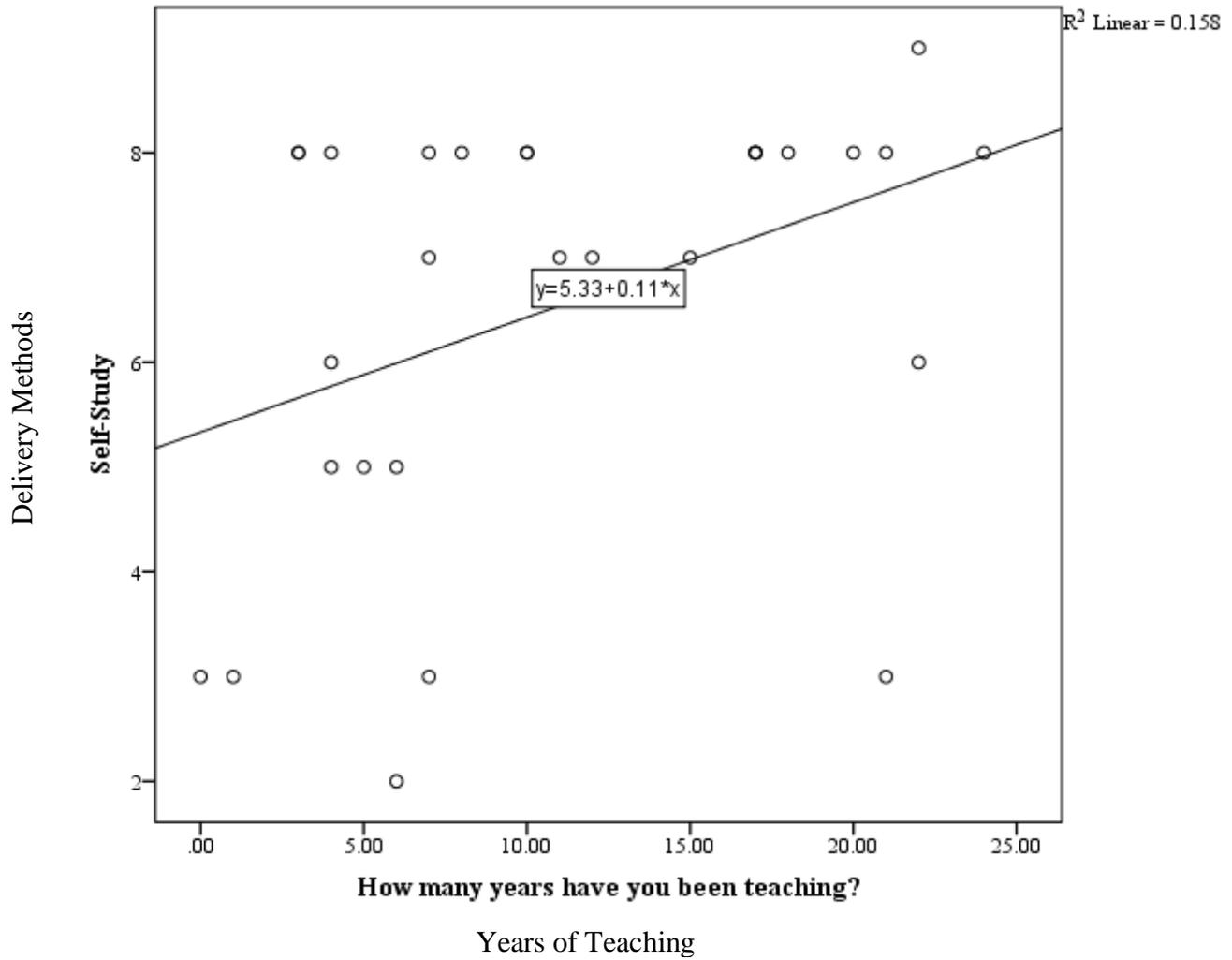


Figure 7. Self-study impact with years of teaching.

Note. Impact scale: 1 = Highest impact to 9 = Lowest impact.

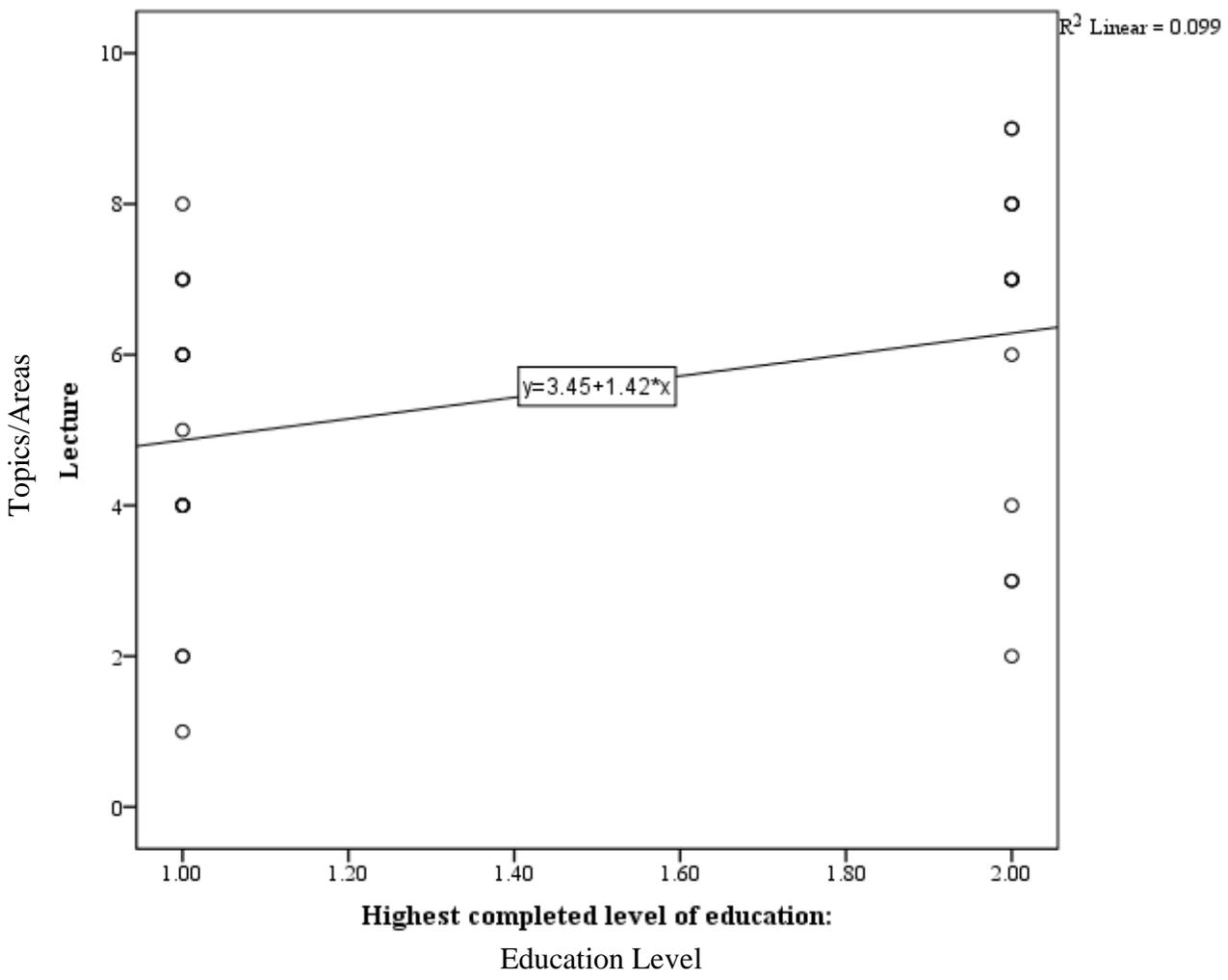


Figure 8. Lecture impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 9 = Lowest impact.

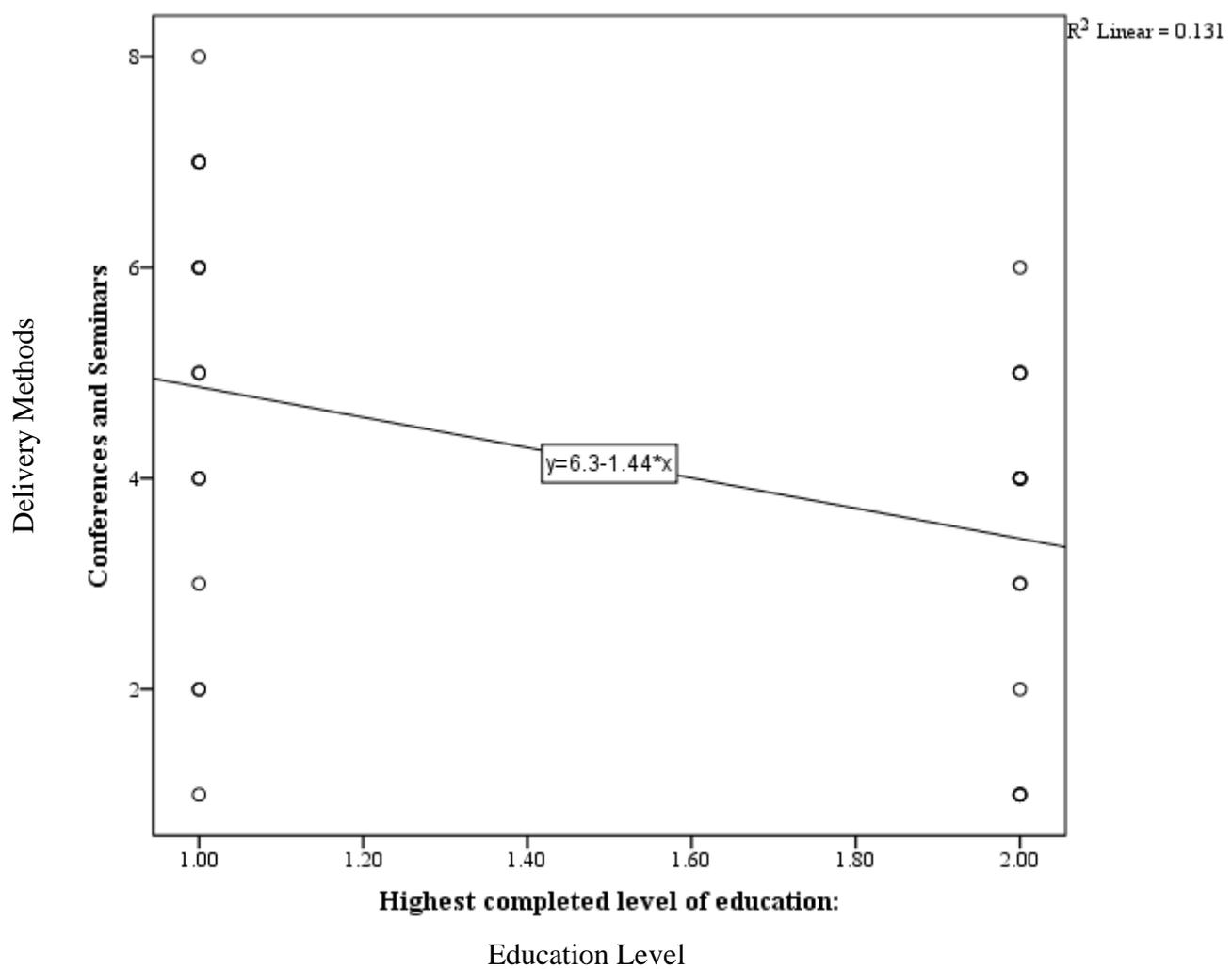


Figure 9. Conferences and seminars impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 9 = Lowest impact.

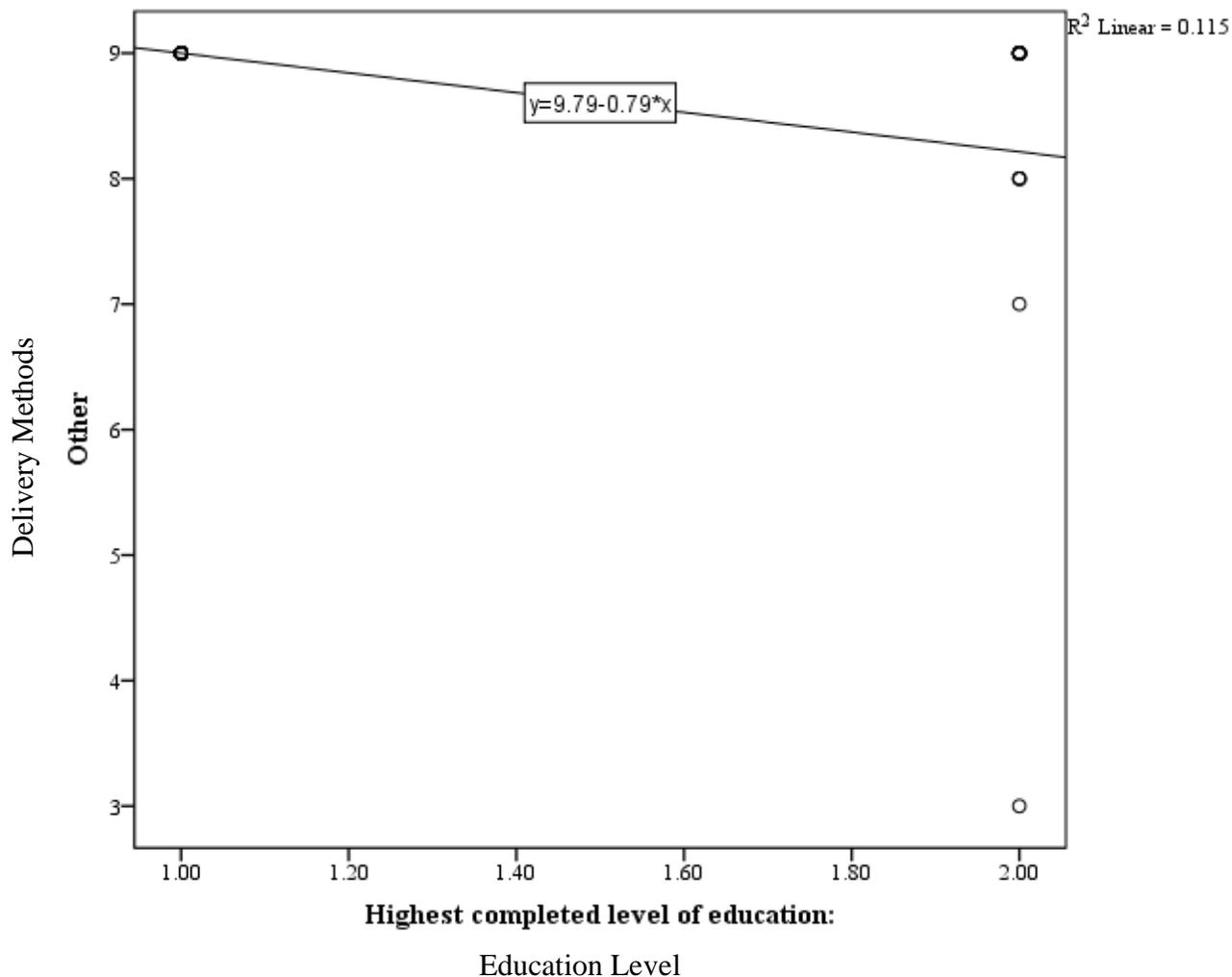


Figure 10. Other professional development impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 9 = Lowest impact.

Table 5 displays the frequency counts for an agreement that PD enhanced classroom instructional practices. These ratings were based on a five-point Likert scale: 1 = *Strongly Disagree* to 5 = *Strongly Agree*. Inspection of the table found 62.5% either somewhat agreed or strongly agreed that the PD they received enhanced classroom instructional practices (see Table 5).

Table 5

Frequency Counts for Agreement that Professional Development Enhanced Classroom

Instructional Practices (n = 32)

Statement	Rating	n	%
12. In general, I believe that the professional development I have received in the past 12 months has enhanced my classroom instructional practices:	Strongly Disagree	2	6.3
	Somewhat Disagree	4	12.5
	Neither agree nor disagree	6	18.8
	Somewhat Agree	15	46.9
	Strongly Agree	5	15.6

Note. This table supports Research Question 1.

Also, Spearman correlations compared the level of agreement that PD they had received enhanced the classroom instructional practices of the teacher (survey item 12) with their years of experience, level of education, and gender. It was found that male teachers had more agreement that their instructional practices were enhanced ($r_s = -.45, p = .01$) (see Figure 11).

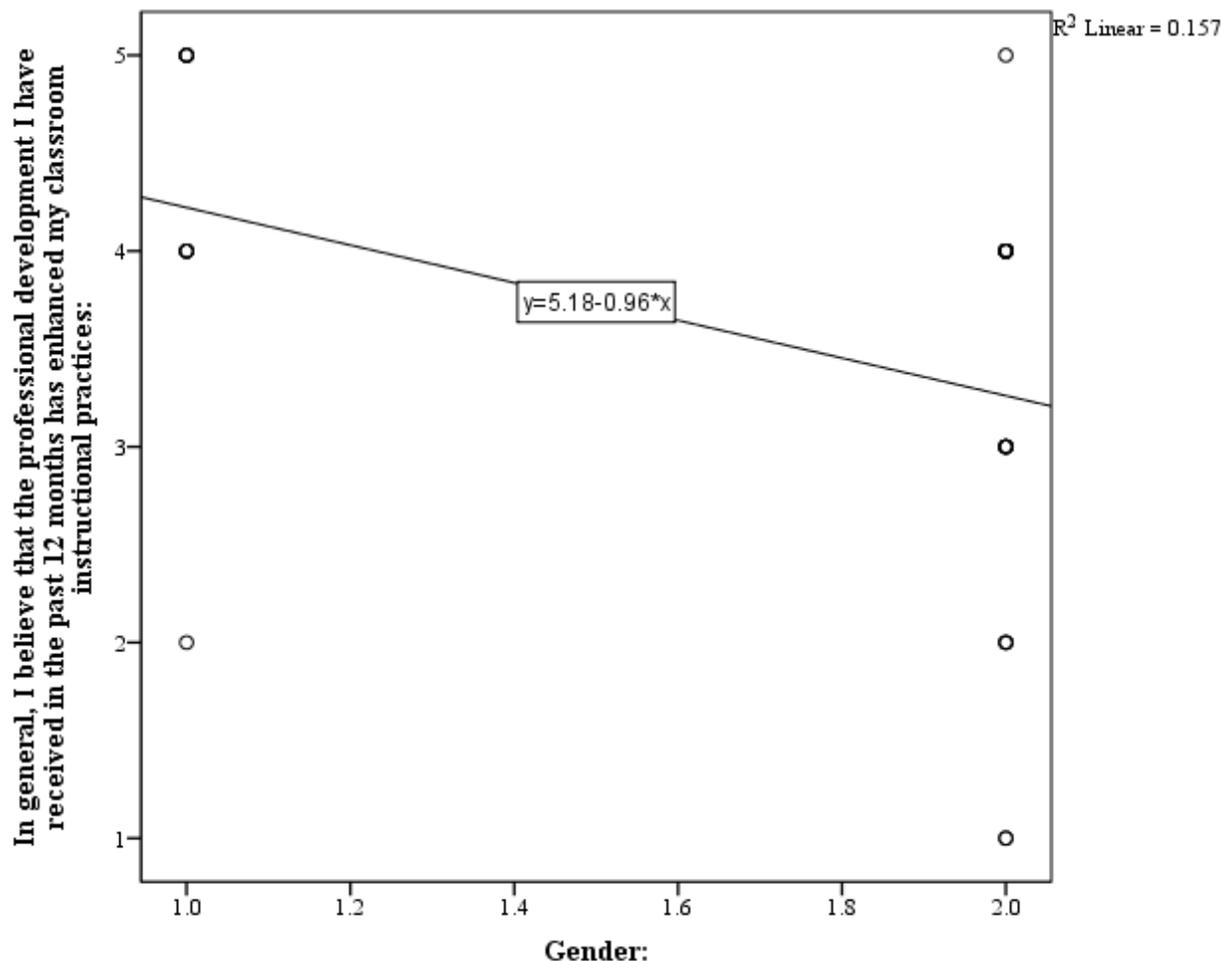


Figure 11. Agreement level that instructional practices were enhanced with gender.

Note. Gender: 1 = Male 2 = Female.

Note. Belief Scale: 1 = Strongly Disagree to 5 = Strongly Agree.

Research question 2. In which professional development areas/topics and delivery methods did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?

Professional development's largest effect on student learning. The answers to this research question are presented in Tables 6 - 8. Table 6 displays the descriptive statistics for areas/topics having the largest impact on students learning sorted by rank. These ratings were based on an 11-point scale: 1 = *Highest impact* to 11 = *Lowest impact*. Of highest impact were technology integration ($M = 3.08$) and student learning styles ($M = 3.52$). Lowest impact were other areas/topics ($M = 10.76$) and licensure ($M = 8.40$) (see Table 6).

Table 6

Descriptive Statistics for Areas/Topics Having the Largest Impact on Students' Learning Sorted by Rank (n = 25)

Rating	<i>M</i>	<i>SD</i>
10g. Technology Integration	3.08	2.27
10a. Student Learning Styles	3.52	1.71
10j. Pedagogy (Instructional Strategies)	4.68	3.44
10h. Content Specific	4.84	2.97
10d. Classroom Management	5.20	2.66
10b. School Improvement	5.88	2.22
10c. Personalized Learning Plan	6.08	2.14
10f. Diverse Learners	6.24	2.28
10i. Data	7.32	2.79
10e. Licensure	8.40	2.20
10k. Other	10.76	0.88

Note. Ratings based on an 11-point scale: 1 = *Highest impact* to 11 = *Lowest impact*.

Note. This table supports Research Question 2.

As additional findings, Spearman rank ordered correlations compared these responses based on the number of years teachers had been teaching, their highest level of education, and their gender. In survey item 10, 11 ratings were given on which areas/topics had the largest impact on student learning. For the resulting 33 correlations, four were of moderate strength using the Cohen (1988) criteria. Specifically, those with more years of experience found the data topic to be less impactful on student learning ($r_s = .37, p = .08$) (see Figure 12). Those with higher levels of education found less impact for school improvement topics ($r_s = .46, p = .02$) (see Figure 13), personalized learning plan ($r_s = .63, p = .001$) (see Figure 14), and licensure ($r_s = .55, p = .005$) (see Figure 15).

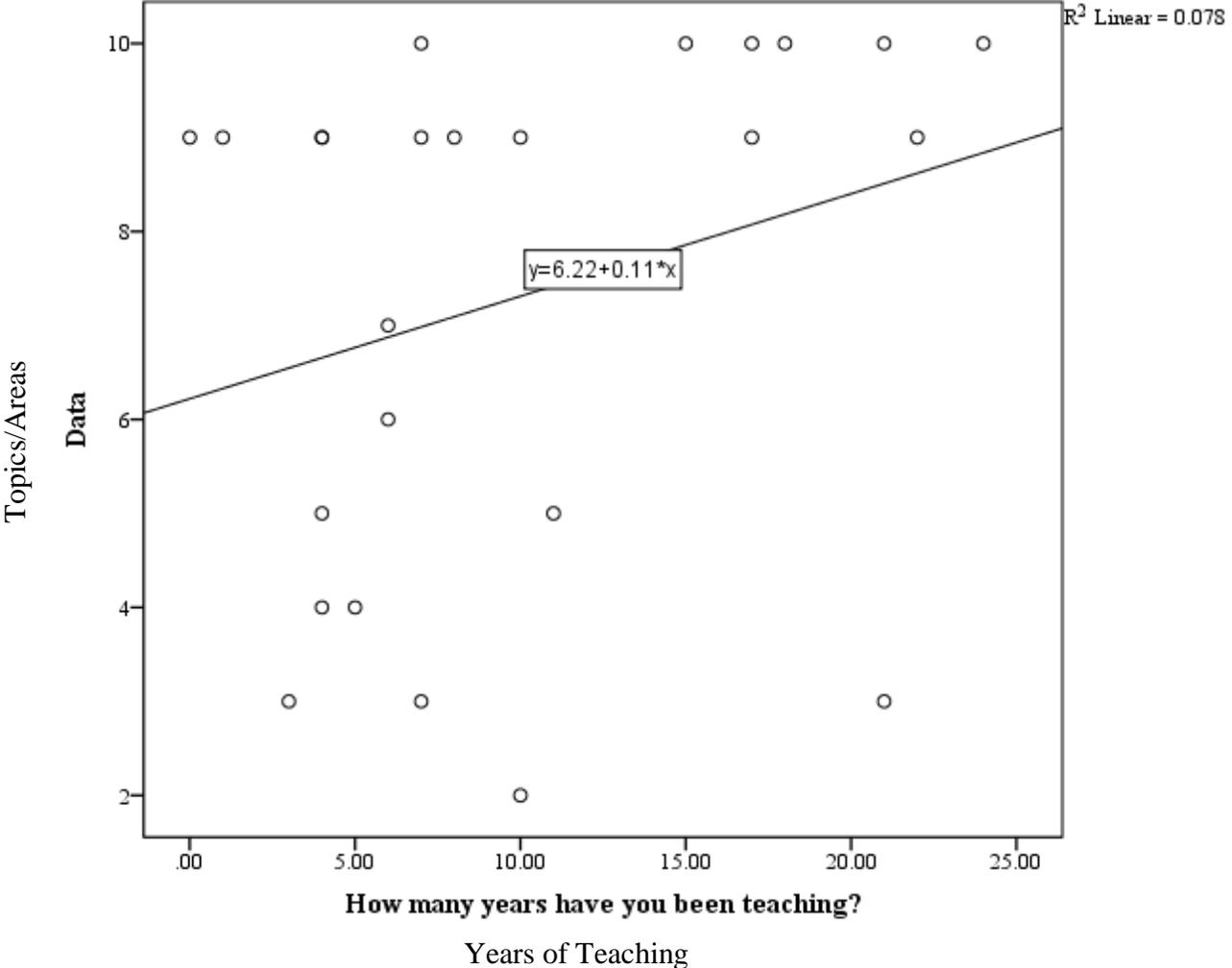


Figure 12. Data impact with years of teaching.
Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

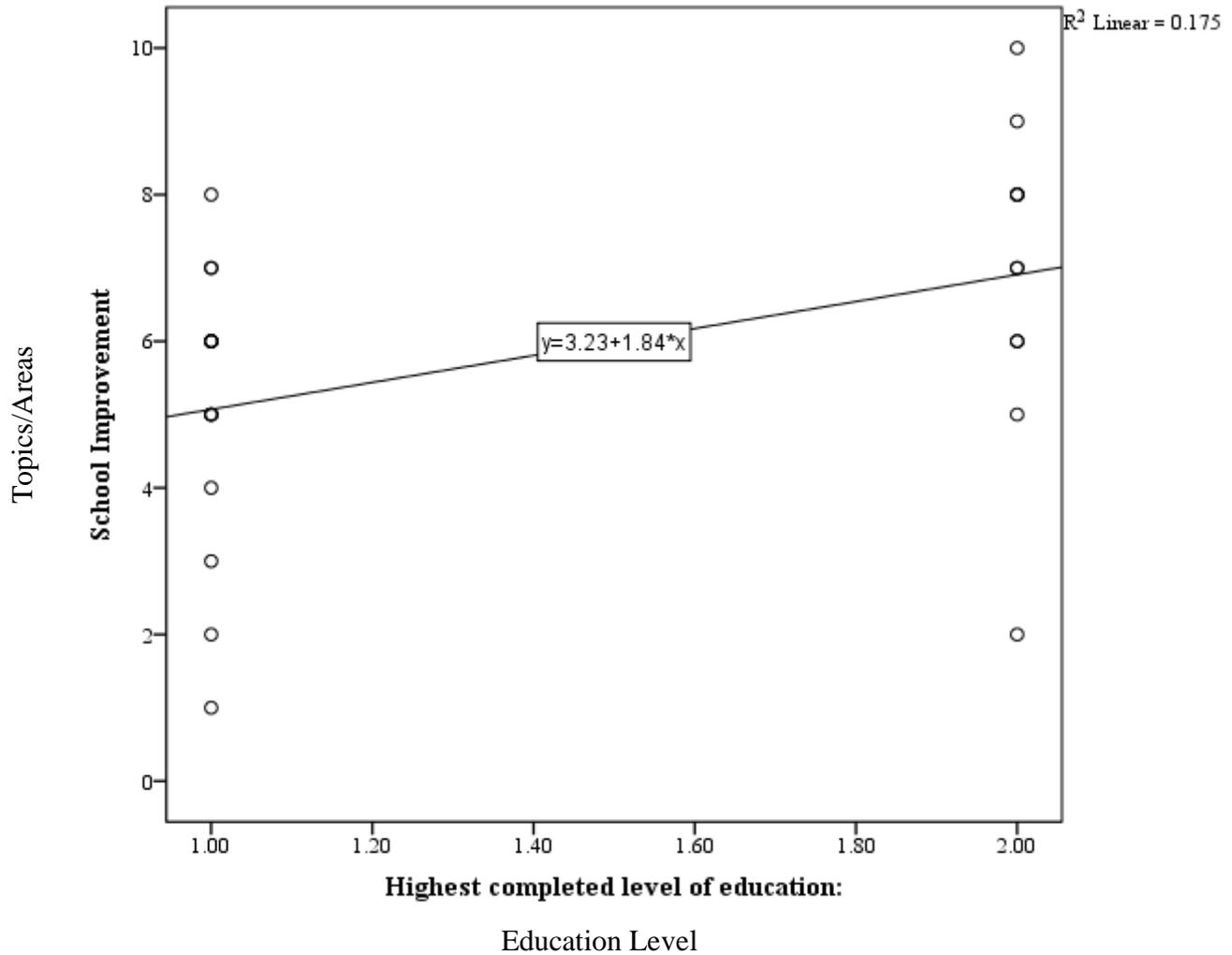


Figure 13. School improvement impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

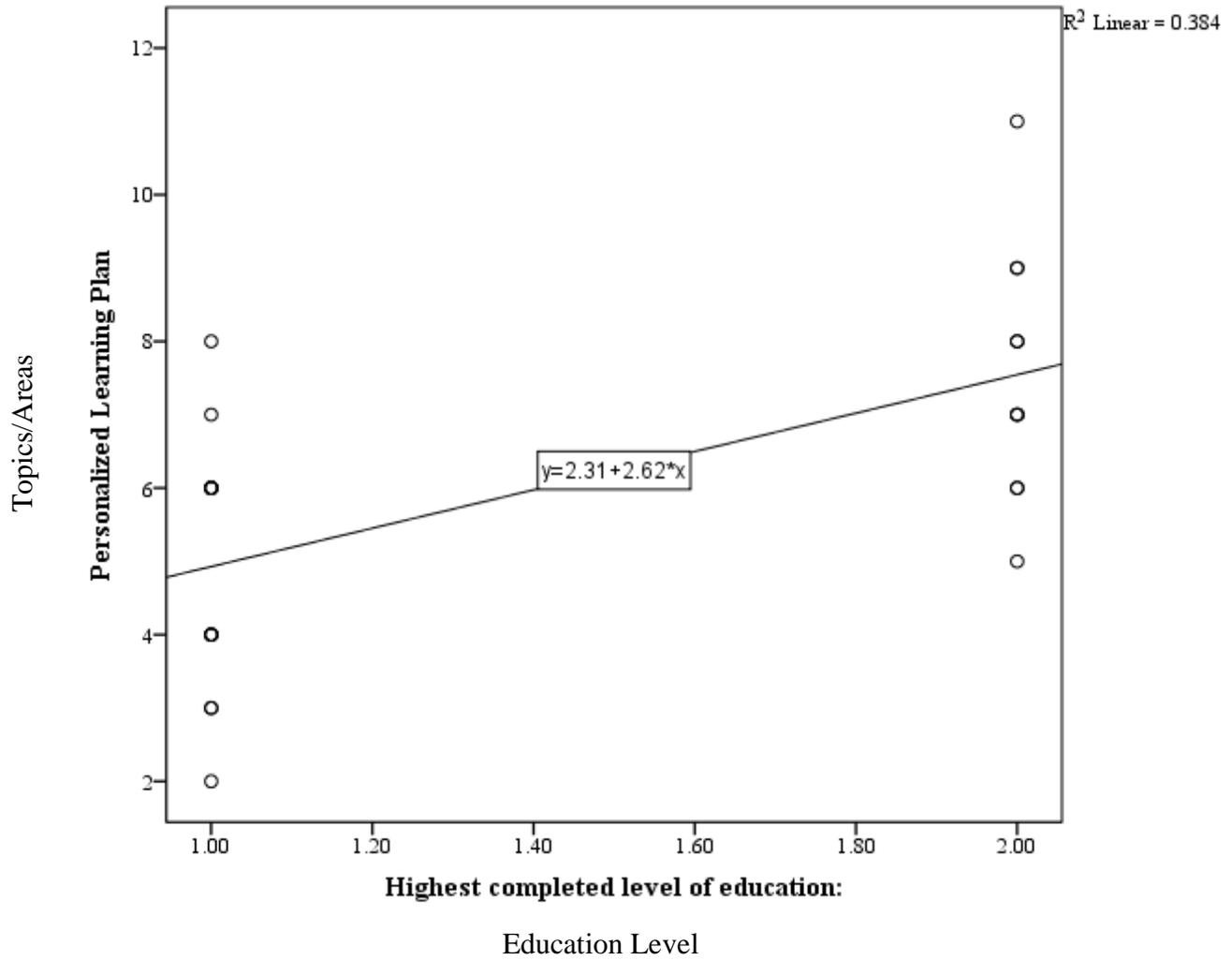


Figure 14. Personalized learning plan impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

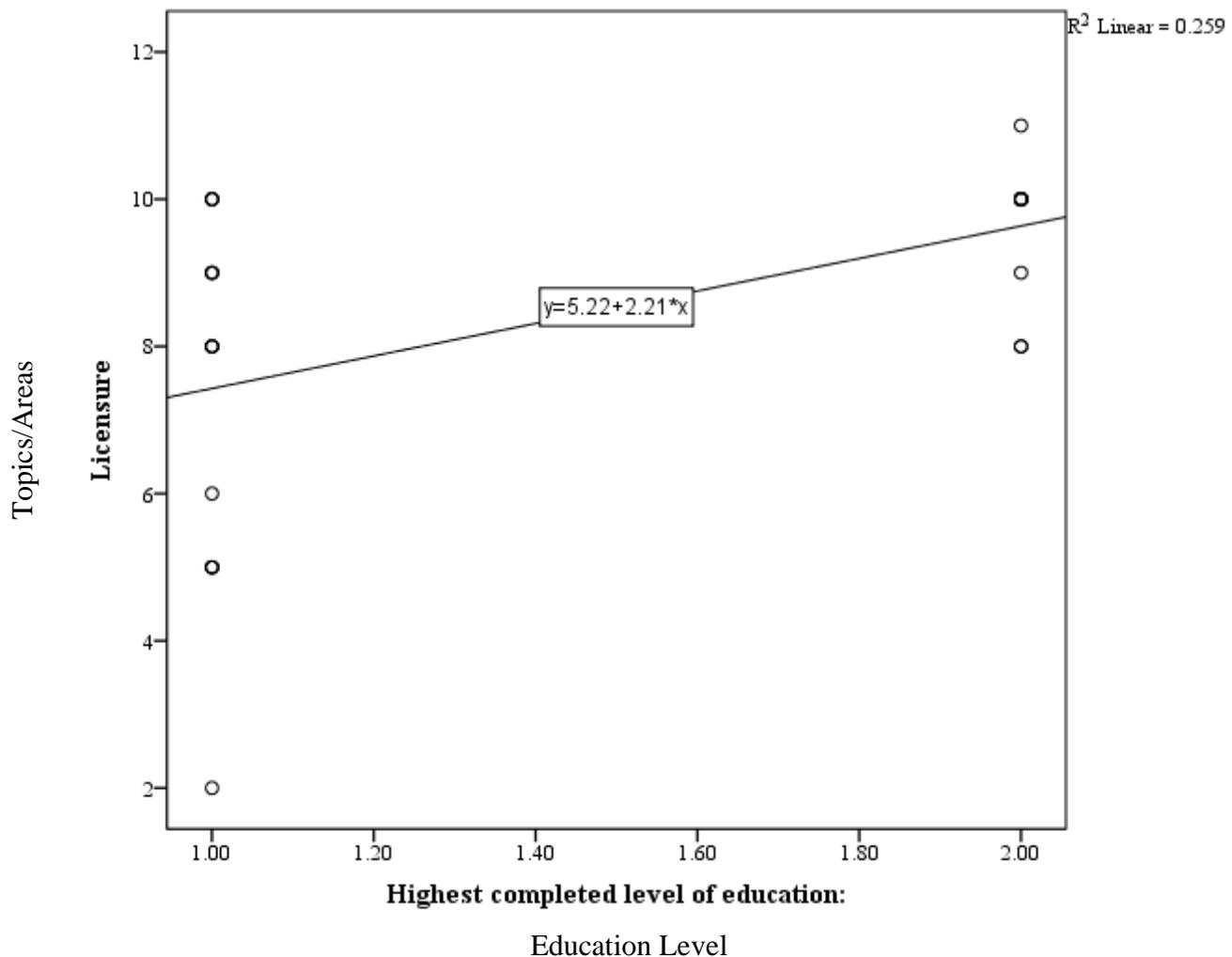


Figure 15. Licensure impact with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Impact scale: 1 = Highest impact to 11 = Lowest impact.

Table 7 displays the descriptive statistics for delivery methods having the largest impact on students learning sorted by rank. These ratings were based on a 9-point scale: 1 = Highest impact to 9 = Lowest impact. Of highest impact were online learning ($M = 3.33$) and peer coaching/mentoring ($M = 3.42$). Least impactful were other delivery methods ($M = 8.96$) and self-study ($M = 6.46$) (see Table 7).

Table 7

Descriptive Statistics for Delivery Methods/Activities Having the Largest Impact on Students' Learning Sorted by Rank (n = 24)

Rating	<i>M</i>	<i>SD</i>
11b. Online Learning	3.33	1.58
11a. Peer Coaching/Mentoring	3.42	2.24
11e. Courses and Workshops	3.50	2.38
11c. Individual/Collaborative Research	4.00	1.74
11f. Conferences and Seminars	4.08	2.04
11g. Professional Learning Networks	5.63	1.88
11d. Lecture	5.63	1.95
11h. Self-Study	6.46	2.38
11i. Other	8.96	0.20

Note. Ratings based on a 9-point scale: 1 = *Highest impact* to 9=*Lowest impact*.

Note. This table supports Research Question 2.

The ratings for the nine delivery methods having the most impact on student learning (survey item 11) were correlated with the three demographic variables. For the resulting 27 correlations, one was of moderate strength using the Cohen (1988) criteria. Specifically, men were less likely to find professional learning networks to be impactful ($r_s = -.39, p = .06$) (see Figure 16).

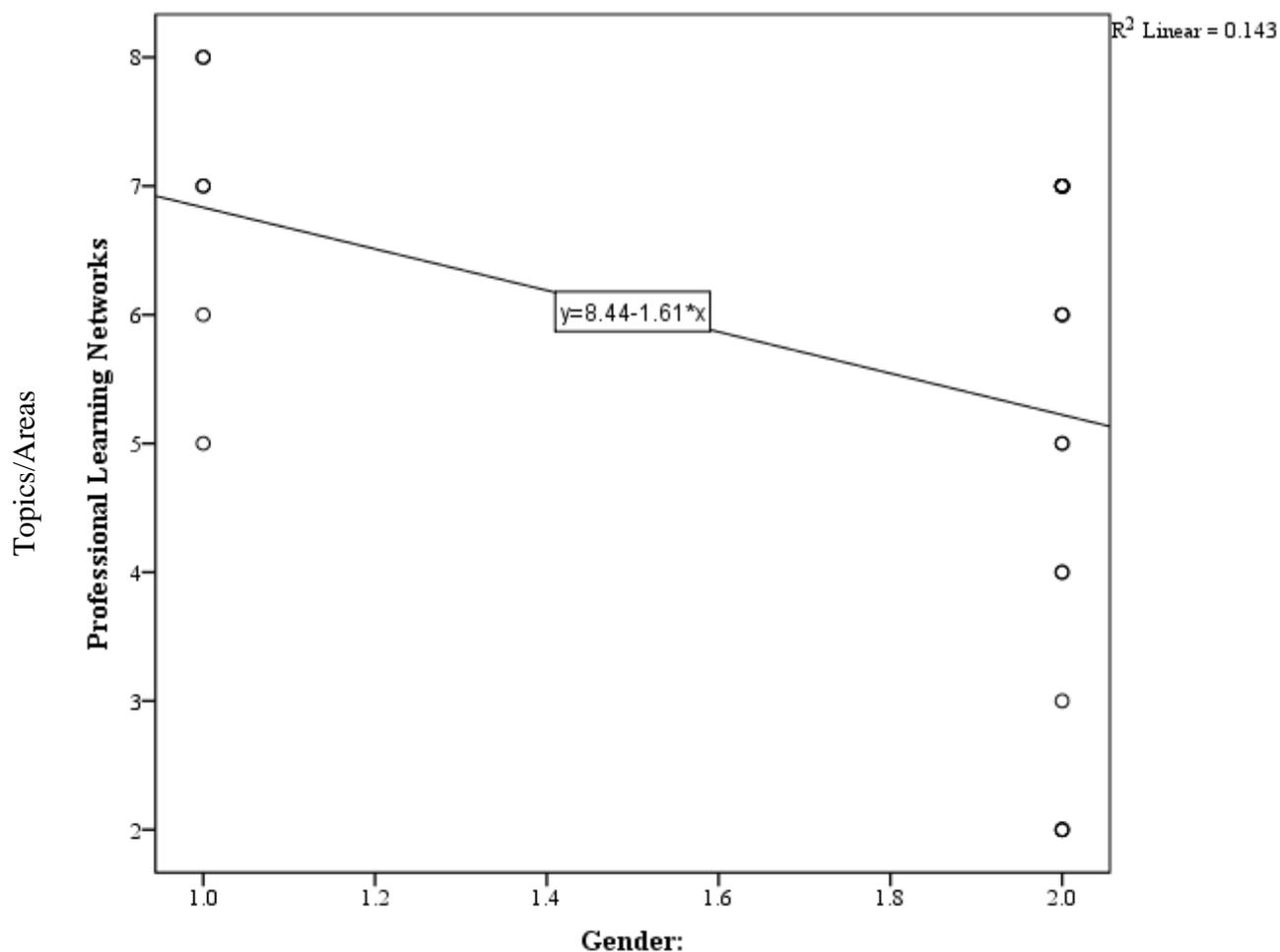


Figure 16. Professional learning network impact with gender.

Note. Gender: 1 = Male 2 = Female.

Note. Impact scale: 1 = Highest impact to 9 = Lowest impact.

Table 8 displays the frequency counts for an agreement that PD impacted professional practices and positively affected student learning. These ratings were based on a five-point Likert scale: 1 = *Strongly Disagree* to 5 = *Strongly Agree*. Inspection of the table found 68.8% either somewhat agreed or strongly agreed that the PD impacted professional practices and positively affected student learning (see Table 8).

Table 8

Frequency Counts for Agreement that Professional Development Impacted Professional Practices and Positively Affected Student Learning (n = 32)

Statement	Rating	n	%
13. In general, I believe that the professional development I have received in the past 12 months have impacted my instructional practices and positively affected my students' learning:	Strongly Disagree	3	9.4
	Somewhat Disagree	3	9.4
	Neither agree nor disagree	4	12.5
	Somewhat Agree	15	46.9
	Strongly Agree	7	21.9

Note. This table supports Research Question 2.

Also, Spearman correlations compared the level of agreement that PD they had received impacted instructional practices and positively affected student learning (survey item 13) with their years of experience, level of education, and gender. It was found that male teachers had more agreement that their instructional practices were enhanced ($r_s = -.33, p = .06$) (see Figure 17).

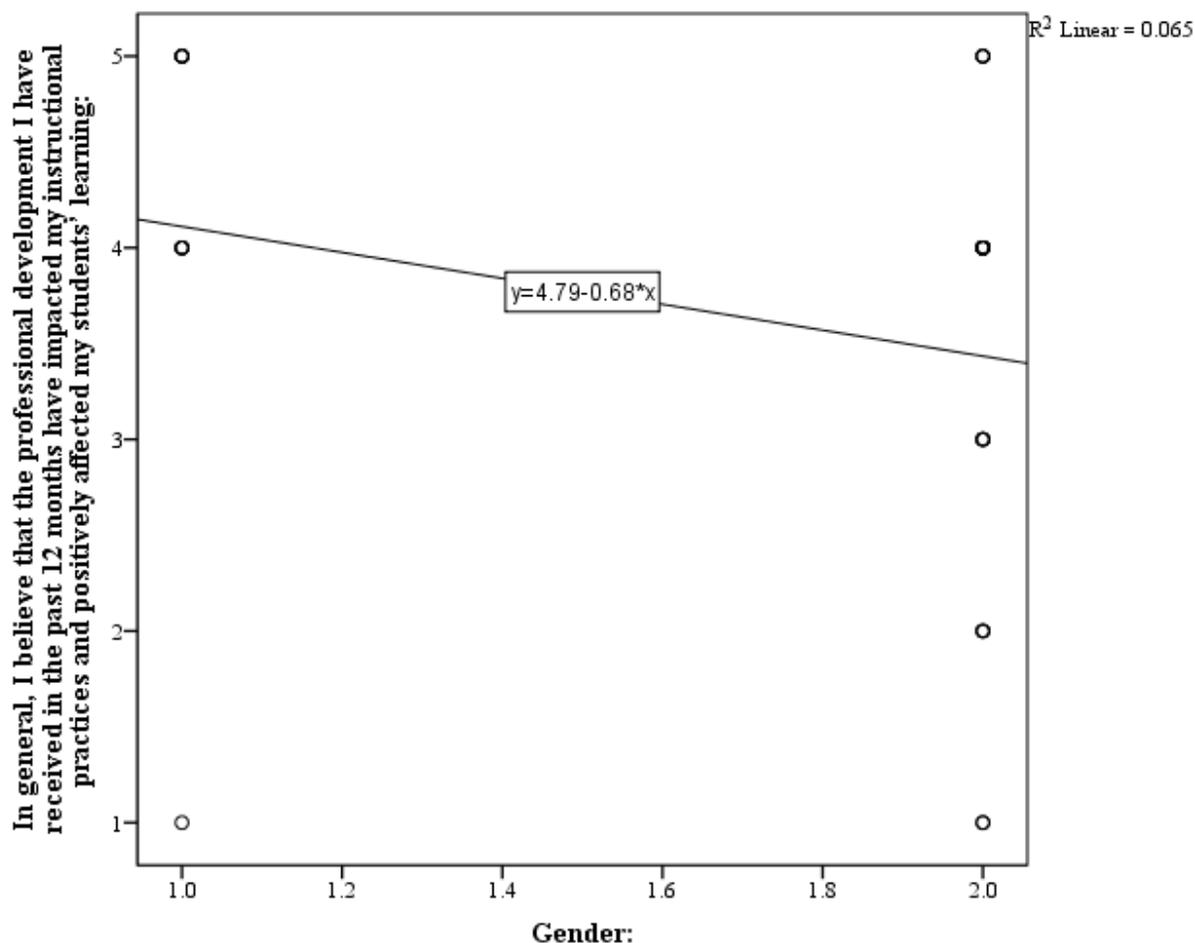


Figure 17. Agreement level that instructional practices were enhanced with gender.

Note. Gender: 1 = Male 2 = Female.

Note. Belief Scale: 1 = Strongly Disagree to 5 = Strongly Agree.

Research question 3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?

Areas/topics of professional development. This question was answered in Table 9. Table 9 displays the descriptive statistics for the number of PD hours sorted by the highest number of hours. The average number of PD hours reported was 10.63 hours. The highest reported hours were for technology integration ($M = 3.29$) and content specific ($M = 3.06$). None reported hours for personalized learning plan ($M = 0.00$) and other topics ($M = 0.00$) (see Table 9).

Table 9

Descriptive Statistics for Number of Professional Development Hours Sorted by the Highest Number of Hours (n = 37)

Rating	<i>M</i>	<i>SD</i>
Technology Integration	3.29	3.04
Content Specific	3.06	4.58
Pedagogy (Instructional Strategies)\	1.63	2.69
Diverse Learners	0.76	1.06
Data	0.54	1.07
School Improvement	0.51	0.85
Classroom Management	0.45	0.87
Student Learning Styles	0.24	0.56
Licensure	0.14	0.35
Other	0.00	0.00
Personalized Learning Plan	0.00	0.00

Note. This table supports Research Question 3.

Aguinis, Gottfredson, and Joo (2013) conducted a meta-analysis to create a framework for analyzing addressing outliers. Outliers for survey item 7 were identified as interesting outliers. Interesting outliers are outliers that are accurately represented, however, may be potential error outliers that cannot be confirmed (Aguinis et al., 2013). Box-and-whisker plots were used to identify outliers of the distribution — response variables were represented along the y-axis. Areas/topics were represented along the x-axis. The boxplot represented outliers at least 1.5 box lengths from the median. The points that fell outside of the whiskers, spread of data, were identified as outliers and treated as missing for that specific variable. As an example, if a teacher had an unusually high number of hours compared to his/her peers, their score was considered non-representative of the sample, and that single score was eliminated from the analysis. However, it should be noted that their other scores (if they were within the upper or lower whisker) were retained. The descriptive data, including outliers, were represented in Appendix G.

As additional findings, Spearman rank ordered correlations compared these responses based on the number of years they had been teaching, their highest level of education, and their gender. In survey item 7, 11 topics were queried as to the number of PD hours the teacher had in the past 12 months. For the resulting 33 correlations, two were of moderate strength using the

Cohen (1988) criteria. Those with higher levels of education had more training hours for technology integration ($r_s = .39, p = .02$) (see Figure 18), and content specific training ($r_s = .31, p = .09$) (see Figure 19).

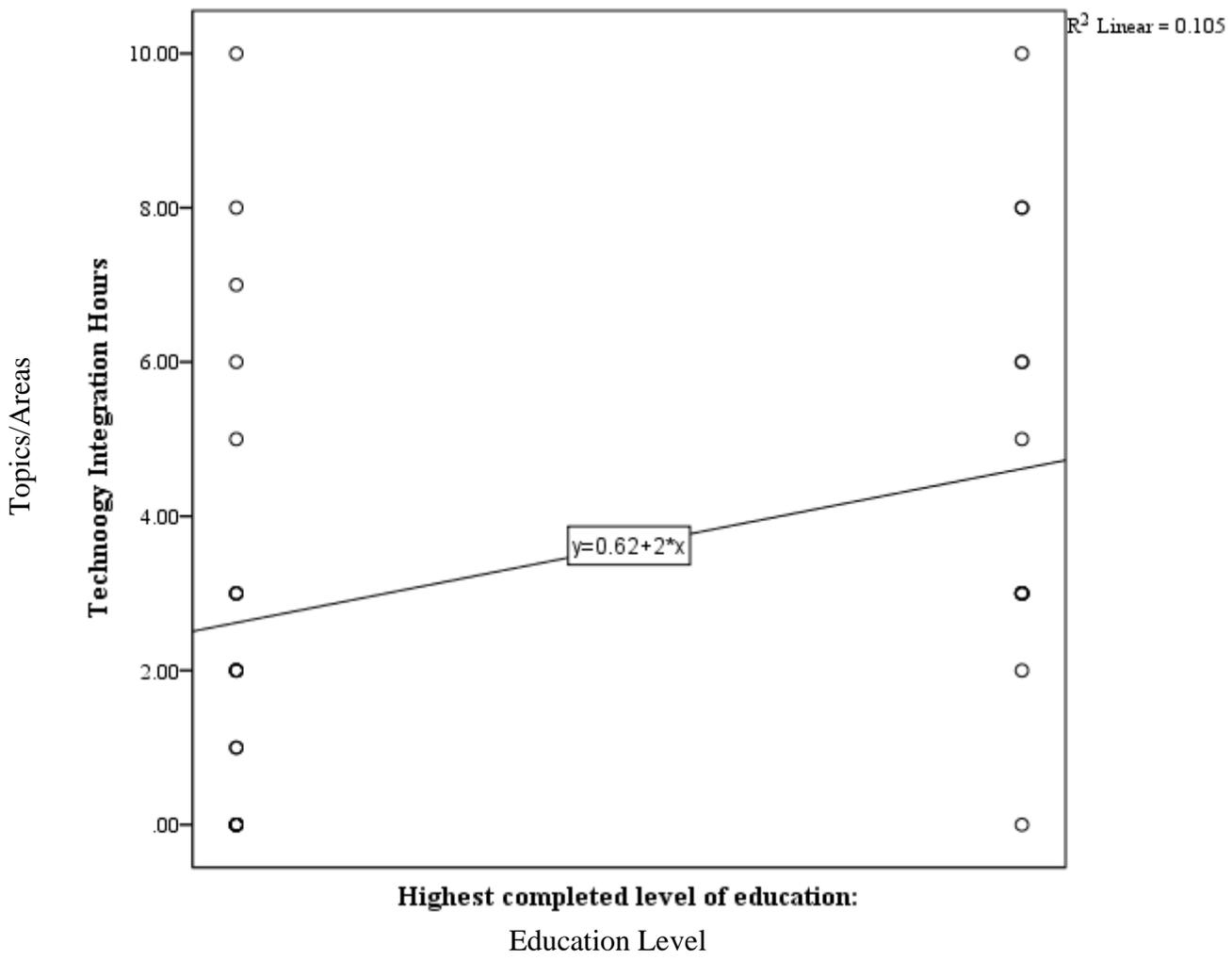


Figure 18. Technology integration hours with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Technology integration expressed in the number of hours of professional development.

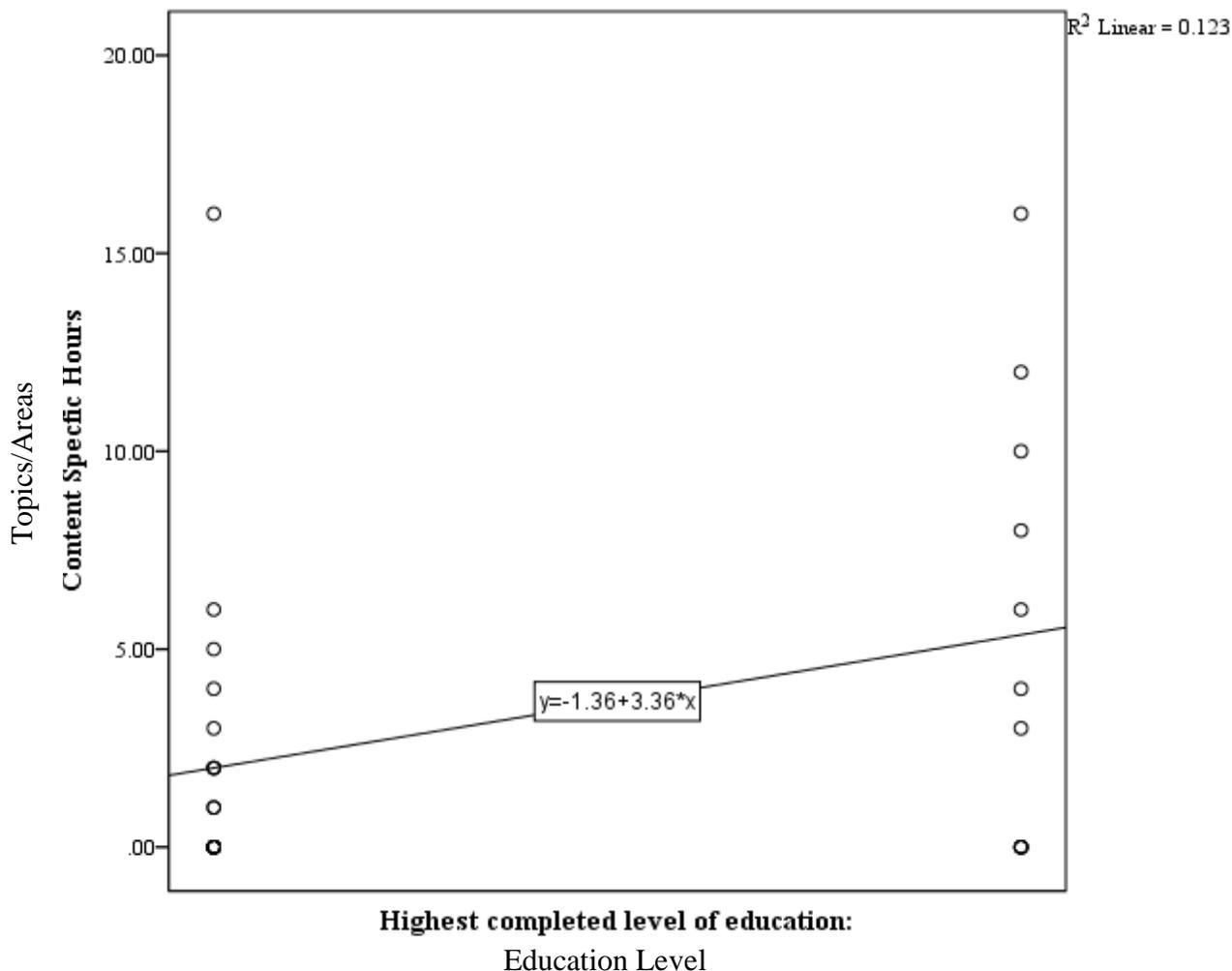


Figure 19. Content specific hours with educational level.

Note. Educational level: 1 = Bachelor's degree 2 = Master's degree.

Note. Content specific expressed in number of hours of professional development.

Research question 4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?

Participating in professional development experiences. This question was answered in Table 10. Fifty-six percent of the teachers reported their PD experience was sustained, intensive, collaborative, job-embedded, data-driven, and classroom-focused (see Table 10).

As additional findings, Spearman rank ordered correlations compared this response (survey item 14) with the number of years teachers had been teaching, their highest level of

education, and their gender. For the resulting three correlations, none were of moderate strength using the Cohen (1988) criteria.

Table 10

Frequency Counts for Sustained, Intensive, Collaborative, Job-Embedded, Data-Driven and Classroom Focused Professional Development (n = 32)

Statement	Answer	n	%
14. Has any of the professional development experience you have had in the past 12 months been “sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (The Elementary and Secondary Education Act of 1965, 2015 p. 401)?	Yes	18	56.2
	No	14	43.8

Note. This table supports Research Question 4.

Summary

This chapter detailed the results of the data analysis. The data analysis was in alignment with the research questions and methodology. School administrators sent the survey to 207 teachers. Forty teachers participated in this study using quantitative methods, yielding a modest response rate of 19.32%. Survey questions were created to understand teacher perceptions of PD topics, delivery methods, and their impact on instructional change along with student achievement. The average number of years teaching for participants was 9.90. These educators participated in an average of 10.63 of professional learning hours over the past 12 months. Below are the key findings of this study. The key findings for this study were, (1) majority of teachers perceived that professional learning enhances classroom instruction and student achievement. (2) Data also demonstrated that technology integrated PD yielded the highest impact on instructional practices and student achievement, followed by student learning styles. (3) Teachers indicated the areas/topics which they received the most PD hours were more likely to have the highest impact on instructional practices and student achievement. (4) Educators perceived traditional and reform professional learning environments and activities as impactful

on instructional practices and student achievement. (5) Teachers indicated they experienced PD as defined by The ESEA (2015 p. 401). In the final chapter, these findings were compared to the literature; conclusions and implications were drawn, and a series of recommendations were suggested.

Chapter 5

Findings, Implications, and Future Research

The purpose of this study using quantitative methods was to examine teacher perceptions of professional development (PD) topics, delivery methods, and their impact on instructional practices and student achievement. This chapter includes a summary of the study, discussion of significant findings, implications, study enhancements, recommendations for further research, and reflections on the study of PD and the impact on instructional practice and student achievement

Research Questions

This chapter includes discussion and future research opportunities to help answer the following research questions:

1. Which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report professional development had the largest impact on their instructional practices?
2. In which professional development areas/topics and delivery methods/activities did Virginia teachers in urban, rural, and suburban schools report they received had the largest effect on their students' learning?
3. In which areas/topics did Virginia teachers in urban, rural, and suburban schools report receiving professional development?
4. What percentage of Virginia teachers in urban, rural, and suburban schools report participating in professional development experiences as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401)?

Summary of the Study

In this study, the researcher sought to analyze teacher perceptions of PD, changes in instructional practices, and impact on student achievement. Chapter 1 identified the problem, explained the significance of the study, and presented a conceptual framework linking a potential impact of PD on instructional practices and student achievement. In Chapter 2, the literature review concentrated on literature relevant to the impact of PD and student achievement. The literature review supported that high-quality PD facilitates changes in instructional practices (Al-

Behaisi, 2011; Borko, 2004; Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Desmone et al., 2013; Feist, 2003; Foster et al., 2013; Garet et al., 2001; Guskey, 2002; Hourigan, 2011; Johnson, 2006; Shumack, 2007; Tienken & Achilles, 2003). Meissel et al. (2016) research state that changes in instructional practice can lead to substantial progress in student achievement. The research presented a gap in determining if Virginia teachers perceived that PD leads to changes in instructional practices and an impact on student achievement.

As outlined in Chapter 3, a detailed methodology, including sample population, survey instrument, data management, and treatment procedures were presented. Chapter 4 is a presentation of the collected data. To protect the identity of participants, electronic surveys were sent to 207 classroom teachers through their building administrator at one Virginia rural, urban, and suburban high school. Forty surveys were returned for a response rate of 19.32%. In the remainder of the study, the researcher shared findings through the literature and detailed the implications of those findings.

Findings

Educator perception about what is the most impactful for changes in instructional practice and improving student achievement are comprised in the following findings: (1) teachers perceive that professional learning enhances classroom instruction and student achievement. (2) Teachers indicated that technology integration yielded the highest impact on instructional practices and student achievement, followed by student learning styles. (3) Teachers indicated areas/topics for which they received the most PD hours were more likely to have the highest impact on instructional practices and student achievement. (4) Educators perceived traditional and reform professional learning activities as impactful on instructional practices and student achievement. (5) Teachers indicated they experienced PD as defined by The ESEA (2015, p. 401). Each of these findings was explored through the discussion of findings presented in the following sections. All of these findings help contribute to a climate where PD is used as a vessel to enhance teaching and learning.

Discussion of Findings

Finding 1: Teachers perceived that professional learning enhances classroom instruction and student achievement. When educators were asked if they believed the PD they

received in the past 12 months had improved their classroom instructional practices, the majority of them responded in the affirmative (62.5%) as reflected in table 5. Likewise, Table 8 displays that when classroom teachers were asked if they thought the professional learning activities they engaged in over the past 12 months had improved student achievement, 68.8% of them agreed. These findings align with Shumack's (2007) study, concluding that teachers implemented new practices and introduced new ideas and strategies to their students due to the PD experiences they had received. This finding answered research questions 1 and 2.

Finding 2: Teachers indicated that technology integration yielded the highest impact on instructional practices and student achievement, followed by student learning styles. The study data presented in Table 3 and Table 6 confirmed that educators perceived technology integrated professional learning experiences had the highest impact on instructional practices ($M = 3.37$, $SD = 2.72$) and student achievement ($M = 3.08$, $SD = 2.27$). The data could be a reflection of the school or district initiatives or, as Al-Bhaisi (2011) expressed in his study, PD directly related to teaching forces educators to expand their thinking and develop skills and knowledge that meet the needs of their students. Student learning styles ranked second for highest impact on instruction ($M = 4.3$) and student achievement ($M = 3.52$); however, it was one of the lowest PD contact hours ($M = 0.24$). The findings suggest that teachers with more years of experience perceived the topic of data to be less impactful on student achievement ($r_s = .37$, $p = .08$) as reflected in Figure 12. Additionally, Figure 13 displays those with higher levels of education found less impact for school improvement topics ($r_s = .46$, $p = .02$), personalized learning plan ($r_s = .63$, $p = .001$) are displayed in Figure 14, and licensure ($r_s = .55$, $p = .005$) represented in Figure 15. The findings conclude that although teachers perceive professional learning enhances classroom instruction and student achievement, there is no one size fits all.

These findings are generally compatible with the research that professional learning enhances classroom instruction (Al-Bhaisi, 2011; Borko, 2004; Darling-Hammond & McLaughlin, 1995; Desimone, 2009; Desmone et al., 2013; Feist, 2003; Foster et al., 2013; Garet et al., 2001; Guskey, 2002; Hourigan, 2011; Johnson, 2006; Shumack, 2007; Tienken & Achilles, 2003) and student achievement (Meissel et al., 2016). The research overwhelmingly suggests professional learning activities should be data-driven, job-embedded, and constant for all educators to gauge effectiveness and continued professional growth (Birman et al., 2007; ESEA, 2015; Hourigan, 2011; Learning Forward, 2011; U.S. Department of Education, 2004;

U.S. Department of Education, n.d.; Whitcomb et al., 2009; Yoon et al., 2007). Guskey (2002) declared that teachers expect to leave PD with strategies that directly relate to their classrooms, and when that does not happen, it is doubtful they will change their instructional practices. School districts must stay on the pulse of what professional growth opportunities teachers need to move instruction forward and meet the needs of students. This finding answered research questions 1 and 2.

Finding 3: Teachers indicated the topics in which they received the most professional development hours were most likely to have the highest impact on instructional practices and student achievement. Not only did the study data show educators perceived PD impacts instructional practices and student achievement, but the findings also suggest that the more contact hours teachers engaged in a specific professional learning area, the more likely they were to change their instructional practice. Participants in this study stated that PD specific to technology integration was measured most impactful when considering instructional practices ($M= 3.37$) and student achievement ($M= 3.08$). As reflected in Table 9, technology integrated PD also ranked first for the average number of PD hours ($M= 3.29$). Table 9 also shows that content specific ($M= 3.06$) and pedagogy ($M= 1.63$) ranked second and third for contact hours, respectively. Content specific, with the second highest contact hours, ranked third for impact on instructional practices and fourth for impact on students achievement. Pedagogy ranked fifth for impact on instructional practices and third for impact on student achievement. Garet et al. (2001) confirmed this with their study on the Eisenhower Professional Development Program. The more PD hours teachers spent on specific topics, the more likely teachers were to change their instructional practices; this is consistent with previous research where content-focused PD was associated with positive change (Garet et al. 2001; Foster et al. 2013; Robinson, 2011).

On the contrary; when content-focused PD did not add to educators' knowledge and skill, there was a negative effect on changes in instructional practices. These findings are also in harmony with other research where content-specific PD demonstrated substantial growth in student achievement (Desimone et al., 2013). Parallel to Foster et al. (2013) study, teachers with higher contact hours on a specific topic, demonstrated improved quality of teaching and learning. Student learning styles ($M= 0.24$), on the other hand, was ranked eight (out of 11) in total contact

hours, less than one hour per year. However, second, for the perceived most significant impact on instructional practices and student achievement.

Alternatively, the mismatch in the ranking of perceived impact, and the actual ranking of hours spent on such training, may in part be a function of teachers attempting to meet federal, state or district pressures and priorities (i.e., content specific, pedagogy, licensure). Lacking adequate time, an essential barrier to PD, to focus on knowledge-skill enhancing and job-embedded learning experiences such as technology integration and student learning styles that would otherwise have the most significant impact on improving their instructional practices and student's achievement. This finding may be due to a more or less one-dimensional accounting of PD hours (i.e., teachers neglecting to include professional training hours spent on student learning styles embedded within more general training areas/topics), or teachers' lack of adequate time (given federal-state-district priorities) to engage in PD activities centering on student learning styles. This finding relative to the sample size, suggests the need for (1) further research and (2) more focused professional training activities in the area of student learning styles given their perceived effectiveness at promoting instructional change and student achievement. This finding answered research question 3.

Finding 4: Educators perceived both traditional and reform professional learning activities as impactful on instructional practices and student achievement.

Courses/workshops ($M= 2.90$), peer coaching/mentoring ($M= 3.76$), online learning ($M= 3.79$), and conferences/seminars ($M= 4.17$) yielded the highest impact on instructional practices, respectively as reflected in Table 4. The impact on student achievement slightly differed. Table 7 shows that online learning ($M= 3.33$), peer coaching/mentoring ($M= 3.42$), and courses/workshops ($M= 3.50$) ranked most impactful sequentially while conferences ranked fifth on student achievement impact. Traditional PD activities are settings with a speaker and teacher audience; reform PD experiences are collaborative initiatives (Garet et al., 2001). Garet et al. (2001) concluded that workshop activities are the most common traditional PD experiences. Conferences, seminars, and university courses share similar traits to workshops and may also be grouped as traditional PD experiences. PD activities categorized as reform activities are intended to build collaboration through practical learning experiences with other educators. Mentoring, coaching, professional learning networks, and virtual experiences are examples of reform PD activities (Garet et al., 2001). The findings indicate that teachers prefer shared

learning experiences, either in person or virtually. In a study conducted by Lind (2007), study participants reported a positive impact on teaching and learning through their participation in a structured support lesson implementation PD study. However, teachers confirmed they could not maintain the momentum, likely due to the removal of support. This finding answered research questions 1 and 2.

Darling-Hammond et al. (2009) study yielded partaking in courses/workshop as the highest participation for traditional PD. Participants from this study stated that both traditional and reform PD activities have a positive impact on instructional practices and student achievement, as represented in Table 4 and Table 7. This finding answered research question 1 and 2.

Finding 5: Teachers indicated they experience professional development as defined by The Elementary and Secondary Education Act of 1965 (2015, p. 401). The majority of educators (56.2%) in this study confirmed the professional learning activities they engaged in would have met the ESSA definition, as reflected in Table 10. The federal government supports the implementation of this through Title II, Part A; it supports mentorship programs, evidence-based PD, professional learning networks, and develop and support career path programs for teachers to grow professionally (U.S. Department of Education, 2016). Zaidi et al. (2018) study confirmed that planned PD improves teachers knowledge, skills, and demonstrates a positive relationship between PD and teaching practices.

Guskey's (2003) investigation concluded that PD provided to educators is seldom thoroughly planned; this contradicts the findings of this study and what policymakers intended for PD. If PD is rarely thoroughly planned, it is unlikely that it is "sustained" learning experiences that continually develop teachers knowledge and skills, resulting in positive teaching practices (Zaidi et al., 2018). This finding answered research question 4.

Implications for Practice

The findings from the analysis of study data addressed the study's research questions. Below significant implications for identifying what PD topics and activities influence instruction and student achievement are presented.

Implication 1: Division and school leaders should use targeted professional development to improve teaching and learning. PD creates a pathway for changing

instructional practices and increasing student achievement (Shumack, 2007). Educators must stay skilled and knowledgeable on topics that aid in best instructional practices and work towards increasing student achievement. Research (Garet et al., 2001) and the findings of this study confirm targeted PD has an impact on teaching and learning. The findings from this study imply that PD could be a means of transforming teaching and learning. If organizational leaders provide time and resources for classroom teachers to engage in learning in areas that have been identified as most impactful on teaching and learning, the results could have a significant effect on academic achievement. The implication discussed above supports conclusions from Finding 1.

Implication 2: Educators should develop strategic professional development plans that include technology integration and student learning styles. Technology integration should be considered as an avenue to enhance teaching and learning. At the individual level, the results of this study may inform classroom teachers how to guide their PD plans to be strategic in their professional growth. With the development of instructional technology tools and resources, such as interactive whiteboards and online assessment tools, technology can be seen as a classroom resource that should be considered when discussing improvements in teaching and learning. When PD directly relates to what happens in the classroom, teachers are driven to explore ways to grow their skills and knowledge (Al-Behaisi, 2011). Likewise, based on the findings of this study, it is clear while teachers perceive training in student learning styles a powerful tool of professional growth, instructional change and student achievement, potential barriers like adequate time, and the balancing act of meeting the demands of federal-state and district priorities (i.e., content specific, pedagogy, licensure). The above-stated conclusion was drawn from Finding 2.

Implication 3: Division and school leaders should provide professional development that supports targeted traditional and reform delivery methods. Proper consideration should be given to specific traditional and reform professional learning activities as a means of affecting instruction and student achievement. Teachers in the Garet et al. (2001) study stated they participated in traditional forms of PD initiatives more than reform activities. Results relative to the sample size of this study demonstrate course/workshops, peer coaching/mentoring, online learning, and conferences/seminars yield the most significant impact on instructional and student achievement. As districts plan PD activities, they should consider learning experiences that fit

into these traditional and reform PD formats revealed in this study. This implication supports Finding 4.

Implication 4: Educational legislators and leaders should be strategic with professional development toward initiatives documented to yield the most significant results for improved instructional practices and increased student achievement. The results of this study may also inform policymakers in ways that will direct national initiatives and funding for the development of educators. Darling-Hammond and McLaughlin (1995) contend that although policy requires PD for educators, learning environments are not always favorable for growth. Drivers of professional learning may use these findings to develop PD plans that target these topics and activities to best use the limited resources available. According to Miles et al. (2004) school divisions spent between 2.3%-6.8% of their budget on PD. Leaders in the field may use these findings to guide how they support educators under their supervision and enact strategic leadership as they guide and direct PD initiatives within their domain. As policymakers craft legislation that directly impacts the classroom, findings such as this study and other research (Desimone et al., 2013; Foster et al., 2013; Garet et al., 2001; Miles et al., 2004; Shumack, 2007) are essential to the conversation and can be used to help policy makers and educational leaders develop a plan that has a positive impact on teaching and learning. This conclusion backs Finding 3.

Implication 5: In order for divisions and schools to continue to see success with professional development, they should continue to provide educators with “sustained (not stand-alone, one-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused” (Elementary and Secondary Education Act of 1965, 2015, p. 401) learning experiences. Teachers in this study expressed they have engaged in PD, over the last 12 months, that fits the definition of ESSA, this may suggest that drivers of PD understand and implement research, which supports PD will be impactful (Guskey, 2003; Lind, 2007; Zaidi et al., 2018; Zepeda, 2013). This implication supports Zaidi et al. (2018) research states that planned PD activities enrich teachers’ knowledge and skills, resulting in a positive impact on teaching practices. This implication supports Finding 5.

Educators should be equipped with the knowledge and skills to educate and empower our posterity. The findings relative to the sample size of this study have some important implications for examining teacher perceptions of PD topics, delivery methods, teacher perceptions of their

effectiveness, their impact on instructional change, and student achievement. Legislators, school divisions, and educators have an opportunity to use the implications of this study to help guide positive changes for teaching and learning.

Methodological Enhancements

While the researcher still agrees that this study added to the body of knowledge on PD, some considerations for methods can be explored. More creditability could be given to this study with a larger sample size. For example, surveying all the high schools of an entire region in Virginia may offer more evidence to strengthen the findings of this study. Other considerations would be to add a qualitative component to the student. Adding a qualitative element could offer an open-ended dimension that has the potential to provide more nuanced insights into human experiences and observations.

A Vision for Future Studies

There are several opportunities for further research around PD research that follow from these findings and would benefit from further research. Possible areas for future research into PD, instruction, and student achievement might include:

1. Research observing and documenting the implementation of ESSA defined professional development and the impact on standardized test scores.
2. Research the percentage of technology integrated professional development and instruction on standardized test achievement.
3. Research student learning styles professional development and implementation on standardized test achievement.
4. Research capturing the amount of time spent on targeted professional learning activities and topics, and on instructional practices and student achievement.
5. Research student experiences and perspectives of success after the integration of new instructional practices gained through professional development.

Autobiographical Reflections

I embarked on this journey to research PD. When educators are approached about PD, they often have a visceral response. However, after examining the literature, discussions, and feedback from the dissertation chair and committee, I sought to examine teacher perceptions of

PD topics and delivery methods and teacher perceptions of their effectiveness, and their impact on instructional change and student achievement to see how teachers felt. Building teacher capacity to enhance teaching and learning should hold as it would for training individuals in other fields. The purpose and research questions were developed from the literature. Based on the sample size, this study shows teachers perceive that professional learning enhances classroom instruction and student achievement. Given the opportunity to recreate this study, I would work diligently build relationships with school districts to expand the reach of this convenience study and make school visits to encourage teachers' participation and answers any questions on demand. The knowledge acquired through this process has influenced the types and style of PD I suggest and provide. It also continues to encourage me to consistently seek feedback from educators on the professional learning experiences they deem most impactful towards instruction and student achievement. As education continues to be the tool to guide the success for future generations, decisions must be made to ensure teacher and student success by providing ongoing, job-embedded professional learning experiences that make the most significant impact on instruction and academic achievement.

References

- Aguinis, H., Gottfredson, R. K., & Joo, H. (2013). Best-practices recommendations for defining, identifying, and handling outliers. *Organizational Research Methods, 16*(2), 270-301.
- Al-Behaisi, S. K. (2011). The impact of professional development on teacher practices and teaching efficacy (Doctoral dissertation). Retrieved from ProQuest.
- Bandura, A. (1995). *Self-efficacy in changing societies*. New York: Cambridge University Press.
- Birman, B. F., Floch, K. C., Klekotka, A., Ludwig, M., Taylor, J., Walters, K., . . . American Institutes for Research. (2007). *State and Local Implementation of the No Child Left Behind Act Volume II— Teacher Quality Under NCLB: Interim Report*. U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. Washington, DC: U.S. Government Printing Office.
- Borko, H. (2004, November). Professional development and teacher learning: Mapping the terrain. *Educational Researcher, 33*(8), 3-15.
- Butin, D. W. (2010). *The education dissertation: A guide for practitioner scholars*. Thousand Oaks, CA: Corwin.
- Camburn, E. M., & Han, S. W. (2015, July 07). Infrastructure for teacher reflection and instructional change: An exploratory study. *Journal of Educational Change, 5*11-533.
- Change. (n.d.). Retrieved June 10, 2017, from Merriam Webster Online: <https://www.merriam-webster.com/dictionary/change>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Creswell, J. W. (2008). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd Edition ed.). Los Angeles, CA: SAGE Publications.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches* (5th ed.). Thousand Oaks, CA: SAGE Publications, Inc.
- Darling-Hammond, L., & McLaughlin, M. W. (1995). Policies that support professional development in an era of reform. *The Phi Delta Kappan, 78*(8), 597-604.
- Darling-Hammond, L., Chung Wei, R., Andree, A., Richardson, N., & Orphanos, S. (2009, February). *Professional learning in the learning profession: A status report on teacher*

- development in the united states and abroad.* National Staff Development Council. National Staff Development Council and The School Redesign Network at Stanford University.
- Desimone, L. M. (2009, April). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(2), 181-199.
- Desimone, L. M., Smith, T. M., & Phillips, K. (2013, November 05). Linking student achievement growth to professional development participation and changes in instruction: A longitudinal study elementary students and teachers in title I schools (Doctoral dissertation). Retrieved from *Teachers College Record*.
- Elementary and Secondary Education Act of 1965. (2015, December 10). *As Amended Through P.L. 114-95, The Every Student Succeeds Act, SEC. 1114-95. 20 USC 6301.*
- Federal Judicial Center. (2011). Reference Manual on Scientific Evidence. (3rd, Ed.)
- Feist, L. (2003). Removing barriers to professional development. *T H E Journal*, 30(11), 30.
- Fincham, J. E. (2008, April). Response rates and responsiveness for surveys, standards, and the journal. *The American Journal of Pharmaceutical Education*, 72(2), 43.
- Foster, J. M., Toma, E. F., & Troske, S. P. (2013). Does teacher professional development improve math and science outcomes and is it cost effective? *Journal of Education Finance*, 38(3), 255-275.
- Fowler, F. J. (2009). *Survey research methods* (4th Edition ed.). Thousand Oaks, CA: SAGE Publications.
- Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001, January). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945.
- Gaumer, A. S., Noonan, P. M., Brussow, J., & Carter, K. S. (2017). Measuring the quality of professional development. *Professional Development in Education*, 43(4), 685-688.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, 8(4), 597-607.
- Gold, H. E. (2005, October). Engaging the adult learner: Creating effective library instruction. *portal: Libraries and the Academy*, 5(4), 467-481.
- Gulamhussein, A. (2003). *Teaching the teachers: Effective professional development in an era of high stakes accountability.* Center for Public Education. Center for Public Education.

- Guskey, T. R. (2002). Professional development and teacher change. *Teachers & Teaching: Theory and Practice*, 8(3/4), 381-391.
- Guskey, T. R. (2003, December). Analyzing lists of the characteristics of effective professional development to promote visionary leadership. *NASSP Bulletin*, 87(637), 4-20.
- Guskey, T. R. (2003). What makes professional development effective? *The Phi Delta Kappan*, 84(10), 748-750.
- Guskey, T. R. (2014, May). Planning professional learning. *Educational leadership*, 71(8), 10-16.
- Hourigan, R. (2011). *Race to the top: Implications for professional development in arts education*. Routledge.
- Johnson, C. C. (2006, March). Effective professional development and change in practice: Barriers science teachers encounter and implications for reform. *School Science and Mathematics*, 106(3), 1-12.
- Leachman, M., Albares, N., Masterson, K., & Wallace, M. (2015). *Most states have cut school funding, and some continue cutting*. Center on Budget and Policy Priorities. Washington, DC: Center on Budget and Policy Priorities.
- Learning Forward. (2011). *Standards for professional learning*. Oxford, OH.
- Licensure Regulations for School Personnel. (2007). *Requirements for renewing a license*, 8VAC20-22-110. VA.
- Lind, V. R. (2007). High quality professional development: An investigation of the supports for and barriers to professional development in arts education. *International Journal of Education & the Arts*, 8(2), 1-18.
- Meissel, K., Parr, J. M., & Timperley, H. S. (2016). Can professional development of teachers reduce disparity in student achievement? *Teaching and Teacher Education*, 58, 163-173.
- Messick, S. (1990, August). Validity of test interpretation and use. 1-33.
- Miles, K. H., Odden, A., Fermanich, M., & Archibald, S. (2004). Inside the black box of school district spending on professional development: Lessons from five urban districts. *Journal of Education Finance*, 30(1), 1-26.
- National Center for Education Statistics. (2013, May). *The Status of Rural Education*. Retrieved December 02, 2015, from http://nces.ed.gov/programs/coe/indicator_tla.asp

- Overbaugh, R., & Lu, R. (2008). The impact of a NCLB-EETT funded professional development program on teacher self-efficacy and resultant implementation. *Journal of Research on Technology in Education*, 41(1), 43-61.
- Parsad, B., Lewis, L., Farris, E., & Greene, B. (2001). *Teacher Preparation and Professional Development: 2000*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
- Peterson-Ahmad, M. B., Hovey, K. A., & Peak, P. K. (2018). Pre-service teacher perceptions and knowledge regarding professional development: implications for teacher preparation programs. *Journal of Special Education Apprenticeship*, 7(2), 1-16.
- Ravitch, S. M., & Riggan, M. (2017). *Reason and rigor: How conceptual frameworks guide research* (2nd ed.). Thousand Oak, CA: SAGE Publications, Inc.
- Roberts, C. M. (2010). *The dissertation journey*. Thousand Oaks, CA: Corwin.
- Robinson, M. H. (2011). Middle school teachers' perceptions of professional development experiences (Doctoral dissertation).
- Saris, W. E., & Gallhofer, I. N. (2014). *Design, evaluation, and analysis of questionnaires for survey research* (Vol. 2nd Edition). Barcelona, Spain: John Wiley & Sons.
- Saxe, G. B., Gearhart, M., & Nasir, N. S. (2001, January). Enhancing students' understanding of mathematics: A study of three contrasting approaches to professional support. *Journal of Mathematics Teacher Education*, 4(1), 55-79.
- Shumack, K. A. (2007). Professional development in business education: Status, needs, motivators, and impact on instruction (Doctoral dissertation). Retrieved from ProQuest.
- Slabine, N. A. (2011). *Evidence of effectiveness*. Learning Forward. Oxford: Learning Forward.
- Standards of Quality of the Code of Virginia, §§ 22.1-253.13:1 through 22.1-253.13:10 (2016).
- The Teaching Commission. (2004). *Teaching at risk: A call to action*. New York: The Teaching Commission.
- Tienken, C. H., & Achilles, C. M. (2003). *Changing teacher behavior and improving student writing achievement* (Vol. 34). Planning and Changing.
- U.S. Department of Education. (n.d.). Title I, Part A, Crosswalk from No Child Left Behind (NCLB) to the Every Student Succeeds Act (ESSA).
- U.S. Department of Education. (2015). *Fundamental change innovation in America's schools under race to the top*. Washington, DC: Government Printing Office.

- U.S. Department of Education. (2016). *Non-regulatory guidance for title II, part a: Building systems of support for excellent teaching and learning*. Washington: U.S. Department of Education.
- U.S. Department of Education U.S. Department of Education. (2004, March). *New No Child Left Behind Flexibility: Highly Qualified Teachers (Data File)*. Retrieved December 05, 2015, from <http://www2.ed.gov/nclb/methods/teachers/hqtflexibility.html>
- U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP). (2015). *Data tools: State profiles*. Retrieved 06 11, 2017, from The nation's report card: <https://www.nationsreportcard.gov/profiles/stateprofile?chort=2&sub=MAT&sj=AL&sfj=NP&st=AP&year=2015R3>
- United States Census Bureau. (2011, June 27). *Newsroom Archive (Facts for Features — Back to School: 2011-2012)*. Retrieved November 28, 2015, from United States Census Bureau Web Site: https://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb11-ff15.html
- USA Research. (1984). *A nation at risk*. (U. Research, Ed.) Cambridge, MA: USA Research.
- Virginia Board of Education. (2019, January 24). Draft Minutes Commonwealth of Virginia Board of Education. Richmond, VA.
- Virginia Department of Education . (2018, August 17). *The Virginia licensure renewal manual*. Richmond, VA: Virginia Department of Education .
- Virginia Department of Education. (2004). *High-quality professional development criteria*.
- Virginia Department of Education. (2008, June). *In brief: School accreditation*. Retrieved from <http://www.doe.virginia.gov/boe/accreditation/school-accred.pdf>.
- Virginia Department of Education. (2011). *Virginia standards for the professional practice of teachers*. Richmond, VA: Virginia Board of Education.
- Virginia Department of Education. (n.d.). Retrieved March 20, 2019, from Virginia Department of Education School Quality Profiles: Retrieved From <http://schoolquality.virginia.gov>
- Virginia Department of Education. (n.d.). *Commonwealth of Virginia: At-A-Glance*. Retrieved 3 20, 2019, from Virginia Department of Education School Quality Profiles: Retrieved from <http://schoolquality.virginia.gov/virginia-state-quality-profile>

- Virginia Department of Education. (n.d.). *State snapshot*. Retrieved November 5, 2017, from School Quality Profiles: Retrieved from <http://schoolquality.virginia.gov/virginia-state-quality-profile>
- Whitcomb, J., Borko, H., & Liston, D. (2009, May/June). Growing talent: Promising professional development models and practices. *Journal of Teacher Education*, 60(3), 207-212.
- Whitworth, B. A., & Chiu, J. L. (2015, January). Professional development and teacher change: *The Missing Leadership Link*. 26(2), 121-137.
- Yates, S. M. (2007). Teacher perceptions of their professional learning. *International Education Journal*, 8(2), 213-221.
- Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. L. (2007). *Reviewing the evidence on how teacher professional development affects student achievement (Issues and Answers, REL 2007-No. 033)*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest.
- Zaidi, S., Khan, N. R., & Khan, N. (2018). Organizational factors, teachers' professional development and teaching practices: findings from Female elementary school teachers. *International Journal of Experiential Learning & Case Studies*, 3(1), 84-96.
- Zepeda, S. J. (2013). *Professional Development: What Works (2nd Edition)*. New York, NY: Routledge.

Appendix A

IRB Approval Letter



Office of Research Compliance
 Institutional Review Board
 North End Center, Suite 4120
 300 Turner Street NW
 Blacksburg, Virginia 24061
 540/231-3732 Fax 540/231-0969
 email irb@ut.edu
 website <http://www.irb.ut.edu>

MEMORANDUM

DATE: October 12, 2018
TO: Carol S. Cash, Chantea Renee Wright
FROM: Virginia Tech Institutional Review Board (FVA00000572, expires January 29, 2021)
PROTOCOL TITLE: Teacher Perceptions of the Impact of Professional Development on Instructional Practices and Student Achievement
IRB NUMBER: 18-448

Effective October 12, 2018, the Virginia Tech Institutional Review Board (IRB) approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at: <http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Exempt, under 45 CFR 46.101(b) category(ies) 2**
 Protocol Approval Date: **October 12, 2018**
 Protocol Expiration Date: **N/A**
 Continuing Review Due Date*: **N/A**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

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

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
 An equal opportunity, affirmative action institution

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

Appendix B

IRB Training Certification

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Certificate of Completion

This certifies that

Chantea Renee Wright

Has completed

Training in Human Subjects Protection

On the following topics:

Historical Basis for Regulating Human Subjects Research
The Belmont Report
Federal and Virginia Tech Regulatory Entities, Policies and Procedures

on

November 7, 2016




David Moore, IRB Chair

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Appendix C

Initial Administrator E-mail

From : Chantea R. Wright
Sent:
To:
Subject: Survey of Teacher Perceptions of Professional Development

Greetings [Administrator Name],

My name is Chantea Wright. I am a student at Virginia Polytechnic Institute and State University in the Educational Leadership program pursuing a doctorate in education. As a condition of successful completion, I must conduct a research study. I have committed to study professional development in education. My research study is examining teacher perceptions of the impact of professional development on instructional practices and student achievement. I am writing to you to request the participation of your staff in a brief survey. This survey focuses on teacher perceptions of professional development.

Participation in the survey is voluntary and participants may opt out of completing survey at any time. All responses will be confidential. No personally identifiable information will be associated with responses to any reports of these data. Participant responses will be used for statistical purposes and will be reported only in aggregated form.

The survey is brief and will take 10-13 minutes to complete. Please click the link below to access the survey website (or copy and paste the link into your Internet browser).

To preview survey, please click on the following link:

https://virginiatech.ca1.qualtrics.com/jfe/preview/SV_24swErHxJLF5gSp?Q_SurveyVersionID=&Q_CHL=preview

The Virginia Tech Institutional Review Board has approved this survey. If you have questions or concerns, you may contact the researcher Chantea R. Wright, at crwright@vt.edu, [REDACTED] or the faculty primary investigator Carol Cash, at ccash48@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732.

Thank you in advance for providing this important feedback. **Please reply to confirm participation and I will send you an email that can be forwarded to your staff for participation.**

Chantea R. Wright, MEd

Appendix D

Initial Teacher E-mail

From : Chantea R. Wright
Sent:
To:
Subject: Survey of Teacher Perceptions of Professional Development

Greetings [Administrator Name],

Thank you for agreeing that professional development is important and allowing your teachers to participant in this research survey. Please forward the below information to your teachers for their participation.

Greetings Teachers,

My name is Chantea Wright. I am a student at Virginia Polytechnic Institute and State University in the Educational Leadership program pursuing a doctorate in education. As a condition of successful completion, I must conduct a research study. I have committed to study professional development in education. My research study is examining teacher perceptions of the impact of professional development on instructional practices and student achievement. This survey focuses on teacher perceptions of professional development. Licensed classroom teachers are required to participate in professional development activities to maintain a Virginia teaching license. This survey serves to measure teacher perceptions of the professional development activities they have experienced. Responses received will help evaluate the effectiveness of professional development teachers receive.

Participation in this survey is voluntary and participants may opt out of completing survey. All responses will be confidential. No personally identifiable information will be associated with your responses to any reports of these data. Participant responses will be used for statistical purposes and will be reported only in aggregated form.

The survey is brief and will take 10-13 minutes to complete. Please click the link below to access the survey website (or copy and paste the link into your Internet browser).

To participate, please click on the following link:

https://virginiatech.qualtrics.com/jfe/form/SV_24swErHxJLF5gSp

The Virginia Tech Institutional Review Board if you have questions or concerns, you may contact the researcher Chantea R. Wright, at has approved this survey. crwright@vt.edu, [REDACTED] or the faculty primary investigator Carol Cash, at ccash@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or [\(540\) 231-3732](tel:(540)231-3732).

Thank you in advance for providing this important feedback.

Chantea R. Wright, MEd

Appendix E

Reminder Teacher E-mail

From : Chantea R. Wright
Sent:
To:
Subject: Reminder: Survey of Teacher Perceptions of Professional Development

Greetings [Administrator Name],

Thank you for sending the original research survey information to your teaching staff. I want to ensure that all teachers have the opportunity to participate. Please forward the below reminder email to your teachers for their participation.

Greetings Teachers,

My name is Chantea Wright. I am a student at Virginia Polytechnic Institute and State University in the Educational Leadership program pursuing a doctorate in education. As a condition of successful completion, I must conduct a research study. I have committed to study professional development in education. My research study is examining teacher perceptions of the impact of professional development on instructional practices and student achievement.

Thank you for the continued support you provide to students every day. You may have already received the initial email inviting you to participate in this survey. If you have already completed the survey, please accept my thanks and disregard this email as no further involvement is required. If you have not completed the survey please take the time to consider providing your feedback on your professional development experiences. Your feedback will help guide research for potentially improving professional development experiences for teachers.

Remember that participation in this survey is voluntary. No personally identifiable information will be associated with your responses. Participant responses will be used for statistical purposes and will be reported only in aggregated form.

The survey is brief and will take 10-13 minutes to complete. Please click the link below to access the survey website (or copy and paste the link into your Internet browser).

To participate, please click on the following link:

https://virginiatech.qualtrics.com/jfe/form/SV_24swErHxJLF5gSp

The Virginia Tech Institutional Review Board has approved this survey. If you have questions or concerns, you may contact the researcher Chantea R. Wright, at crwright@vt.edu, [REDACTED] or the faculty primary investigator Carol Cash, at ccash@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732.

Thank you in advance for providing this important feedback.

Chantea R. Wright, MEd

Appendix F

Teacher Perceptions of Professional Development Survey Instrument

Introduction

Title

Teacher Perceptions of Professional Development

Introduction

Thank you for agreeing to take part in this research study to measure teacher perceptions of professional development and the impact on student achievement. As a licensed classroom teacher, professional development is a requirement to maintain a Virginia teaching license. This research study serves to measure your perception of the professional development activities you have experienced. Obtaining your feedback is essential to the field of education and furthering changes in administrative practices regarding professional development. Your participation is voluntary, and your participation in this survey is confidential. Your responses will be organized and analyzed as a group. Your identity will not be requested, nor disclosed. You can only participate in the survey once. Completing this survey should take between 10-13 minutes of your time.

If you have questions or concerns, you may contact the researcher Chantea R. Wright, at crwright@vt.edu, (804) 231-1457 or the faculty primary investigator Carol Cash, at ccash48@vt.edu. Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732.

Demographic Information

What is your school's zip code?

How is your position currently classified?

- Classroom Teacher
 Other (administrator, support staff, office personal, etc.)

How many years have you been teaching?

Highest completed level of education:

- Bachelors
 Masters
 Educational Specialist
 Doctorate

Gender:

- Male
 Female
 Prefer not to disclose

Professional Development

Have you participated in any professional development within the past 12 months?

Yes

No

Please indicate the number of hours you have received professional development focused on the topics listed below taken in within the past 12 months:

Student Learning Styles

School Improvement

- Personalized Learning Plan
- Classroom Management
- Licensure
- Diverse Learners
- Technology Integration
- Content Specific
- Data
- Pedagogy (Instructional Strategies)
- Other

Considering your professional development experiences as a whole please rank the areas/topics you participated in within the past 12 months (1-Highest Impact, 11- Lowest Impact), which had the largest impact on your instructional practices.

Student Learning Styles

School Improvement

Personalized Learning Plan

Classroom Management

Licensure

Diverse Learners

Technology Integration

Content Specific

Data

Pedagogy (Instructional Strategies)

Other

Considering your professional development experiences as a whole, please rank the activities (1-Highest Impact; 9-Lowest Impact) that you participated in within the past 12 months that had the largest impact on your instructional practices.

Peer Coaching/Mentoring

Online Learning (Webinars, social media groups, Twitter chats, etc.)

Individual/Collaborative Research

Lecture

Courses and Workshops

Conferences and Seminars

Professional Learning Networks

Self-Study (books, journals, etc.)

Other

Considering your professional development experiences as a whole, please rank the areas/topics (1-Highest Impact; 11-Lowest Impact) that you participated in within the past 12 months that had the largest effect on my students' learning.

Student Learning Styles

School Improvement

Personalized Learning Plan

Classroom Management

Licensure

- Diverse Learners
- Technology Integration
- Content Specific
- Data
- Pedagogy (Instructional Strategies)
- Other

Considering your professional development experiences as a whole, please rank the delivery methods (1-Highest Impact; 9-Lowest Impact) that you participated in within the past 12 months that had the largest effect on my students' learning.

- Peer Coaching/Mentoring
- Online Learning (Webinars, social media groups, Twitter chats, etc.)
- Individual/Collaborative Research
- Lecture
- Courses and Workshops
- Conferences and Seminars
- Professional Learning Networks
- Self-Study (books, journals, etc.)
- Other

In general, I believe that the professional development I have received in the past 12 months has enhanced my classroom instructional practices:

Strongly Disagree Somewhat Disagree Neither agree nor disagree Somewhat Agree Strongly Agree

In general, I believe that the professional development I have received in the past 12 months have impacted my instructional practices and positively affected my students' learning:

Strongly Disagree Somewhat Disagree Neither agree nor disagree Somewhat Agree Strongly Agree

Has any of the professional development experience you have had in the past 12 months been "sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused" (The Elementary and Secondary Education Act of 1965, 2015 p. 401)?

Yes

No

Teacher Perceptions of Professional Development

Powered by Qualtrics

Appendix G
Descriptive Statistics for Number of Professional Development Hours Sorted by the
Highest Number of Hours (n = 37)

Rating	<i>M</i>	<i>SD</i>
7h. Content Specific	8.14	16.48
7j. Pedagogy (Instructional Strategies)	5.22	14.52
7g. Technology Integration	4.65	5.43
7e. Licensure	4.35	20.41
7i. Data	3.49	13.44
7k. Other	2.95	8.44
7f. Diverse Learners	2.70	6.03
7b. School Improvement	1.35	4.00
7a. Student Learning Styles	1.24	3.08
7d. Classroom Management	0.95	1.47
7c. Personalized Learning Plan	0.62	1.50

Note. This table supports Research Question 3.