EXPLORING THE RELATIONSHIP BETWEEN PROFESSIONAL DEVELOPMENT LEADERS' COMPETENCIES OF EFFECTIVE PROFESSIONAL LEARNING AND TEACHERS' PERCEPTIONS OF PROFESSIONAL DEVELOPMENT

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A dissertation submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Education in the Department of Educational Leadership and Policy in the School of Education.

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ABSTRACT

Gregory L. McKnight: Exploring the Relationship Between Professional Development Leaders' Competencies of Effective Professional Learning and Teachers' Perceptions of Professional Development
(Under the direction of Eric Houck)

The purpose of this study was twofold. It first sought to establish a comprehensive framework that clearly outlined the competencies a district level professional development leader should have to design, deliver, and evaluate professional development for educators. Next, the domain competencies were aligned to specific professional development survey items found in the *North Carolina Teacher Working Conditions Survey*. The purpose of aligning the survey questions to the framework's domain competencies was to investigate the relationship of professional development leaders' competencies to teachers' perceptions of professional development using a causal-comparative design. The following research questions guided the study:

1. Which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development?
2. How, if at all, do the competency levels of professional development leaders impact teachers' perceptions of professional development in each domain?

This causal-comparative study used the results from the *2014 North Carolina Teacher Working Conditions Survey* (NCTWCS) and a self-assessment survey of professional development leaders' competencies. Those data were used to determine if the competency levels of professional development leaders impact teachers' perceptions of professional development in their district. A regression analysis was conducted using professional development leader competency as a predictor of teachers' perceptions in each of the three domains. The researcher then conducted a multiple regression model to explore if the differences in how leaders perceived their competency and teachers' perceptions of professional development in each domain were predicted by district wealth. The regression models revealed that a district's wealth was not a predictor of the differences found within each domain. The results were not statistically significant with both regression models, indicating that teachers' perceptions of professional development were not impacted by the district's wealth nor the competency level of the professional development leader.

This dissertation is dedicated….

To my supportive wife Latisa. I can't thank you enough for always being my biggest cheerleader and voice of reason when the light at the end of the tunnel seemed out of reach. You never gave up on me and refused to let me give up on myself.

To Gabby, my ladybug. You inspire me to be a better person and make the world a better place for you.

To all my family members and friends, far too many to name. Thank you for your support, check-ins, and kind words of encouragement.

This accomplishment belongs to all of us!

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First and foremost, Jesus Christ, who said, “Everything is possible for one who believes,” Mark 9:23.

The completion of this program began with a belief during my senior year of high school. When I asked my counselor about a brochure advertising North Carolina’s Teaching Fellows Program, I was told that that program wasn’t a good fit for me. I should consider community college as a next step. It was then that I made up my mind that I could succeed at a four-year university. That conversation sparked my desire to go as far as I could go with my education. It set in motion an internal drive to prove to myself that if others could do it, why not me? This belief that I too could succeed has brought me to this very moment.

The completion of my doctoral program would not have been possible without the support of many individuals. I would like to thank my dissertation committee: Dr. Eric Houck, Dr. Fenwick English, Dr. Christopher Scott, Dr. Cynthia Martin, and Dr. Mary Russell. Dr. Houck, thanks for agreeing to chair my committee. Your guidance has brought me to the end of this journey. Dr. English, I thank you for your feedback and shared wisdom throughout my time in the program. I took my first doctoral class with you, so it only seems right that you are onboard for the culmination. Dr. Scott, thank you for stepping in and serving on my committee. I can’t express my gratitude enough that you were willing to take on a stranger. Dr. Martin and Dr. Russell, your words of encouragement have meant more to me than you will know. You

have been with me on this journey from the beginning. I'm proud to count you two as more than just former colleagues.

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As this chapter in my life closes, I thank God for all the thoughts and prayers of family and friends. I know this could not have been possible without some divine assistance. On to the next big thing!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

Five years ago, *The Race to the Top* grant shifted the educational landscape and served as the impetus for accelerated reforms in content standards, professional standards, and the use of student assessment data to inform decisions and improve instruction (The White House, 2009). Educators throughout the country were tasked with learning several newly implemented initiatives. High quality, effective professional development is often viewed as the method for ensuring educators are prepared to successfully manage these rapidly changing initiatives (Little, 1993).

In North Carolina, the decision was made to implement several new initiatives concurrently (U.S. Department of Education, 2012). A concerted effort was made by the Department of Public Instruction to train and build capacity throughout the state via professional development. The State Department of Education realized that teachers needed professional development that would enhance their competencies in the areas of unpacking new content standards, developing a deep understanding of new evaluation tools, and understanding newly developed professional teaching standards.

Lastly, *The Race to the Top* initiatives outlined several areas for a state education agency to address as part of its overall educational reform efforts. As part of accepting *The Race to the Top* funding, North Carolina drafted a plan to address standards and assessments, data systems to improve instruction to turn around the lowest achieving schools, and great teachers and leaders ("NC Race to the Top," 2010). The standards and assessments initiative required an overhaul of

state curricular standards with preference given to states that adopted common core state standards in reading and math. The initiative also called for the implementation of new assessments, such as digital assessments with more open-ended, higher-order thinking questions, and task-oriented assessments. In addition, the state had to address the development of data systems to improve instruction. This initiative resulted in the development of a statewide longitudinal data system to track and monitor student academic progress. The system was designed to provide educators with an abundance of student data allowing for improved instructional programs tailored to meet specific student needs. The state also developed a digital warehouse of common resources educators could access for free to support instructional planning. A third initiative undertaken during *The Race to the Top* was turning around the lowest achieving schools. School districts were given the latitude to implement new innovative programs to improve these schools. Some of these innovations included creating thematic schools and building district and school transformation teams to coach and mentor educators in identified low performing schools ("NC Race to the Top," 2010).

Finally, *The Race to the Top* initiative focused on building great teachers and leaders by including a professional development component ("NC Race to the Top", 2010). The great teachers' and leaders' initiative relies heavily on building professional development capacity. Job embedded professional development provides the structure by which all the initiatives will either succeed or fail. The state and school districts were charged with providing effective, data-driven professional development to support teachers and principals. Educators are required to use student data from both formative and summative assessments for decision making to improve teaching and learning with the goal of increasing student achievement. However, many educators do not enter the profession already possessing the needed competencies to successfully

implement these new initiatives and reforms (Mizell, 2010). They must acquire these competencies on the job, often through district-provided professional development (Garet, Porter, Desimone, Birman, & Yoon, 2001).

The Race to the Top North Carolina Professional Development Initiative (PDI) focused on developing a cadre of professional development leaders to serve as resource developers, workshop leaders, professional learning community coaches, and content specific regional coaches ("NC Race to the Top," 2010; U.S. Department of Education, 2012). These individuals were tasked with assisting district level professional development leaders as they design, deliver, and evaluate job embedded professional development for their teachers and school administrators. Throughout North Carolina school districts, professional development is often the responsibility of one lead individual or handled by several individuals within the district, depending upon size and available resources of the district. Professional development at the district and school level often looks very different from one district or school to the next as the responsibility for delivering professional learning is handled by curriculum coaches, teacher leaders, content area directors, and general professional development leaders. The structure for professional development varies based on district size and available resources. Size and available resources also dictate how often professional development is offered throughout a district. Even though job embedded professional development is important, there is an absence of a state level structure in North Carolina for developing the skills of district level professional development leaders responsible for professional learning ("Professional Development", 2017).

In 2014, $2.3 billion was budgeted for Title II of the Elementary and Secondary Education Act, which is mostly devoted to professional development (Loveless, 2014). Title II of the Elementary and Secondary Education Act provides funding to support state and district-

level activities that improve teacher and principal quality and thereby improve student achievement. School districts use the bulk of their Title II funding to support professional development. School districts spend in the range of 1.7 percent to 7.6 percent of their net operating expenditures on some form of professional development (Odden, Archibald, Fermanich, & Gallagher, 2002). School districts expect to see a return on their investment via increases in student achievement and improved teaching and learning. Professional development is the primary method employed to bring about change and help educators acquire and refine skills (Guskey, 1994). Thus, professional development will continue to be an integral part of reform efforts in the field of education.

For professional development to have the intended impact of changing practice, an examination of the professional development leader needs to occur. Therefore, the competencies a professional development leader must possess and act upon should directly impact the districtwide perceptions of professional development. This study is an important tool for senior administrative leaders to use to strengthen and develop the competencies of district professional development leaders as they design, deliver, and evaluate professional development that will ultimately increase student achievement.

Statement of the Problem

A review of the literature (e.g., Desimone, 2011; Garet, et al., 2001; Guskey, 1991; Little, 1993; Reeves, 2010) would suggest that professional development is indeed an effective method for preparing teachers to successfully navigate initiatives and effectively change practices. Although the research on effective professional development in education is extensive (Guskey, 1994), there is a dearth of information explicitly addressing the needed competencies of the professional development leader and their impact on a professional development program.

Professional development leaders are vital to the overall professional development process. These leaders are expected to have the competencies to impart knowledge while engaging in all areas of the professional development process (Guskey, 1991). The success or failure of a professional development program is often attributed to how well it was planned, implemented, and evaluated. To achieve high quality professional development, professional development leaders should have an active role in the planning, designing, delivery, and evaluation of the overall professional development program.

Often, individuals at the central office level began their careers as former teachers with competencies focused on teaching children. These individuals have, over the course of their professional career, matriculated into new administrative roles. How are individuals prepared to step into new administrative roles, particularly the role of a professional development leader? Do they possess the necessary competencies that align with the principles of effective professional development? Part of the problem is defining the competencies needed to design, deliver, and evaluate professional development. This study sought to establish a framework of needed competencies for professional development leaders to design, deliver, and evaluate professional development for educators. The study explored whether a positive relationship exists between high levels of professional development leaders' competencies and teachers' perceptions of professional development as captured on the *North Carolina Teacher Working Conditions Survey*. The *North Carolina Teacher Working Conditions Survey* is a statewide biennial survey of licensed school-based educators to acquire their perceptions about their working conditions. The survey captures perception data across eight constructs (*North Carolina Teacher Working Conditions*, 2017). The professional development construct provided valuable data regarding educators' perceptions of professional development in their districts. The

results of the survey are aggregated by school district and disaggregated by survey topic. The questions from the professional development section of the survey were aligned with the professional development leaders' competencies framework's domains of competencies where applicable.

Purpose of the Study and Research Questions

The purpose of the study was twofold. It first sought to establish a comprehensive framework that would clearly outline the competencies a district level professional development leader should have to design, deliver, and evaluate professional development for educators. Next, the domain competencies were aligned to specific professional development survey items found in the *North Carolina Teacher Working Conditions Survey*. The purpose of aligning the survey questions to the framework's domain competencies was to investigate the relationship of professional development leaders' competencies to teachers' perceptions of professional development using a causal-comparative design. The following research questions guided the study:

1. Which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development?
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b. Do higher levels of competency in the delivery domain of professional development have a positive relationship on teachers' perceptions of professional development?

c. Do higher levels of competency in the evaluation domain of professional development have a positive relationship on teachers' perceptions of professional development?

The first research question was proposed to establish a framework of competencies a district professional development leader should possess to design, deliver, and evaluate professional development. First, it was important to identify, based on the literature regarding effective professional development, the underlying theories and best practices that would undergird each domain of the professional development leaders' competencies framework. Second, each domain of the professional development leaders' competencies framework was vetted by a panel of professional development practitioners for levels of agreement with the identified domain competencies. The vetting process was conducted through a survey and was done to establish the researcher's developed framework as a legitimate reflection of needed competencies, as agreed upon by practicing professional development leaders, and to provide a counterbalance to possible researcher bias. The researcher was formally employed as a regional professional development leader for the North Carolina Department of Public Instruction. The researcher directly worked for five years with district professional development leaders across the state who have designed, delivered, and assisted with evaluation of professional development in this role. The researcher has undertaken this research with preconceived ideas of what competencies a district professional development leader should possess based on prior experiences. Therefore, a panel of seven practicing professional development leaders from across

the state of North Carolina were asked to provide feedback and suggestions on the proposed framework of competencies to ensure the framework accurately captured the desired competencies needed by a leader of professional development. The creation of the competency framework is discussed in Chapter Three.

The second guiding research question for this study was designed to test the strength of the relationship between teachers' perceptions of professional development and the competencies of the professional development leaders. The three sub-questions were designed to correlate the direction of the relationship between teachers' perceptions of professional development and each domain of the framework.

Significance of the Study

There is much literature and research on components of effective professional development (Desimone, 2011; Garet, et al., 2001; Guskey, 1991; Little, 1993; Reeves, 2010). What is not so clear is if the competency levels of the professional development leader have an impact on teachers' perceptions of professional development. The framework of competencies aligns with research as to what constitutes effective professional development. However, it is not enough to simply establish a framework of needed competencies. An examination of the correlation of the impact that attained competencies have on perceptions of professional development by teachers is needed to advance this study.

This study will contribute to the body of knowledge around the preparation of professional development leaders and the competencies needed to design, deliver, and evaluate professional development. This study established a framework of competencies to bridge the gap between the components of effective professional development and the competencies needed for implementation. This study had the potential to highlight hidden deficiencies that, if revealed

and addressed, may improve the design, delivery, and evaluation of professional development programs, thus improving teaching, learning, and student achievement.

Finally, this study could establish future professional development for professional development leaders. The framework of competencies may provide policy makers and credentialing agencies valuable information to inform capacity building and resource allocation with regards to the framework domains. Credentialing agencies could use the data gathered in this study to create preparation programs aligned to each domain.

Conceptual Framework and Overview of Methodology

This study sought to establish a comprehensive framework that clearly outlined competencies agreed upon by practitioners that an individual should possess to effectively lead a professional development program. The framework consisted of three domains: design, delivery, and evaluation. Within the three domains, theories and best practices were utilized as the framework of competencies for an effective professional development leader. Adult principles of learning, systems thinking, and models of professional development comprised the design domain. Within the delivery domain, there were theories and best practices on adult principles of learning, group facilitation, and models of effective presentations. Finally, the evaluation domain focused on principles of evaluating professional development. The principles embedded within these theories are principles found throughout the literature on effective professional development (Guskey, 1991; Little, 1993; Loucks-Horsley, Stiles, & Hewson, 1998).

This study used the causal-comparative design, a research design which seeks to find relationships between independent and dependent variables after an event has occurred. Analysis was performed on data extrapolated from the 2014 *North Carolina Teacher Working Conditions Survey* (NCTWCS), the dependent variable, and a survey of professional

development leaders' self-assessments of competencies, the independent variable. The questions from the professional development section of the NCTWCS were aligned with the professional development leaders' competencies framework's domains of competencies where applicable. Alignment of domain competencies and NCTWCS items will be explained in Chapter Three.

Furthermore, the researcher acquired data on district professional development leaders' levels of competencies with regards to the theories and best practices found throughout the competency framework. The Pearson correlation coefficient was used to determine if a positive relationship exists, and how strong the relationship is, between the professional development leaders' levels of competencies and teachers' perceptions of professional development in their district as measured by the NCTWCS.

Assumptions

The primary assumption of this study was that professional development leaders already possess some levels of the competencies outlined in the framework. A further assumption is that these competencies are being utilized to some extent in the performance of their duties as leaders of professional development. The data gathered for analysis was collected from a survey administered to those identified as professional development leaders throughout the state. Therefore, it is assumed that the survey respondents will respond truthfully about their competency levels, as there are no incentives for them to be dishonest. The final assumption of this proposed study is that higher competency levels within the domains of design, delivery, and evaluation will have a positive relationship with teachers' perceptions of professional development. Assuming professional development leaders with higher competency levels are putting their competencies into action, teachers will experience a better quality of professional development that will be reflected in their perception survey. Ferguson, with Hirsch, (2014) was

able to demonstrate that there were significant connections between teaching conditions and student value-added gains. Four areas assessed by the New Teacher Center survey are linked to the prerequisite conditions for achievement gains. Student conduct management, demands on time, professional autonomy, and professional development are the four areas that show positive educator perceptions are associated with factors linked to improved student engagement and learning. Despite the findings that show positive educator perceptions, with regards to professional development, are linked to improved student achievement, the 2014 *North Carolina Teacher Working Conditions Survey* revealed that professional development had a significant and negative association with student achievement (New Teacher Center, 2015).

Limitations of the Study

In this study, there were several limitations. This study used a causal-comparative research design which investigates differences that already exist in relationships after the fact. Determining causality must be done with caution since there is a lack of randomization and control factors for the researcher. Even if a strong relationship is observed, it does not prove that one variable causes the other to change. The impact of outside, unaccounted for variables may influence the observed results. The study used the *North Carolina Teacher Working Conditions Survey* to validate the professional development leaders' competencies framework as agreed upon by a panel of professional development practitioners. The competencies listed in the framework are not exhaustive. Teacher perceptions of professional development are bound to the thirteen items found within the *North Carolina Teacher Working Conditions Survey.*

A delimitation of the study is the data collected on competencies are bound to professional development leaders in North Carolina and the competency level data is based on

respondents' self-reports via an online survey. The professional development leaders in North Carolina are used as the population for the study to correspond with the NCTWCS results.

This study analyzed data from surveyed professional development leaders who may be titleholders and may not be directly involved in the design, delivery, and evaluation of professional development. There are many leaders of professional development within a school district without the associated title who are not be included in this study. The North Carolina Department of Public Instruction maintains a directory of district level professional development leaders. This directory only includes the professional development title holder or the individual identified as the district contact for professional development. The list is not reflective of all of a district's professional development leaders. Having the title of professional development leader is important to this research because it is the method used to identify participants. The survey was extended to the individuals named on the official contact list.

The study did not seek to determine levels of competency implementation. Reporting a high level of competency in a domain is not an indication of actual follow through on the part of the professional development leader.

Definition of Terms

Adult Principles of Learning (Andragogy): A theory on how adults learn with an emphasis on the process of learning. The learning approach places an emphasis on collaboration, self-direction, problem-based, and relevancy.

Competencies: Possession of skills, knowledge, and qualifications.

Domains: A range of personal knowledge.

Evaluation: A systematic investigation to determine merit or worth.

Group Facilitation: A process in which a person guides and assists a group with problem solving and decision making. The facilitator is often neutral and serves to provide and maintain structure and order.

Local Education Agency (LEA): North Carolina has 115 public school districts. Each district is a local education agency. The term "LEA" and "district" are used interchangeably throughout this study.

Models of Professional Development: Delivery strategies/models proven to be effective for adult learners and learners in general.

NC Teacher Working Conditions Survey (NCTWCS): The NCTWCS is a biennial opportunity for all licensed, school-based educators (principals and teachers) to provide input to their school and local school district to inform local improvements and state level policy.

Professional Development: A comprehensive and on-going approach to improving educators' competencies and effectiveness.

Pearson Correlation Coefficient: A measure of the strength of a linear association between two variables.

Systems Thinking: A process of understanding how parts within a system influence one another in a whole.

Organization of Study

This study focused on what competencies are needed, as agreed upon by a panel of practicing professional development leaders, for a professional development leader to design, deliver, and evaluate professional development programs and if there is a positive relationship between competency levels and teachers' perceptions of professional development on the *North Carolina Teacher Working Condition Survey*. The panel of practicing professional development

leaders was comprised of regional professional development lead consultants employed by the North Carolina Department of Public Instruction. These individuals worked with school districts across the state of North Carolina to support school district professional development leaders. The study is organized into five chapters. Chapter one is an overview in which the problem of study is defined. Chapter Two presents the literature related to aspects of effective professional development. The information in the literature review draws from several educational research studies and includes theories and best practices that make up the conceptual framework of competencies used to assess a leader's knowledge. The included components of effective professional development are not limited to any specific content area. These theories and best practices are applicable across all content areas. Chapter Three describes the methodology, data analysis, and instrumentation. Chapter Four presents the findings and analysis for each research question. Finally, Chapter Five discusses the possible impact on practice and future research.

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE AND CONCEPTUAL FRAMEWORK

Purpose of the Study and Research Questions

The purpose of this study is twofold. It first sought to establish a comprehensive framework that clearly outlined competencies a district level professional development leader should have to design, deliver, and evaluate professional development for educators. Next, the domain competencies will be aligned to specific professional development survey items found in the *North Carolina Teacher Working Condition Survey* (NCTWCS). The purpose of aligning the survey questions to the framework's domain competencies was to investigate the relationship of professional development leaders' competencies and teachers' perceptions of professional development using a causal-comparative design. The following research questions guided the study:

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This chapter begins with an overview of professional development. Professional development is a common practice found throughout many different fields as a way of enhancing

an organization's knowledge and improving practice. This chapter will also give an overview of the history of professional development in education to clearly establish the need for ongoing professional development as a key component of successful reform. Next, the review will briefly explore the cost of professional development and the expected return on investment. The discussion will then explore the research regarding professional development and its relationship to achievement. This is followed by an examination of the components of effective professional development. The components of effective professional development served as the foundation for the conceptual framework of competencies for professional development leaders and the role of the professional development leader was examined through the lens of the framework.

Finally, background on the professional development construct of the *North Carolina Teacher Working Condition Survey* is recounted along with an analysis of the 2014 results from the professional development construct.

Professional Development

The available literature focused on professional development, professional learning, and/or staff development is vast and covers a multitude of professional fields. Found throughout the literature is a common theme that resonates across disciplines--the purpose of professional development is to enhance the skills and knowledge of the participant (Joyce & Showers, 1980). In fields such as nursing and education, professional development grew out of a need to continually refine the skills and practice of the practitioner to meet newly developing challenges. Practitioners exit academia and enter their respective professions with degrees that serve as the foundation of their professional knowledge. However, in a dynamic environment that constantly tackles newly emerging issues, it is imperative that practitioners stay sharp to effectively meet the needs presented by society. In the field of nursing, nurses participate in continuing education

to stay abreast of new technologies and advancements in medicine to improve patient health outcomes. Florence Nightingale, considered to be the first advocate for continuing education, saw the need for nurses to continue their learning. This type of advocacy and encouragement would help spur the first U.S. course in nursing continuing education in 1894. As nursing progressed over the years, this would eventually evolve into accreditations and licensure programs as a condition for nursing license renewal ("Continuing education, professional development, and lifelong learning for the 21st century health care workforce", 2011). Continuing education in the nursing field has become so vital that most places now have a Nursing Professional Development Specialist (NPDS), also known as a nurse educator. The NPDS has knowledge and skills in adult learning principles, career development, program development, management, continuing education, and leadership (Swihart & Johnstone, 2017). The importance of having a skilled and knowledgeable NPDS is vital to helping nurses change practice and improve patient healthcare outcomes. A similar theme can be seen in the field of education.

History of Professional Development in Education

The evolution of professional development in education, or in-service efforts, can be traced back to the 19th century. In-service was viewed as a necessity to improve teaching. During this time, many of the prevailing ideas were that efforts should be directed toward the correction of obvious defects of teachers. Teachers were very young, immature, possessed inadequate command of subject matter, and lacked professional skills (Richey, 1957). Prior to 1890, it was not uncommon to find new teachers between the ages of 14 and 17. As a general rule, “teachers had no more than a common-school education, that they had gone through arithmetic but did not understand it” (Richey, 1957, p. 37). To some, teaching was seen as a pit

stop for a female transitioning from girlhood to marriage (Richey, 1957). As a result of the conditions of the aforementioned time period, teacher institutes began to be established, "designed not only for teachers but also for inexperienced candidates for teaching positions whose needs were not greatly different from those of employed teachers" (Richey, 1957, p. 39). Classes were taught on content, which the teachers or prospective teachers would later teach employing the newly learned methods.

The time between 1890 and 1930 saw a rapid improvement of the teaching profession. Certifications were being established and enacted in several states that required additional education beyond the ungraded structures that were currently in place. More men were entering teaching. Post high school graduation work was becoming a requirement for certification in several states. Most high school teachers had at least four years of college level work. This time also ushered in an increase in the average years of experience. Because of the increase in teaching experience, a decrease in teacher mobility was also evident during this time. By the mid-thirties, teaching was becoming a stable and viable profession. However, teacher institutes began to lose their appeal and face political backlash as more colleges and universities began to offer summer school and correspondence courses for teachers, who were rapidly acquiring post high school knowledge that enabled them to meet the rigor of college level work (Richey, 1957).

Summer school and correspondence programs began to rapidly expand at the college and university levels and would eventually evolve into schools of education. As this evolution was taking place, teacher institutes began to be ineffective and less rigorous because they lacked institutional standards that were consistent from state to state and region to region. Teacher institutes would eventually lose favor and teacher improvement was viewed more as a component of supervision, which had grown in popularity during the 1930s (Corey, 1957). In-

service began to be characterized by disorder, conflict, and criticism (Guskey, 1986). Although a continued need for professional development had long been recognized as necessary with the establishment of the teaching profession, growth of professional development programs was becoming more commonly accepted even though much of what was being offered was found to be "uninspiring and ineffective" (Corey, 1957, p. 1). By the late 1930s, the concept of the workshop had become popular as a form of in-service. The belief that teachers needed to work cooperatively on instructional problem solving to assure professional growth also became more accepted as a way of improving professional practices (Corey, 1957). Although there was some agreement on what professional development should look like, detractors to the overall effectiveness of professional development still existed. Research conducted by Howey and Vaughan (1983) described professional development as well-supported with resources but lacking in accountability with regards to teacher behaviors and student outcomes. They also found that offerings were fragmented, not highly regarded, and lacked follow-up. Some of the same arguments that date as far back as the 1930s still hold relevance today as what constitutes high quality professional development continues to be redefined. Noticeably absent in the literature regarding the establishment of professional development for teachers is an examination of the leaders of professional development.

Despite the early failings of organized in-service and teacher institutes, the purpose remains the same today. In-service, staff development, professional development, and professional learning are built upon the premise of changing teacher practices and behaviors to improve learning.

Cost of Professional Development

School districts continue to invest a significant amount of resources to change teacher practices and improve student achievement. However, as important as professional development is, it is difficult to pinpoint exactly how much is being spent on professional development initiatives. Little is known regarding the actual cost of professional development at the school or district level due to variations in reporting, accounting, spending, and the definition of what constitutes professional development (Fermanich, 2002). Several research studies have been conducted to better understand the true cost of professional development for a school or district (Odden, Archibald, Fermanich, & Gallagher, 2002; Fermanich, 2002; Miles, Odden, Fermanich, & Archibald, 2004). Most of the research conducted focused on professional development expenditures. The common problems identified throughout the studies found (a) accounting codes did not allow for accurate tracking of expenditures, (b) differing frameworks for categorizing professional development made for too many variations, so comparisons were not possible, and (c) collecting district level data led to underestimates of professional development expenditures (Odden, et al., 2002). Districts continue to spend money and allocate resources blindly with the hope that the numerous, unfocused, and ineffective professional development practices will have a positive impact on student achievement. According to several studies (Odden, et al., 2002; Fermanich, 2002), a safe estimate of professional development spending falls between 1% and 8% of a district's operating budget.

Each year that resources are allocated for professional development without a true understanding of the expenditure, is a year that resources could have been focused on more effective professional development strategies. Research has established that effective professional development will require significant expenditures over a sustained period (Odden, et

al., 2002). A framework for organizing professional development expenditures is the best way to ensure that resources support student achievement. The professional development leader has a fiduciary responsibility to ensure that the professional development funded does what it's expected to do—improve student achievement.

Professional Development and Its Relationship to Achievement

Professional development is the most commonly used strategy that schools and districts rely on to improve student achievement (Desimone, 2011; Little, 1993; Guskey, 1986). As Guskey (2004) states, "One constant finding in the research literature is that notable improvements in education almost never take place in the absence of professional development" (p. 4). For professional development to serve as a vehicle of change and improvement, it must contain several factors. It needs to be sustained, content-focused, well-defined, and designed with iterative opportunities for application. These factors have shown to be directly related to program success. Even if all the factors are present in a program, it does not guarantee success. However, there is strong evidence that indicates neglecting any one of the factors will likely limit effectiveness and reduce the chance to bring about significant long-term change.

Although professional development for teachers is critical for supporting reform efforts, a 2013 report of professional development by the National School Boards Association's Center for Public Education found most teachers aren't given the kind of professional development that would help them improve. A main finding in the report stated that most professional development is ineffective and neither changes teacher practices nor improves student learning (Gulamhussein, 2013). In another research study conducted by The New Teacher Project (TNTP) on professional development, the findings were like the 2013 report by the Center for Public Education. The report surveyed over 11,000 teachers and school leaders in three large,

geographically diverse school districts and one midsize charter network. The researchers also interviewed 127 district staff members and school leaders. The results of the study found that the school districts spent an average of $18,000 per teacher, per year on teacher development. However, most teachers in the study did not appear to be improving from year to year ("The Mirage: Confronting the Hard Truth about Our Quest for Teacher Development", 2015). In a third study focused on professional learning, researchers found that 90 percent of teachers participated in professional development that they felt was useless. The method of professional development most widely used was a workshop training (Darling-Hammond, Chung Wei, Andree, & Richardson, 2009). Research into effective professional development found that the one-shot workshop model is the least effective model of professional development and often doesn't change teacher practice (Yoon, Duncan, Lee, Scarloss, & Shapely, 2007). School districts rely on the workshop model because it's an inexpensive means of training, but this model lacks coherence and the opportunity for teachers to practice implementation (Birman, Desimone, Porter & Garet, 2000; Gulamhussein, 2013; "The Mirage: Confronting the Hard Truth about Our Quest for Teacher Development", 2015). Funding for professional development in North Carolina is practically non-existent. Professional development programs for teachers across the state have been reduced or eliminated (Carpenter, 2011). The workshop model is easy to implement, but often lacks the opportunity for follow-up. Under the right circumstances this model has its merits, but overall this model is overly used and is the antithesis of what is considered best practice.

Research into professional development's impact on student achievement did confirm several effective practices. A recent study conducted over 1,300 studies that potentially addressed the effect of teacher professional development on student achievement in three content

areas and analyzed the results. However, only nine of the studies in the research met What Works Clearinghouse (WWC) evidence standards. The nine studies in the research took place in elementary schools. There were no middle or high school studies that met the WWC evidence standards. The WWC is an initiative of the U.S. Department of Education's Institute of Education Sciences. Established in 2002, the WWC is a central database of trusted source information for decision makers in education. The WWC reviews and assesses research evidence for educational programs, products, practices, and policies. Studies that met the WWC criteria were found to be consistent with models of effective professional development. The studies were found to be of high quality in their theory of action, planning, design, and implementation. The components that made the study high quality can be found throughout the domains in the conceptual framework. This further supports the significance of the conceptual framework. The professional development received by the teachers was sustained, content-focused, well-defined, and constructed on a validated theory of teacher learning and change. The nine studies were also found to promote and extend effective curricula and instructional models (Yoon, et al., 2007). Findings in the WWC research report revealed that teachers who received substantial professional development (substantial being an average of 49 hours in the nine studies) can boost their students' achievements by about 21 percentile points (Yoon, et al., 2007). The research also revealed that studies of teachers having more than 14 hours of professional development displayed a "positive and significant effect on student achievement from professional development" (Yoon, et al., 2007, p. 3).

Recently, the WWC has faced some criticism for their lack of randomized control trials (Sparks, 2016; Wood, 2017). Concerns have ranged from misrepresentation of study findings, exclusion of relevant studies from review, and concerns over WWC policies and procedures to

name a few (Wood, 2017). The WWC has admitted they have issues that they are working to correct and have produced several quality review reports of their corrections. Despite these issues, the WWC still serves as a useful repository of information for educators. Out of the 69 quality reviews listed in Appendix C of "*Does the What Works Clearinghouse Really Work?*" one study specifically addressed the impact of professional development (Wood, 2017). The quality review report was revised to modify the description of the study to reflect the level of implementation. The quality review revisions did not include any of the nine studies listed below. The findings in the nine studies align with identified best practices of high quality, effective professional development.

The Nine Studies

Cole (1992) and Sloan (1993) were two studies that used a similar professional development model that focused on changes in teachers' behaviors. In Cole (1992), teachers in Mississippi were trained to model 14 pedagogical behavior competencies. The behaviors were applicable generally to all subjects. Teachers received 40 plus contact hours over the course of a year. After the initial eight three-hour sessions over a two-month period, teachers received follow-up observational visits and two half-day follow-up conferences. In Sloan (1993), teachers were trained to practice instructional questioning behaviors associated with Direct Instruction using Hunter's Seven Steps of the Teaching Act. This involved learning how to utilize anticipatory sets, model instruction, and check for guidance. This study lasted about five hours over two months with summer sessions and seven follow-up meetings. Both studies tested for the effect on student achievement in multiple subjects by using commercial tests. The effects were found to be positive, but were not statistically significant after adjusting for multiple outcomes and clustering (Yoon, et al., 2007).

Duffy, Roehler, Meloth, Vavrus, Book, and Putnam's (1986) professional development study focused on training teachers in the use of explicit verbal explanations during reading instruction for poor readers. Teachers received five, two-hour sessions over four months in prescriptive basal text techniques to help struggling readers remove blockages to meanings. Although there was no appreciable increase in reading achievement, the professional development met the standards of high quality (Yoon, et al., 2007).

The studies designed by Marek and Methven (1991), McGill-Franzen, Allington, Yokoi, and Brooks (1999), and Tienken (2003) all focused on curriculum and pedagogy. Marek and Methven's professional development study ran for four weeks during the summer. Participants received over 100 hours of training in science as knowledge and knowledge-seeking. McGill-Franzen et al., provided three whole day sessions and seven two-hour follow-up sessions over the course of six months. The focus of the professional development was to train teachers how to structure their classrooms and instruction to meet literacy development needs in young students. Tienken's study focused on how to provide instruction to students in the use of writing rubrics and high-order reflective questions for narrative writing. Teachers received eight, one-hour sessions and six follow-up conferences over three months. All three studies showed positive effects.

Carpenter, Fennema, Peterson, Chaing, and Loef's (1989) study focused on how students learn and how to assess student learning in mathematics. Teachers received training on the relationship between math problems and how students process to solve them. Training was provided via a four-week workshop with one follow-up session. Teachers had 83 contact hours over four months. Saxe, Gearhart, and Nasir (2001) also focused on mathematics. Their study provided training to teachers on how students learn fractions and how to understand student

motivation in math. Teachers attended a weeklong summer workshop with thirteen follow-up meetings for a total of 60 hours of training over six months.

The final study by McCutchen, Abbott, Green, Beretvas, Cox, and Potter (2002) focused on deepening teachers' understandings of phonology and phonemic awareness. Teachers attended a two-week summer institute and had three follow-up meetings with classroom visits for support. The professional development lasted for ten months with about 100 contact hours with teachers.

A separate three-year longitudinal study looking at the effect of sustained whole school professional development on student achievement in science also found favorable results. Students at a middle school were followed across three years of science classes and participated in the *Discovery* Model School Initiative. The study suggests "the duration and structure of professional development is linked to increased student achievement in science" (Johnson, Kahle, & Fargo, 2007, p. 785). The study also found whole-school sustained professional development provided the opportunity for collaboration of teachers over time. Even after funding was no longer available, the teachers continued to collaborate and all students improved.

Although the connection between professional development and student achievement is a logical one, making the link is a challenge. Researchers, however, have identified three key areas where professional development affects student achievement. First, teacher knowledge and skills are enhanced through professional development. Second, classroom teaching improves because of better knowledge and skills. Finally, student achievement is raised through improved teaching. Better student learning and achievement cannot be expected if one of the steps is weak or missing. According to Yoon et al. (2007), "In the first step, professional development must be of high quality in its theory of action, planning, design, and implementation" (p. 4). Missing

throughout the various studies conducted on high quality professional development and its relationship to student achievement is an examination of the professional development leader and how his or her competencies serve as an antecedent to an effective professional development program. Professional development leaders serve as change agents and are vital to the overall professional development process. These leaders must be willing to engage in all aspects of the professional development process, from program planning and design to the final evaluation of program results (Guskey, 2002a). Before the professional development leader's competencies can be examined, the components necessary for effective professional development must be defined.

Components of Effective Professional Development

For professional development to be considered effective, there are several components that should be evident. In the planning and design of professional development, adult learning principles (andragogy), systems thinking, and models of professional development should be incorporated. The implementation phase of professional development incorporates components of delivery such as facilitation and models of effective presentations. Yoon et al., (2007) state that teaching, improved by professional development, raises student achievement. However, to back this statement up means an evaluation should occur. High quality professional development incorporates an evaluation framework as a means of monitoring and determining success. The following sections will summarize each component and begin establishing the foundation of the conceptual framework.

Adult Learning Principles

According to Malcolm Knowles, andragogy is the art and science of helping adults learn. Although there are many critics of the andragogy theory, the principles of adult learning provide

a solid foundation for planning learning experiences for the adult learner and should not be easily dismissed. Dwyer (2004) offers the following general principles based on Knowles' research:

- Adults bring knowledge and experience to any learning situation.
- Adults are self-directed learners.
- Adults are motivated by information they find meaningful.
- Adults have established learning preferences.
- Adult learners can be impatient when their time is wasted.

High-quality professional development takes these points into consideration during the planning and design phase and adequately addresses these areas to the benefit of the learner. The planning and design process of professional development should also address the following: how to help adults become self-directed learners; how to relate what is learned to adults' previous life experiences; and how to link immediate application to current practice (Smith & Gillespie, 2007).

Systems Thinking

Systems thinking is about looking at the whole of the organization and recognizing the interconnectedness of all parts and they function, this is synergy (Betts, 1992). For professional development to be effective and to truly change instructional practices that lead to increased student achievement, professional developers must recognize ways in which the system either hinders or supports those efforts (Murphy, 2000). Professional development should be thought out and well planned before undergoing professional development initiatives. Many professional development programs provided by districts are ineffective because they are unfocused and are not aligned with other district goals for student learning (Odden et al., 2002).

The researcher offers examples, one effective and one ineffective, of systems thinking in practice. An example of effective system thinking in practice may find a professional development leader and their team analyzing data and determining that students need instruction on how to better utilize handheld technology for writing. The team reviews and researches best teaching practices that utilize handheld technology as part of the writing process. They determine the best strategies that will assist students. District polices are reviewed and modified to better support the use of handheld technology. Professional development for teachers is designed in accordance with district polices and schedules. Time is set aside for teachers to receive ongoing training on the use of handheld technology. This time is communicated throughout the district so school administrators and other district personnel are not scheduling on top of this agreed upon protected time. Technical support is organized to offer support through coaching or troubleshooting. The technology department is consulted to determine network capacity and address potential problems with bandwidth. The finance department is consulted to determine future purchases to offset the digital divide among schools. Systems thinking requires a big picture view to analyze the connections between several areas that either inhibit or encourage efforts.

Ineffective systems thinking, using the previous example, may find the professional development leader's decisions are not necessarily driven by data. The implementation of handheld technology for writing is done because it's the latest educational initiative. Professional development consists of a scattering of one-day workshops without ongoing follow up. District polices are not reviewed for inconsistencies and may not allow for or support handheld technology as a part of instruction. Cross departmental conversations have not occurred, which could greatly impact an effective support structure. Failure to plan and design

for the interconnectedness of several departments would ultimately lead to frustration and abandonment of the initiative on the part of the teachers.

In summary, an important component of effective professional development focuses on "the degree to which the activity promotes coherence in teachers' professional development, by aligning professional development to other key parts of the education system" (Odden et al., 2002, p. 55). Coherence is achieved through embracing the tenets of systems thinking.

Models of Professional Development

According to Dwyer (2004), "[a]dults are probably more different from each other than are children, by virtue of having lived longer and having undergone various experiences" (p. 80). As a result of the many life experiences and learning styles that adults bring into learning situations, the professional development leader will need multiple methodologies for constructing appropriate learning experiences that can appeal to a broad audience of adults. Sparks and Loucks-Horsley put forth five models of staff development for educators, and Guskey's model aligns with their models. The researchers present the following five models: (1) individually-guided, (2) observation/assessment, (3) involvement in a development/ improvement process, (4) training, and (5) inquiry.

Individually-Guided. In this model, the learning is guided by the teacher. Adults know what they are interested in and are able to determine their own goals. With this model the professional development leader will need to design learning experiences that allow adults opportunities to choose the activities which will result in successful completion of their goals. This model assumes the adults are capable of self-direction and self-initiated learning. It also

allows the adults to choose a learning style that best meets their learning needs (Sparks & Loucks-Horsley, 1989; Guskey, 2000).

Observation/Assessment. This particular model is focused on reflection and analysis. Professional development leaders offer feedback in the form of peer coaching and clinical supervision. This model has the potential to support growth and sustain change in practices. However, it is probably one of the more difficult models to implement for districts with limited human resources. It requires a long-term commitment with ongoing follow-up. Data is collected and analyzed to identify weaknesses and strengths. Teachers are encouraged to try what they have learned and make necessary adjustments to their practice based on feedback and personal reflections (Cooper, 2004; Sparks & Loucks-Horsley, 1989; Guskey, 2000).

Involvement in a development/improvement process. In this model, participants are asked to develop or adapt a product. Adults learn and acquire specific knowledge to complete the task. Developing or modifying curriculum, developing school improvement plans and processes, or designing and implementing programs are some of the activities that are often completed within this model. The assumption in this model is adults will learn what they need to know when they need to know it to complete a specific task. However, for this model to be successful, it will require some frontloading of processes on the part of the professional development leader (Sparks & Loucks-Horsley, 1989).

Training. This model is perhaps the most widely used model for planning professional development. This model has a high participant to trainer ratio, thus making it very cost efficient for districts to implement. Usually this model occurs in a workshop setting, with an expert trainer or facilitator leading the participants through a variety of activities (e.g., demonstration, role-playing, simulation, and lecture). Training has the advantage of tapping into district level

expertise; teachers can serve as lead trainers and train their peers on a particular topic or concept. Sparks and Loucks-Horsley (1989) point out that teachers may learn as much from peers as they would from an outside expert consultant, which saves the district money. The training model has a lot of potential to encourage improvement and sustain change if it is not carried out as a one-shot workshop. Teachers need time to implement their newly acquired knowledge and have follow-up and collegial discussions about what worked and what did not. This is usually where the training model falls short. Most sessions are of the one-shot variety, making them ineffective and lacking in coherence (Sparks & Loucks-Horsley, 1989; Guskey, 2000; Smith & Gillespie, 2007).

Inquiry. There is much flexibility with this model of professional development as it can take on many different forms. Inquiry can be done as a solitary activity, in small groups, or as a school faculty. The process of inquiry may be formal or informal and can occur in a classroom, college setting, or in an online format through discussion boards or digital learning management systems. The assumption with this model is that teachers are capable of searching for data to answer questions, can develop valid questions, and can collect their own data to answer them. This model is the basis of action research. The professional development leader will need to have an understanding of basic classroom research if they are utilizing this model for designing learning experiences.

Possessing background knowledge of the different models of professional development will help the professional development leader design and plan learning experiences that are more comprehensive and varied to reach a broad audience of adult learners. Each of the models has advantages and disadvantages, and each model should be considered based on the desired

objectives and intended audience (Sparks & Loucks-Horsley, 1989; Guskey, 2000; Smith & Gillespie, 2007).

Facilitation

The delivery and implementation of professional development requires a grasp of effective presentation and facilitation skills. This is especially needed when dealing with adult learners. Adult learners bring their own experiences to a learning situation and will convey when their needs are not being met with verbal and nonverbal cues. The professional development leader must be cognizant of overly employing didactic methods and denying participants an opportunity to interact and engage in dialogue (Dwyer, 2004). Being a good facilitator requires good listening skills and the ability to read the mood of the audience. Characteristics professional development leaders should possess and or develop include having a good sense of humor, having tact, being flexible, and being sensitive with regard for adult learners. Kirkpatrick (1983) offers a three-step model for effective presentations and facilitating learning. Kirkpatrick points out that good presenters can capture attention by making material relevant, interesting, and understandable. He goes on to add that the good presenter's style is both professional and personal. It is this style that allows the presenter to connect with the audience and facilitate interactions to support learning.

In the first stage of Kirkpatrick's model, he focuses on presenting the material. Presenting the material requires the presenter to be well organized and have thorough knowledge of the material. Being well organized demonstrates a level of professionalism and enables the presenter to exude confidence in his or her delivery. Being well organized also allows for a fair amount of flexibility if the presenter has to respond to unanticipated circumstances, such as location changes and equipment failure. A well-prepared presenter can field solicited and

unsolicited questions without losing audience interest or becoming rattled. Finally, a well-prepared presenter can easily interact with the audience which increases the effectiveness of the delivery by relying less on notes or slides to make points.

Stage two of the model is all about personalizing the material to be presented. Kirkpatrick (1983) speaks of reaching the affective domain as well as the cognitive domain of the audience. The presenter must have a good sense of the audience's background to effectively personalize the material. Kirkpatrick (1983) states that "[m]aking the material and presentation style relevant to one's audience will greatly enhance meaningful attention and interaction" (p. 179). Activities and demonstrations must be created that resonate with the audience and help the adult learners connect the new concepts to prior experiences. If the presenter can give concrete examples mixed with personal anecdotes, the presentation has a greater chance of making a lasting impression.

Stage three addresses enabling group interaction. In this stage, the presenter facilitates group interaction. Research regarding information retention conducted by Linkugel and Berg revealed that 70% of information could be recalled after three hours and only 10% after three days when oral communication is the method of instruction. When visual communication was used, recall of information increased to 72% after three hours and about 35% after three days. However, when a combination method was used, recall of information was 85% after three hours and 65% after three days (Kirkpatrick, 1983). When participants interact with the material, they increase the chance of retention and ownership for their own application. Interacting with the material and engaging in discourse helps adults remember information and process it deeply (Schmeck, 1981). For stage three to be effective, the professional development leader will need to develop facilitation skills as a component of effective delivery. Cilliers (2000) offers insight

on several components of facilitation skills for trainers. His research reveals that trainers should have an understanding of individual and group behavior to help with the facilitation process. The facilitator or trainer should possess intrapersonal awareness to understand his or her own biases. Finally, the facilitator should possess strong interpersonal skills. This allows the facilitator to develop an interpersonal relationship that is unique to the demands of each learning experience (Cilliers, 2000). Delivery of content and material during a professional development session is more than standing and delivering a lecture. It involves understanding how adult participants learn and interact so the learning experience can be delivered in a manner that is supportive of the participants' needs.

Professional Development Evaluation

The area of professional development is vast and often lacks accountability measures because "[t]raditionally, educators haven't paid much attention to evaluating their professional development efforts" (Guskey, 2002b, p. 45). Evaluating professional development is often overlooked because many leaders do not feel they have the necessary expertise to conduct evaluations. However, as Guskey (2002b) points out, good evaluations just require planning and the ability to ask good questions and find valid answers. Evaluation is used to determine the value of something and can be conducted using many different forms (e.g. surveys, focus groups, interviews) involving a range of stakeholders from a few to many. Guskey's framework for evaluating professional development is widely accepted and respected throughout academia. Another popular model for evaluating training is Donald Kirkpatrick's evaluation model. This model is widely accepted and referred to throughout the business world. Kirkpatrick's and Guskey's models share similarities. Both models evaluate reaction, learning, behavior, and results (Guskey, 2000; Kirkpatrick, 1994). The researcher chose Guskey's model for evaluating

professional development, as it better aligns with the research. Guskey's evaluation framework is divided into five levels with each level building upon the previous level.

Level One. Participants' reactions. This level of evaluation is the easiest evaluation component to carry out. Information and data collected reveal how well the participants liked the experience (Kirkpatrick, 1996). This level of evaluation usually occurs immediately at the end of a session and often employs surveys as a data collection method (Guskey, 2000). Questions asked usually address basic human needs, such as was the room comfortable, were the snacks and coffee ready on time, did we start on time, and did we schedule enough breaks? These questions are usually found at level one. In my experience as a professional development consultant, evaluation usually stops at this level. Valuable information can be gleaned to improve future programs and activities if this information is analyzed and appropriately acted upon.

Level Two. Participants' learning. At this level of evaluation, it is important for the professional development leader to measure the knowledge and skills the participants gained (Kirkpatrick, 1996). This level involves forethought and planning and should occur within thirty days of the professional development session. This level of data collection is more complex than the simple survey used in level one. The professional development leader will want the participants to apply what was learned during their workshop and then conduct some type of follow-up to assess if they were able to successfully apply their new knowledge. Conducting observations, creating portfolios, maintaining reflection journals, maintaining a digital discussion board, and convening focus groups are good ways to determine if new skills are being applied after initial professional development sessions have convened. Evaluation at this level will require a systems thinking approach. How will the professional development leader know if the

objectives and goals of the session were successfully met? Indicators of successful learning must be identified before activities can begin (Guskey, 2000).

Level Three. Organization support and change. Level three focuses on evaluating the organization's support of professional development. This level is very important to the overall success or failure of a professional development program. Organizational policies and procedures can work against progress made in levels one and two (Guskey, 2000). This level also requires a level of systems thinking. Gathering information at level three is more complicated than gathering information at the previous levels, but could be valuable for improving organizational support and informing future initiatives.

Level Four. Participants' use of new knowledge and skills. Level four has some similarities to level two in that the professional development leader is assessing the application of new knowledge and skills. However, this level of evaluation occurs at about three to six months from the initial professional development session. The professional development leader is attempting to evaluate whether the new knowledge and skills changed practice (Kirkpatrick, 1996). After some time has passed, are the participants adapting the new knowledge, skills, and ideas to their setting? A clear vision of successful implementation is needed for successful evaluation at this level. Data collection must be planned and can be collected through direct observations, portfolios, reflections, focus groups, interviews, and demonstrations. The professional development leader is seeking to understand if the changes are embedded. Did the resources allocated to this particular activity get the return on investment? Level four data can be used to improve future implementation, but it requires long range planning and repeated follow-up. Level four evaluation can be seen as expensive and time consuming because it happens long after the initial session and results aren't immediately available (Gordon, 1991).

Level Five. Student learning outcomes. Level five evaluation is all about the impact of professional development on student learning. This is the most difficult level of evaluation to assess. It's often complicated to capture and expensive to monitor (Kirkpatrick, 1996). The time between initial professional development activities and identifiable results may span anywhere from several months to several years before results can be attributed to the newly acquired skills and knowledge. Quite often during this time span, new initiatives have been undertaken or the district has identified new priorities as a result of administrative changes. Data collected at a level five evaluation should come from multiple sources to allow for triangulation and identification of unintended results (Guskey, 2000).

Conceptual Framework of Competencies

The framework consists of three domains—design, delivery, and evaluation. Within the three domains, theories and best practices are utilized as the framework of competencies for an effective professional development leader. Adult principles of learning, models of professional development, and systems thinking comprise the design domain. Within the delivery domain there are theories and best practices on adult principles of learning, group facilitation, and models of effective presentations. Finally, the evaluation domain focuses on principles of evaluating professional development. The framework of competencies is depicted in Figure 2.1. The principles embedded within these theories are principles found throughout the literature on effective professional development (Guskey, 1991; Little, 1993; Loucks-Horsley et al., 1996).

Conceptual Framework of Competencies		
Design	**Deliver**	**Evaluate**
*Principles of adult learning (andragogy) *Systems Thinking *Models of Professional Development	*Facilitation *Models of Effective Professional Development	*Evaluation Framework

Figure 2.1. Framework of competencies.

Role of the Professional Development Leader

The role of the professional development leader at the district level is an important one. The individual holding this position must act as a change agent, fully capable of ensuring that the design, delivery, and evaluation of offered professional development is rooted in best practices based on research and guided by an analysis of data (Guskey, 1991). They must continue to seek ways to build the capacity of educators to improve student learning and offer appropriately focused support that aligns with district initiatives. It should go without saying that the impact and influence of the professional development leader's ability to fulfill his or her leadership role can either help or hinder a district's progress towards student improvement. At a systemic level, the leader's competencies around high quality professional development should amalgamate into one comprehensive program that meets the varied needs of educators throughout the system. In essence, what a leader knows and does in his or her organization, with regards to professional development, should impact the overall perception of professional development in the district. However, the role of the professional development leader is a complex one. The responsibility for implementing initiatives can be hindered by multiple layers depending on the size and organizational structure of the district. Professional development leaders often work directly with curriculum directors, instructional coaches, principals, and teachers when carrying out new initiatives. The professional development leader's impact on teachers' perceptions of professional development could be impacted by these complex, layers. A typical depiction of how professional development initiatives are cascaded down to teachers is captured in figure 2.2.

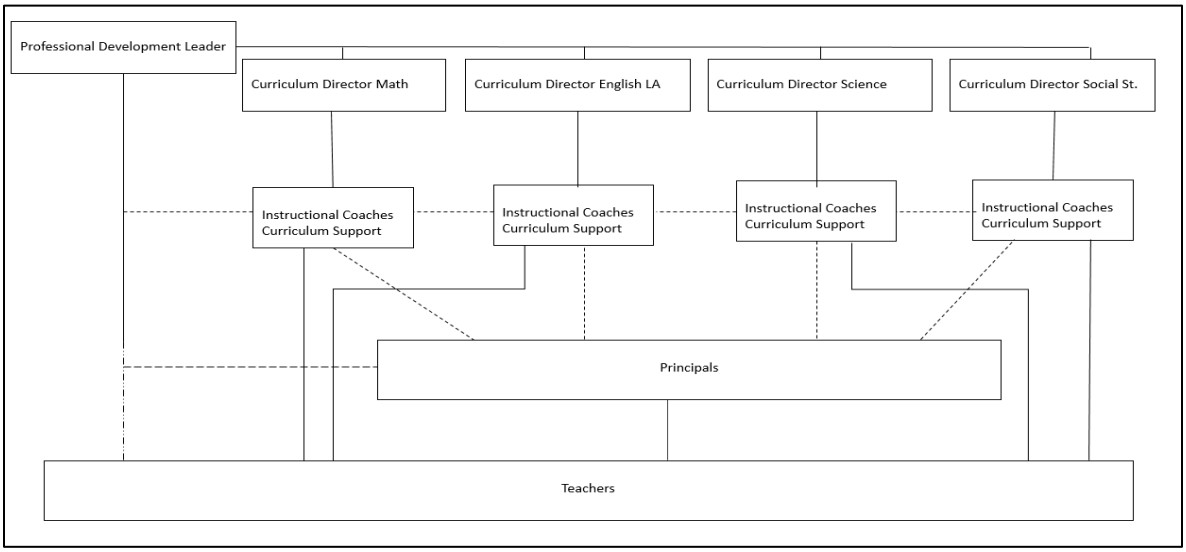

Figure 2.2 Complexity of Professional Development Role

Implemented Professional Development Models

The most widely used model of professional development implemented by the North Carolina Department of Public Instruction is the training model. There were 235 professional development events listed on the professional development calendar between August 2015 and March 2017 ("Professional Development Calendar," 2017). Based on the descriptions, each event involved an expert trainer or facilitator who led participants through a variety of activities. Trainings covered a variety of topics encompassing teacher evaluation, understanding curriculum standards, utilizing data for decision making, and beginning teacher support to name a few.

The training model is a very cost-effective model to implement, as it allows for a high participant to trainer ratio. The delivery methods varied. Some events were face to face trainings while others were synchronously delivered online ("Professional Development Calendar," 2017). Unfortunately, data on the outcomes of these trainings and their relationship to student achievement is not available. This level of professional development evaluation is

found in Guskey's fifth level of the evaluation framework. It is indeed the most complicated level of evaluation to assess as several initiatives have been introduced over time making it difficult to attribute any specific initiative to achievement gains or losses.

North Carolina Teacher Working Conditions Survey

The North Carolina Teacher Working Conditions Survey is a statewide survey of licensed school-based educators canvassing their perceptions about their working conditions. The survey is a biennial statewide survey distributed by the North Carolina Department of Public Instruction and the New Teacher Center. The survey captures data across the following eight constructs:

- Community Engagement and Support
- Teacher Leadership
- School Leadership
- Managing Student Conduct
- Use of Time
- Professional Development
- Facilities and Resources
- Instructional Practices and Support

During the 2014 survey administration, 93,178 (88.63%) educators responded to the survey. The rate of agreement within the professional development construct when compared to the 2012 responses are summarized in Table 2.1.

Table 2.1

Professional Development Rate of Agreement Comparisons (2012 vs. 2014)

Item	**Rate of Agreement 2012**	**Rate of Agreement 2014**
Professional development offerings are data driven	84.4%	83.1%
Professional development is differentiated to meet the individual needs of teachers	62.4%	66.1%
Professional development deepens teachers' content knowledge	77.2%	75.6%
Professional development is evaluated and results are communicated to teachers	65.0%	64.5%
Professional development enhances teachers' ability to implement instructional strategies that meet diverse student learning needs	84.2%	83.3%
Professional development enhances teachers' abilities to improve student learning	87.2%	86.2%

Table 2.1

Despite years of reduced funding and budget cuts to professional development, educators' perceptions on professional development remained positive and are mostly unchanged from the 2012 survey.

CHAPTER THREE: METHODOLOGY

The first two chapters of this study have reviewed the problem and purpose of the study, as well as the relevant literature regarding the theories and best practices of professional development. The problem is that although the research on effective professional development in education is extensive (Guskey, 1994), there is a dearth of information explicitly addressing the needed competencies of professional development leaders and their impact on a professional development program. The success or failure of a professional development program is often attributed to how well it is planned, implemented, and evaluated. To achieve high-quality professional development, professional development leaders should have an active role in the planning, designing, delivery, and evaluation of the overall professional development program.

The study focused on two main questions with the second question containing three sub questions. The first question was determining which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development. The second question was whether or not the competency levels of professional development leaders impact teachers' perceptions of professional development. Within question two were three sub-questions. First, do higher levels of competency in the design domain of professional development have a positive relationship on teachers' perceptions of professional development? Secondly, do higher levels of competency in the delivery domain of professional development have a positive relationship on teachers' perceptions of professional development? And finally, do higher levels of competency in the

evaluation domain of professional development have a positive relationship on teachers' perceptions of professional development? Assuming the competencies the professional development leaders possess are being acted upon, they will have a direct impact on the overall effectiveness of a district's professional development program.

The literature outlined the historical need for teacher professional development and the theories and practices viewed as essential for high-quality professional development. The literature also provided a basis for the conceptual framework of competencies with regards to designing, delivering, and evaluating an effective professional development program. However, the literature also revealed there is a lack of examination on the preparation of leaders of professional development programs concerning theories and best practices.

The remainder of this chapter will outline and provide an explanation of the research methods to be used in this proposed study. The chapter will further address the purpose of the study, research questions, research design, and data collection procedures as well as population, instrumentation, and data analysis.

Purpose of the Study

As school districts grapple with implementing new initiatives and the continuing pursuit of increasing student achievement, it is imperative that the scarce resources allocated for professional development actualize expectations. Professional development is a widely recognized strategy school districts rely on to improve teaching, learning, and student achievement. Several research studies on effective professional development have identified necessary components needed to garner positive results. The professional development leader bears the primary responsibility of ensuring professional development is designed, delivered, and evaluated to meet the overarching needs and goals of the district.

The purpose of this proposed study is twofold. It first uses a comprehensive framework that clearly outlines competencies an individual should have to design, deliver, and evaluate professional development. Second, the domain competencies will be compared to specific professional development survey items found in the *North Carolina Teachers' Working Condition Survey*. The purpose of comparing the survey questions to the framework's domain competencies is to investigate the relationship of professional development leaders' competencies and teachers' perceptions of professional development using a causal-comparative research design. The following research questions will guide the study:

1. Which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development?
2. How, if at all, do the competency levels of professional development leaders impact teachers' perceptions of professional development?
    a. Do higher levels of competency in the design domain of professional development have a positive relationship on teachers' perceptions of professional development?
    b. Do higher levels of competency in the delivery domain of professional development have a positive relationship on teachers' perceptions of professional development?
    c. Do higher levels of competency in the evaluation domain of professional development have a positive relationship on teachers' perceptions of professional development?

Research Design

This proposed study seeks to establish a comprehensive framework that clearly outlines competencies an individual should possess to effectively lead a professional development program. These competencies are agreed upon by eight practitioners from across the state of North Carolina. Each panel practitioner has a minimum of five years of experience designing, delivering, and evaluating professional development for the state of North Carolina. Six of the practitioners are former school leaders. The panel of practitioners is made up of one White male, six White females, and one Black female representing each region of the state. Using a five-point Likert scale, panelists were asked to rate their level of agreement with the domain competencies and provide feedback if they did not agree with any aspect. The framework was modified to reflect the gathered feedback. The panel was then asked in follow-up correspondence to assign each professional development construct item from the NCTWCS to a domain from the framework of competencies based on the domain descriptions if applicable. Researcher interactions with the panelist of professional development practitioners is depicted in figure 3.1.

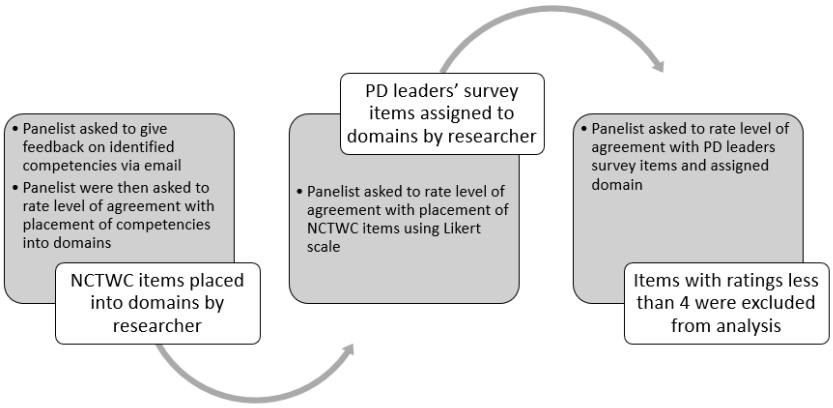

Figure 3.1 *Panelist engagement*

The competency framework consists of three domains: design, delivery, and evaluation. The results of the survey were placed into a frequency table to determine agreement among the

practitioners and assign each question to a domain. Within the three domains, theories and best practices are utilized as the framework of competencies needed for an effective professional development leader. Adult principles of learning, systems thinking, and models of professional development comprise the design domain. Within the delivery domain, there are theories and best practices on adult principles of learning, group facilitation, and models of effective presentations. Finally, the evaluation domain focuses on principles of evaluating professional development. Guskey's framework for evaluating professional development is the researcher's choice because of its alignment with evaluating educational outcomes such as student achievement. Although Kirkpatrick's model of evaluating professional development shares several tenets of Guskey's, it does not specifically address student achievement. The principles embedded within the domain theories are principles found throughout the literature on effective professional development (Guskey, 1991; Little, 1993; Loucks-Horsley et al, 1996).

Rationalization for Causal-Comparative Design

This study followed a causal-comparative design. According to Mertler (2016), a causal-comparative design seeks to find relationships between independent and dependent variables after an event has occurred. The results of the professional development leader's self-assessment survey serve as the independent variable. The results of the professional development construct on the *North Carolina Teacher Working Conditions Survey* (NCTWCS) serve as the dependent variable. The researcher sought to determine whether the independent variable (professional development leader's competency level) affected the outcome of the dependent variable (professional development construct on the NCTWCS). In the causal-comparative design, the researcher used data extrapolated from the 2014 NCTWCS and a survey of professional development leaders' self-assessments of competencies. The questions from the professional

development section of the NCTWCS were aligned with the professional development leaders' competencies framework's domains of competencies where applicable. Alignment of domain competencies and NCTWCS items are listed in Table 3.1. A panel of practitioners were asked to anonymously assign each of the thirteen survey items to a domain from the framework. Results from this section were used to ascertain teachers' perceptions of professional development in their school district.

The researcher had access to data on the professional development construct of the 2014 NCTWCS from the North Carolina Department of Public Instruction (NCDPI), Educator Effectiveness Division. The data have been disaggregated by region and aggregated by each survey item. The data are made available to the public via the *North Carolina Working Conditions Survey* website. District professional development leaders were included in this study and compared to their district's teachers' perceptions of professional development on the NCTWCS.

Professional development leaders' self-reported their competencies using a 5-point Likert item for each competency. The researcher used the Pearson correlation coefficient to determine if a positive relationship existed and how strong the relationship was between the professional development leaders' levels of competencies and teachers' perceptions of professional development in their district as measured by the NCTWCS. The researcher determined higher levels of competency by identifying and analyzing responses that are on the upper end of the response scale. If a positive relationship existed, the research would determine the strength and significance of the association using general guidelines for interpreting the size of coefficients (Taylor, 1990). The general guidelines for strength of coefficients are: .20-.35, weak; .36-67, moderate; .68-.89, high; and >0.90, very high.

Table 3.1 *Competency Domain Alignment with NCTWCS Items*	
Survey Items	Competency Domain
Sufficient resources are available for PD in my school.	Design
An appropriate amount of time is provided for PD.	Design
PD offerings are data driven.	Design
Professional learning opportunities are aligned with the school's improvement plan.	Design
PD is differentiated to meet the individual needs of teachers.	Deliver
PD deepens teachers' content knowledge.	Design
Teachers have sufficient training to fully utilize instructional technology.	Deliver
Survey Items	Competency Domain
Teachers are encouraged to reflect on their own practice.	Design
In this school, follow up is provided from PD.	Design
PD provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.	Design
PD is evaluated and results are communicated to teachers.	Evaluate
PD enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.	Design
PD enhances teachers' abilities to improve student learning.	Design

Table 3.1

No prior data on professional development leader competencies existed. Statistical Package for the Social Sciences (SPSS) is the researcher's selected statistical software for analyzing the needs assessment survey containing the three domains. Questionnaire items for analysis are listed in Table 3.2. Each of the domain's framework competencies and the aligned domain survey items will use regression to determine the relationship. Upon analysis, the researcher seeks to determine if a high positive relationship exists between professional development leaders perceived competency levels and teachers' perceptions of professional

development. Higher levels of competency will be determined by identifying and analyzing responses that are on the upper end of the response scale. For analysis on the 5-point scale, responses equaling 4 and 5 will be considered high. These responses will be aggregated and used as a part of the correlations. If a positive relationship exists, the strength and significance of the association will be determined using general guidelines for interpreting the size of coefficients (Taylor, 1990).

Table 3.2

Professional Development Leader Self-Assessed Competencies

Design Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
1. Designing activities for independent study for adults participating in professional development	Adult Learning (AL)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
2. Applying knowledge of adult learning when designing professional development for adults	AL	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
3. Employing a variety of strategies to facilitate instruction of adults during professional development.	Models of PD (MPD)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
4. Employing specific strategies for enhancing adult learner persistence.	MPD	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
5. Implementing a variety of participatory processes for adult professional learning.	MPD	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
6. Planning professional development that does not conflict with the district's goals.	Systems Thinking (ST)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient

Design Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
7. Planning professional development according to results of ongoing needs assessments of adult practitioners.	ST	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
8. Managing complexity in order to maximize success of professional development program.	ST	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
9. Discerning suitability of professional development programs to benefit the district across multiple areas.	ST	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
Delivery Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
10. Providing varied opportunities for adult learners to apply their learning during professional development workshops.	Facilitation (Fac)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
11. Encouraging adult learner interaction to promote the development of a learning community.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
12. Identifying nonverbal communications, such as body posture, gestures, and facial expressions.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
13. Paraphrasing adult participant input for clarity.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
14. Recognizing conflict among adult participants during professional development workshops.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
15. Managing disruptive behavior among adult participants during professional development workshops.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient

Delivery Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
16. Drawing upon the knowledge or experience of adult participants during professional development workshops.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
17. Keeping learning activities focused on the professional development objectives.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
18. Giving directions that are clearly understood by all adult participants.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
19. Adapting to the dynamics of the current situation.	Fac	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
20. Incorporating multi-sensory activities when presenting to adult learners.	Effective Presentation (EP)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
21. Using appropriate language for a demographic mix of adult learners.	EP	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
22. Developing rapport with adult learners during professional development workshops.	EP	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
23. Making transitions from one professional development agenda topic to the next professional development agenda topic.	EP	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
24. Transitioning adult learners from idea generation to action planning.	EP	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
25. Representing key ideas to adult learners in a variety of ways.	EP	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
26. Acknowledging individual learning styles of adult learners.	AL	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient

Delivery Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
27. Balancing the use of time so that the agenda is covered in appropriate depth relative to the needs of adult learners.	AL	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
Evaluation Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*	
Questions	**Competency Tag**	**Scale**
28. Coordinating the collection of relevant professional development data for program improvement.	Evaluation (Eval)	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
29. Utilizing quantitative methods to determine the outcome of professional development activities.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
30. Utilizing qualitative methods to determine the outcome of professional development activities.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
31. Determining the level of adult participants' satisfaction with the professional development.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
32. Determining the degree to which adult participants' needs were met.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
33. Conducting cost analysis to determine the most effective use of resources for professional development.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
34. Recognizing the levels of evaluation for professional development programs.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient
35. Applying all levels of evaluation to district offered professional development programs.	Eval	1 = not proficient, 2 = somewhat proficient, 3 = moderately proficient, 4 = very proficient, 5 = extremely proficient

Table 3.2

Sample

The state of North Carolina comprises 115 public school districts, not including charter schools. Each school district has at least one primary point of contact responsible for professional development. The professional development leaders from the 115 public school districts were invited to complete a needs assessment survey focused on their competencies within the three domains for effective professional development. The North Carolina Department of Public Instruction administers the NCTWCS every two years and all certified staff members are invited to participate.

Instrumentation

The New Teacher Center's research brief (2014) outlines the design, validity, and reliability of the NCTWCS. The research brief provided an overview of the research base and documented the association between teaching and learning. The brief also provided technical analyses and reporting to inform policy and practice. Researchers, using data from the New Teacher Center's (NTC) Teaching, Empowering, Leading, and Learning (TELL) survey instrument from various states and the NCTWCS confirm that teaching and learning conditions influence teachers' plans to stay in the profession (New Teacher Center, 2014). The research brief also contained statements from the Johnson, Kraft, and Papay research that indicated positive conditions contribute to improved student achievement.

The NCTWCS originated in the Office of the Governor as part of the Governor's Teacher Working Conditions Initiative (2002-2008). The North Carolina Professional Teaching Standards Commission (NCPTSC) conducted a literature review to explore factors contributing to teacher satisfaction and future employment plans (New Teacher Center, 2014). The NCPTSC identified several areas related to teachers' future employment plans--time, empowerment,

leadership, decision-making, and facilities and resources. These identified areas would eventually become the constructs used in the current iteration of the survey. The constructs that make up the survey are: time, facilities and resources, community support and involvement, managing student conduct, teacher leadership, school leadership, instructional practices and support, and professional development.

Validation

Validity is the process of ensuring the instrument accurately measures what it is intended to measure. The validity testing of the survey assessed the degree to which the instrument measures the eight theoretical constructs. The New Teacher Center conducted factor and confirmatory analyses to group the responses and verify that the structure of the data reflects the structure expected. Researchers also used eigenvalues to indicate the amount of variation each factor or component can explain (New Teacher Center, 2014). Researchers determined, empirically and theoretically, the factor analysis of the instrument supports the eight theoretical constructs. Additional external analysis of the instrument was supported through the Bill and Melinda Gates Foundation. Andrew Swanlund used data from 286,835 educators from 11 states across the United States to examine both validity and reliability (Swanlund, 2011). The results of these analyses provided a clear structure for the survey and confidence in interpreting the results. The external validity results also prompted several edits to improve statistical stability of the survey. A four-point rating scale replaced the original six-point rating scale, and some survey constructs were broken into multiple constructs. The new scale ensured appropriate scoring for both individual and school level responses (New Teacher Center, 2014; Swanlund, 2011).

Reliability

Reliability ensures that the instrument produces the same results across repeated measures within the same population or with a similar population (New Teacher Center, 2014). The internal reliability testing for the instrument confirmed that the survey is generalizable and will produce similar results with similar populations. The Cronbach's alpha coefficients ranged from 0.86 to 0.96. Coefficients closer to 1.00 equate with greater internal consistency of the items in the scale. The professional development construct of the survey has a Cronbach's alpha of 0.956 (New Teacher Center, 2014; Swanlund, 2011). The thirteen professional development construct items are listed in Table 3.1. The results confirmed that overall the survey is a statistically sound approach for measurement. External reliability analysis was performed by Andrew Swanlund as a part of the Bill and Melinda Gates Foundation TELL survey external analysis. Swanlund's external analysis determined that the survey can produce consistent results across participant groups. The Rasch model and Cronbach's alpha were used for analyzing reliability externally (Swanlund, 2011). The results of the external reliability analysis confirm that the TELL survey is a statistically sound approach for measuring teaching and learning conditions (New Teacher Center, 2014; Swanlund, 2011).

Cronbach's alpha was run on the needs assessment survey for professional development leaders. The overall alpha for all three domains was 0.897 and was deemed consistent. Each domain of the instrument posted subscales above 0.7. The subscales of the professional leaders' self-assessed competencies were 0.742 (design), 0.713 (delivery), and 0.764 (evaluation).

Conceptual Framework

The researcher developed the conceptual framework based on theories and best practices that are identified as components of effective professional development. A panel of seven

practitioners in the field of professional development reviewed the framework anonymously. Using a five-point Likert scale, panelists were asked to rate their level of agreement with the domain competencies and provide feedback if they did not agree with any aspect. One panelist suggested not to specify a single evaluation framework since several evaluation models exist for evaluating professional development. The framework was modified to reflect the feedback. All construct items were assigned to a domain. Alignment of domain competencies and NCTWCS items are listed in Table 3.3.

Table 3.3

Professional Development Construct Items

Survey Items	Competency Domain
Sufficient resources are available for PD in my school.	Design
An appropriate amount of time is provided for PD.	Design
PD offerings are data driven.	Design
Professional learning opportunities are aligned with the school's improvement plan.	Design
PD is differentiated to meet the individual needs of teachers.	Deliver
PD deepens teachers' content knowledge.	Design
Teachers have sufficient training to fully utilize instructional technology.	Deliver
Teachers are encouraged to reflect on their own practice.	Design
In this school, follow up is provided from PD.	Design
PD provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.	Design
PD is evaluated and results are communicated to teachers.	Evaluate
PD enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.	Design
PD enhances teachers' abilities to improve student learning.	Design

Table 3.3

Data Analysis

The Pearson correlation coefficient is used to analyze the data from the second guiding question. An alpha of 0.05 was used as the cutoff for statistical significance. The results tested the strength of the relationship between teachers' perceptions of professional development and the competencies of the professional development leader. Self-assessment survey questions for each respondent were aggregated by domain. The results of the self-assessment survey were the independent variable impacting the dependent variable. The researcher sought to determine if higher levels of competency in a domain have a positive relationship with the results of the corresponding domains within the professional development construct of the *North Carolina Teacher Working Condition Survey*. The last three guiding questions were designed to correlate the direction of the relationship between teachers' perceptions of professional development and each domain of the framework. SPSS was used by the researcher to perform bivariate correlations for the statistical tests of the study. If no statistical significance was found during the initial analysis, the researcher would narrow the scope and limit the analysis to the state's five largest and smallest districts that responded.

CHAPTER FOUR: RESULTS

The purpose of this quantitative study was to investigate the extent to which professional development leaders' competencies impact teachers' perceptions of district professional development. The study used the results from the *2014 North Carolina Teacher Working Conditions Survey* (NCTWCS) and the self-assessment survey data of professional development leaders' competencies. This chapter has three sections. The first section will present the procedures used to analyze the data and the results. The second section presents the findings for each research question. The third section provides a summary of the chapter.

The research questions for this causal-comparative study are provided in Table 4.1. Statistical procedures for each question are also included.

Table 4.1

Research Questions and Procedures

Research Questions	**Statistical Procedure**
RQ1. Which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development?	Mean
RQ 2. How, if at all, do the competency levels of professional development leaders impact teachers' perceptions of professional development?	Regression

Research Questions	Statistical Procedure
RQ 2a. Do higher levels of competency in the design domain of professional development have a positive relationship on teachers' perceptions of professional development?	One-Way ANOVA
RQ 2b. Do higher levels of competency in the delivery domain of professional development have a positive relationship on teachers' perceptions of professional development?	One-Way ANOVA
RQ 2c. Do higher levels of competency in the evaluation domain of professional development have a positive relationship on teachers' perceptions of professional development?	One-Way ANOVA

Table 4.1

The first question sought to establish the theories and practices that frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development. The second question was designed to determine if a statistically significant relationship existed between the competency levels of professional development leaders and teachers' perceptions of professional development.

Descriptive Statistics

Panelist Survey

The panelist survey was administered via email. Using a five-point Likert scale, panelists were asked to rate their level of agreement with the assigned domain competency (see Appendix C for a copy of the panelist survey). The responses for each question were aggregated and a mean was calculated to determine the level of agreement for the assigned domain. Means of 4-5 indicate higher levels of agreement. Aggregated panelist survey results are detailed in Table 4.2. Each survey question in the professional development leader's competency survey was placed in one of three domains and a competency tag was assigned. The vetting process was done to establish the researcher's developed framework as a legitimate reflection of needed

competencies, as agreed upon by practicing professional development leaders and to provide a counterbalance to possible researcher bias.

A follow-up survey was sent to the panelists asking each panelist to rate their agreement with the assigned competency tag. Using a five-point Likert scale, panelists were asked to rate their level of agreement with the assigned competency tag. The responses for each question were aggregated and a mean was calculated to determine the level of agreement. Two items were not used in analysis due to means lower than 4. Aggregated panelist survey results are detailed in Table 4.2.

Table 4.2

Panelist Survey of Competency Domain Alignment

Survey Items	**Competency Domain**	**N**	**St. Deviation**	**Mean**
Sufficient resources are available for PD in my school.	Design	8	.83	2.9
An appropriate amount of time is provided for PD.	Design	8	0	5.0
PD offerings are data driven.	Design	8	0	5.0
Professional learning opportunities are aligned with the school's improvement plan.	Design	8	0	5.0
PD is differentiated to meet the individual needs of teachers.	Deliver	8	.46	4.7
PD deepens teachers' content knowledge.	Design	8	.7	4.2
Teachers have sufficient training to fully utilize instructional technology.	Deliver	8	.35	4.8
Teachers are encouraged to reflect on their own practice.	Design	8	.53	3.5
In this school, follow up is provided from PD.	Design	8	.53	4.0
PD provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.	Design	8	0	5.0

Survey Items	Competency Domain	N	St. Deviation	Mean
PD is evaluated and results are communicated to teachers.	Evaluate	8	0	5.0
PD enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.	Design	8	0	5.0
PD enhances teachers' abilities to improve student learning.	Design	8	0	5.0

Table 4.2

Table 4.3

Professional Development Leader Self-Assessed Competencies (Panelist Results)

Design Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
1. Designing activities for independent study for adults participating in professional development	Adult Learning (AL)	8	0	5.0
2. Applying knowledge of adult learning when designing professional development for adults	AL	8	0	5.0
3. Employing a variety of strategies to facilitate instruction of adults during professional development.	Models of PD (MPD)	8	0	5.0
4. Employing specific strategies for enhancing adult learner persistence.	MPD	8	0	5.0
5. Implementing a variety of participatory processes for adult professional learning.	MPD	8	0	5.0
6. Planning professional development that does not conflict with the district's goals.	Systems Thinking (ST)	8	0	5.0
7. Planning professional development according to results of ongoing needs assessments of adult practitioners.	ST	8	0	5.0

Design Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
8. Managing complexity in order to maximize success of professional development program.	ST	8	0	5.0
9. Discerning suitability of professional development programs to benefit the district across multiple areas.	ST	8	0	5.0
Delivery Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
10. Providing varied opportunities for adult learners to apply their learning during professional development workshops.	Facilitation (Fac)	8	0	5.0
11. Encouraging adult learner interaction to promote the development of a learning community.	Fac	8	0	5.0
12. Identifying nonverbal communications, such as body posture, gestures, and facial expressions.	Fac	8	0	5.0
13. Paraphrasing adult participant input for clarity.	Fac	8	0	5.0
14. Recognizing conflict among adult participants during professional development workshops.	Fac	8	0	5.0
15. Managing disruptive behavior among adult participants during professional development workshops.	Fac	8	0	5.0
16. Drawing upon the knowledge or experience of adult participants during professional development workshops.	Fac	8	0	5.0
17. Keeping learning activities focused on the professional development objectives.	Fac	8	0	5.0
18. Giving directions that are clearly understood by all adult participants.	Fac	8	0	5.0

Delivery Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
19. Adapting to the dynamics of the current situation.	Fac	8	.35	4.8
20. Incorporating multi-sensory activities when presenting to adult learners.	Effective Presentation (EP)	8	0	5.0
21. Using appropriate language for a demographic mix of adult learners.	EP	8	0	5.0
22. Developing rapport with adult learners during professional development workshops.	EP	8	0	5.0
23. Making transitions from one professional development agenda topic to the next professional development agenda topic.	EP	8	0	5.0
24. Transitioning adult learners from idea generation to action planning.	EP	8	0	5.0
25. Representing key ideas to adult learners in a variety of ways.	EP	8	0	5.0
26. Acknowledging individual learning styles of adult learners.	AL	8	0	5.0
27. Balancing the use of time so that the agenda is covered in appropriate depth relative to the needs of adult learners.	AL	8	0	5.0
Evaluation Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
28. Coordinating the collection of relevant professional development data for program improvement.	Evaluation (Eval)	8	0	5.0
29. Utilizing quantitative methods to determine the outcome of professional development activities.	Eval	8	0	5.0
30. Utilizing qualitative methods to determine the outcome of professional development activities.	Eval	8	0	5.0

Evaluation Domain Question Stem	*Please indicate how proficient you feel you are with each task listed below.*			
Questions	**Competency Tag**	**N**	**St. Dev**	**Scale**
31. Determining the level of adult participants' satisfaction with the professional development.	Eval	8	0	5.0
32. Determining the degree to which adult participants' needs were met.	Eval	8	0	5.0
33. Conducting cost analysis to determine the most effective use of resources for professional development.	Eval	8	.46	4.7
34. Recognizing the levels of evaluation for professional development programs.	Eval	8	0	5.0
35. Applying all levels of evaluation to district offered professional development programs.	Eval	8	0	5.0

Table 4.3

Teacher Working Conditions Survey and Professional Development Leader Survey

The 2014 *NCTWCS* was administered statewide to licensed educators by the New Teacher Center. A total of 82,582 (88.63%) of the state's educators responded to the survey. The survey consists of nine main constructs and each construct contains sub-constructs. Only the professional development construct was used for analysis. The professional development construct contains 13 survey items. The survey items for the professional development construct are found in Table 4.2. The thirteen survey items were assigned to a corresponding domain. Two questions were not used as part of analysis. The responses for each school were aggregated to produce the district data for analysis used in this study. The results of the teachers' perceptions are detailed in Table 4.6.

The 2015 survey of professional development leaders was sent to district professional development leaders across the state via a distribution email list maintained by the North Carolina Department of Public Instruction, Educator Effectiveness Division. A total of 115

survey invitations were sent with a 42.6% response rate. This rate is considered low since it is less than half of the surveyed professional development leaders. There were 10 non-completers. The 10 non-completers were not included in the analysis of the data. There was no way to identify the non-completers for follow up since their responses were not submitted. Professional development leaders were asked to self-assess their competencies by responding to a series of questions grouped by the design, delivery and evaluation domains. Using a five-point Likert scale, professional development leaders self-assessed their knowledge. The responses for each question were aggregated and a mean was calculated for each domain for analysis. Aggregated domain results for the professional development leader are detailed in Table 4.6 Mean scores of 4-5 among professional development leaders represent high levels of competency within the domain, while mean scores of 4-5 on the *NCTWCS* professional development construct represent high levels of agreement and positive perceptions within the domain. Scores in the 1-2 range within a domain represent lower levels of competency among professional development leaders and negative perceptions of professional development on the *NCTWCS*.

Research Questions

Correlations were conducted on the sub-questions. This analysis sought to determine the strength of the relationships between professional development leaders' competency levels and teachers' perceptions of professional development. No significant differences were found among the data and the relationships were weak for all three domains. The correlation statistics for each domain are listed in Table 4.4.

A regression analysis was conducted using professional development leader competency as a predictor of teachers' perceptions in each of the three domains. For the design domain, the model revealed that professional development leaders' competencies account for 1% of the

variance in the design domain with a Pearson r = -.120, $F(1,48)$ = .682, p = .413. There was no statistically significant difference between the professional development leaders' competency level and teachers' perceptions on the design of professional development. For the second domain on delivery, the model revealed that professional development leaders' competencies had no statistical differences when compared against teachers' perceptions on the delivery of professional development. The model revealed a Pearson r = 0.12, $F(1,48)$ = .007, p = .935. Finally, for the evaluation domain, the model revealed a Pearson r = 0.008, $F(1,48)$ = .003, p = .956. Again, there was no statistically significant difference between the professional development leaders' competency levels and teachers' perceptions on the evaluation of professional development.

Using figures on per student spending from the Public School Forum Local Finance Data Study and the Free and Reduced Priced Lunch data from NCDPI, a correlation was run to determine if there was a relationship between the two variables. The model revealed a Pearson r = -.554. Since the relationship between the two variables is moderate, meaning there is enough of a difference between the two, both variables were used in a multiple regression model to explore if the differences in each domain could be predicted by student spending and free and reduced priced lunch. The regression models revealed that student spending and the percentage of free and reduced priced lunch are not predictors of the differences found within each domain. The results were not statistically significant. Regression model outputs are listed in Table 4.7.

When looking at the differences among the perceptions by domain, however, the data revealed that there were several districts where the teachers' perceptions were slightly higher than the professional development leader's perception in either the design or evaluation domains. Cherokee County Schools and Edgecombe County Schools are the only districts where the

teachers' perceptions of professional development rated higher than the professional development leaders rating in two domains. The professional development leaders in these two districts also rated themselves the lowest in the design domain among all professional development leaders completing the survey. The Cherokee County Schools professional development leader had a self-assessed rating of 2.71 while teachers had a rating of 3.11, a difference of -0.40. The Edgecombe County Schools professional development leader had a rating of 3.00 while teachers had a rating of 3.11 for a difference -0.11. Based on 2014-2015 data from the North Carolina Department of Public Instruction, both rural districts had more than half of their student population receive free or reduced priced lunch. Of the two mentioned districts, Edgecombe spends considerably less per student than the state average of $1573, while Cherokee spends slightly more at $1644. The local school finance study for 2016, produced by the Public School Forum of North Carolina, reported that Edgecombe County Schools only spent $957 per student during the 2014-2015 school year, the seventh lowest among all North Carolina school districts.

Table 4.4

Correlation Statistics

Design Domain			
	Mean	**Std. Deviation**	**N**
Leaders' Competencies	3.71	.587	49
Teachers' Perceptions	3.05	.079	49
	Subjects	**Teachers' Perceptions**	**Leaders' Competencies**
Pearson Correlation	Teachers Leaders	1.000 -.120	-.120 1.000

Design Domain			
	Subjects	**Teachers' Perceptions**	**Leaders' Competencies**
Sig. (1-tailed)	Teachers Leaders	 .207	.207
N	Teachers Leaders	49 49	49 49
Delivery Domain			
	Mean	**Std. Deviation**	**N**
Leaders' Competencies	3.85	.513	49
Teachers' Perceptions	2.90	.102	49
	Subjects	**Teachers' Perceptions**	**Leaders' Competencies**
Pearson Correlation	Teachers Leaders	1.000 .012	.012 1.000
Sig. (1-tailed)	Teachers Leaders	 .467	.467
N	Teachers Leaders	49 49	49 49
Evaluation Domain			
	Mean	**Std. Deviation**	**N**
Leaders' Competencies	3.46	.688	49
Teachers' Perceptions	2.90	.144	49
	Subjects	**Teachers' Perceptions**	**Leaders' Competencies**
Pearson Correlation	Teachers Leaders	1.000 .008	.008 1.000
Sig. (1-tailed)	Teachers Leaders	 .478	.478
N	Teachers Leaders	49 49	49 49

Table 4.4.

Table 4.5

Student Spending and Percentage Free and Reduced Priced Lunch

	Mean	Std. Deviation	N
% FRPL	58.85	11.22	49
Spending per Student	1573.83	707.48	49
Pearson Correlation	% FRPL Spending per Student	1.00 -.554	-.554 1.00
Sig. (1-tailed)	% FRPL Spending per Student	.000	 .000
N	% FRPL Spending per Student	49 49	49 49

Table 4.5.

Table 4.6

Aggregated Domain Results

District	PDL Design	Teachers Design	Design Diff	Design St. Dev	PDL Delivery	Teachers Delivery	Delivery Diff	Delivery St. Dev	PDL Eval	Teachers Eval	Eval Diff	Eval St. Dev	% FRPL	Spending
Anson County Schools	4.29	3.12	1.17	0.83	4.61	2.93	1.69	1.19	4.88	3.06	1.82	1.29	80.52	$1071.00
Ashe County Schools	3.29	3.18	0.10	0.07	3.20	3.06	0.14	0.10	3.38	2.95	0.43	0.30	63.92	$1409.00
Asheville City Schools	3.71	2.84	0.87	0.61	3.71	2.68	1.03	0.73	3.00	2.40	0.60	0.42	43.82	$2116.00
Avery County Schools	4.14	3.00	1.14	0.80	4.17	2.95	1.23	0.87	4.38	2.68	1.70	1.20	73.49	$1828.00
Beaufort County Schools	4.14	3.10	1.04	0.73	4.17	2.99	1.19	0.84	2.75	2.96	-0.21	0.15	67.78	$1718.00
Buncombe County Schools	4.00	2.97	1.03	0.73	4.00	2.76	1.25	0.88	4.00	2.79	1.21	0.86	55.86	$2116.00
Cabarrus County Schools	3.32	3.07	0.25	0.18	3.58	2.96	0.62	0.44	3.41	2.94	0.47	0.34	43.95	$1623.00
Caldwell County Schools	3.57	3.10	0.47	0.33	3.94	2.91	1.03	0.73	3.38	2.98	0.40	0.28	62.15	$1201.00
Carteret County Public Schools	3.43	3.03	0.40	0.29	4.11	2.91	1.21	0.85	3.88	2.83	1.05	0.74	46.64	$2191.00
Caswell County Schools	3.71	3.07	0.64	0.45	4.00	2.92	1.09	0.77	4.00	2.90	1.10	0.78	62.70	$847.00
Catawba County Schools	4.71	3.04	1.67	1.18	4.17	2.85	1.32	0.93	4.38	2.92	1.46	1.03	52.04	$1478.00
Charlotte-Mecklenburg Schools	3.43	3.03	0.40	0.28	3.83	2.83	1.00	0.70	3.57	2.87	0.69	0.49	46.86	$2312.00
Chatham County Schools	4.00	2.94	1.06	0.75	4.78	2.74	2.04	1.44	4.63	2.73	1.90	1.34	53.35	$2822.00

District	PDL Design	Teachers Design	Design Diff	Design St. Dev	PDL Delivery	Teachers Delivery	Delivery Diff	Delivery St. Dev	PDL Eval	Teachers Eval	Eval Diff	Eval St. Dev	% FRPL	Spending
Cherokee County Schools	2.71	3.11	-0.40	0.28	3.39	3.00	0.39	0.28	2.13	2.95	-0.82	0.58	57.99	$1644.00
Columbus County Schools	3.57	3.08	0.49	0.35	3.93	2.84	1.09	0.77	3.63	2.93	0.70	0.49	65.49	$760.00
Cumberland County Schools	3.71	3.13	0.58	0.41	3.89	2.99	0.90	0.64	3.63	3.02	0.61	0.43	63.82	$1478.00
Davidson County Schools	3.14	2.99	0.15	0.11	3.00	2.83	0.18	0.12	2.75	2.85	-0.10	0.07	47.72	$1269.00
Duplin County Schools	4.00	2.99	1.01	0.71	3.83	2.88	0.95	0.67	3.38	2.85	0.53	0.37	77.17	$938.00
Durham Public Schools	3.00	3.06	-0.06	0.04	3.00	2.92	0.09	0.06	3.00	2.93	0.07	0.05	62.40	$3119.00
Edgecombe County Public Schools	3.00	3.11	-0.11	0.07	3.94	3.00	0.94	0.66	2.38	3.05	-0.67	0.47	64.86	$957.00
Franklin County Schools	4.43	3.08	1.35	0.95	4.67	2.96	1.72	1.21	4.63	2.97	1.66	1.17	57.12	$1409.00
Gaston County Schools	4.86	3.01	1.85	1.31	4.89	2.89	2.00	1.41	3.50	2.83	0.67	0.47	56.18	$1305.00
Graham County Schools	3.43	3.11	0.32	0.23	3.28	3.08	0.20	0.14	1.88	2.99	-1.11	0.78	69.62	$628.00
Granville County Schools	3.00	2.95	0.05	0.04	3.89	2.82	1.08	0.76	3.63	2.74	0.89	0.63	60.44	$1416.00
Halifax County Schools	3.86	3.06	0.80	0.57	3.67	2.87	0.81	0.57	3.13	3.01	0.12	0.08	83.53	$1040.00
Harnett County Schools	4.29	3.02	1.27	0.89	3.67	2.90	0.78	0.55	3.25	2.89	0.36	0.26	59.68	$1032.00

District	PDL Design	Teachers Design	Design Diff	Design St. Dev	PDL Delivery	Teachers Delivery	Delivery Diff	Delivery St. Dev	PDL Eval	Teachers Eval	Eval Diff	Eval St. Dev	% FRPL	Spending
Haywood County Schools	3.14	3.10	0.04	0.03	3.78	2.90	0.88	0.62	3.50	2.86	0.64	0.45	55.40	$1938.00
Henderson County Schools	3.00	3.16	-0.16	0.11	3.67	2.98	0.70	0.49	3.25	3.08	0.17	0.12	54.44	$1527.00
Hoke County Schools	3.00	3.03	-0.03	0.02	3.00	2.86	0.14	0.10	3.00	2.94	0.06	0.04	64.65	$533.00
Iredell-Statesville Schools	4.00	3.07	0.93	0.66	4.00	2.90	1.11	0.78	4.00	2.97	1.03	0.73	44.21	$1568.00
Johnston County Schools	3.50	3.02	0.48	0.34	4.07	2.85	1.23	0.87	3.88	2.89	0.99	0.70	47.27	$1507.00
Jones County Schools	5.00	3.15	1.85	1.31	5.00	3.05	2.01	1.42	5.00	2.94	2.06	1.46	61.68	$1297.00
Macon County Schools	4.14	2.98	1.16	0.82	3.61	2.86	0.75	0.53	3.57	2.94	0.63	0.45	66.44	$1802.00
Nash-Rocky Mount Schools	3.21	3.03	0.18	0.13	3.58	2.83	0.76	0.53	3.44	2.92	0.52	0.37	67.15	$1295.00
New Hanover County Schools	3.71	2.98	0.73	0.52	3.92	2.78	1.15	0.81	3.50	2.81	0.69	0.48	48.65	$2490.00
Orange County Schools	4.79	3.01	1.78	1.26	4.53	2.89	1.65	1.16	4.25	2.85	1.40	0.99	43.80	$4355.00
Person County Schools	3.18	3.05	0.13	0.09	3.77	2.93	0.84	0.59	3.31	2.87	0.44	0.31	57.22	$1607.00
Pitt County Schools	5.00	3.08	1.92	1.36	4.56	2.95	1.61	1.14	4.25	2.96	1.29	0.91	59.06	$1479.00
Polk County Schools	3.29	3.20	0.09	0.07	3.61	3.09	0.52	0.37	3.13	3.13	0.00	0.00	52.40	$2015.00
Roanoke Rapids City Schools	3.00	2.90	0.10	0.07	2.78	2.70	0.08	0.06	2.00	2.65	-0.65	0.46	63.91	$1040.00
Surry County Schools	3.29	3.15	0.14	0.10	3.76	3.08	0.68	0.48	3.14	2.96	0.18	0.13	64.75	$1191.00

District	PDL Design	Teachers Design	Design Diff	Design St. Dev	PDL Delivery	Teachers Delivery	Delivery Diff	Delivery St. Dev	PDL Eval	Teachers Eval	Eval Diff	Eval St. Dev	% FRPL	Spending
Swain County Schools	3.57	3.12	0.45	0.32	4.33	3.01	1.32	0.93	3.75	2.95	0.80	0.57	64.70	$383.00
Tyrrell County Schools	3.00	3.25	-0.25	0.18	3.33	3.16	0.18	0.12	3.00	3.36	-0.36	0.25	80.63	$1001.00
Union County Public Schools	3.86	3.08	0.78	0.55	3.72	2.95	0.78	0.55	3.00	2.98	0.02	0.02	36.30	$1867.00
Vance County Schools	3.71	3.01	0.70	0.50	3.82	2.85	0.98	0.69	3.38	2.90	0.48	0.34	72.51	$980.00
Wake County Schools	4.57	3.00	1.57	1.11	4.53	2.82	1.71	1.21	3.69	2.88	0.81	0.57	36.72	$2033.00
Warren County Schools	3.57	2.90	0.67	0.48	3.50	2.78	0.72	0.51	2.50	2.55	-0.05	0.03	66.61	$1485.00
Watauga County Schools	4.00	3.09	0.91	0.64	3.78	3.01	0.77	0.54	3.47	2.93	0.54	0.38	40.13	$2694.00
Wilson County Schools	3.57	3.03	0.54	0.38	3.00	2.90	0.11	0.07	3.00	2.95	0.05	0.04	56.37	$1304.00
Overall	**3.71**	**3.05**	**0.66**	**0.47**	**3.86**	**2.91**	**0.95**	**0.67**	**3.46**	**2.90**	**0.56**	**0.39**	**58.86**	**$1573.84**

Table 4.6.

Table 4.7

Results of Regression Analysis for Domain Differences

	Design Differences		**Delivery Differences**		**Evaluation Differences**	
	B	**p-value**	**B**	**p-value**	**B**	**p-value**
Constant	.465	.512	.916	.141	.099	.903
Spending per Student	.000	.227	.000	.289	.000	.102
% Free and Reduced Priced Lunch	-.002	.871	-.003	.703	.000	.983
Model Summary	R	R Square	Adjusted R Square		Std. Error of Estimate	
Design Differences	.228	.052	.011		.598414545	
Delivery Differences	.228	.052	.011		.5194618822	
Evaluation Differences	.282	.079	.039		.6885669938	

Table 4.7

Summary

In determining the impact of professional development leaders' competencies on teachers' perceptions of professional development, the researcher utilized a regression model to determine differences with the professional development leaders' competencies serving as the independent variable and the professional development construct of the *NCTWCS* as the dependent variable. There were no statistically significant differences in any of the domains. Educators' perceptions of professional development specific to the professional development items found within the *NCTWCS*, with respect to each domain, was not impacted by the

competency level of the professional development leader. An additional regression model was run to determine if student spending or the percentage of free and reduced priced lunch, which is a good indication of the wealth in a district, could serve as predictors for the differences found within each domain. The results were not statistically significant. However, in the delivery domain all the professional development leaders posted higher ratings than the teachers' ratings. Several districts revealed teachers' perceptions in the design domain and or the evaluation domain were higher than the self-assessed rating of the professional development leader. Cherokee County Schools and Edgecombe County Schools were the only districts where teachers' ratings were higher than the professional development leader in two domains. Chapter Five will present an analysis and discussion of the findings and implications for future research and practice.

CHAPTER FIVE: DISCUSSION AND IMPLICATIONS

School reform has long been a topic of interest in the field of education. Although there are a varied number of reform models, there is some agreement throughout the field that professional development is a key component in determining if a reform model will succeed or fail (Guskey, 1994). Scholars have also come to some agreement as to what makes professional development effective (Desimone, 2011; Little, 1993; Guskey, 1986). The components that make professional development effective are placed into three domains and these domains provide the framework of competencies a professional development leader should have to positively impact a school district's professional development program and improve student achievement. Adult principles of learning, systems thinking, group facilitation, models of effective presentations, and principles of evaluating professional development are the principles and theories found throughout the literature on effective professional development. These provided the domain and lens through which the data were analyzed (Guskey, 1991; Little, 1993; Loucks-Horsley et al., 1996).

The final chapter of this dissertation is divided into three sections. The first section provides an overview of the study, its purpose, and the research questions. The second section presents an analysis of the results. Finally, the third section offers a discussion of the findings, implications, and recommendations for future research.

Overview and Purpose of the Study

Professional development is the primary method employed to bring about change and help educators acquire and refine skills (Guskey, 1994). Thus, professional development will continue to be an integral part of reform efforts in the field of education. For professional development to have the intended impact of changing practice, an examination of the professional development leader needs to occur. Thus, there should be a relationship between the competencies a professional development leader must possess and act upon and the districtwide perceptions of professional development among teachers. This study is an important tool for senior administrative leaders to use to strengthen and develop the competencies of district professional development leaders as they design, deliver, and evaluate professional development which will ultimately increase student achievement.

The purpose of this quantitative study was to establish a comprehensive framework that clearly outlined the competencies a district level professional development leader should have to design, deliver, and evaluate professional development for educators. The study also sought to determine if professional development leaders' competencies impacted teachers' perceptions of professional development. The following research questions guided the study:

1. Which theories and practices frame the essential knowledge and competencies for professional development leaders to effectively design, deliver, and evaluate professional development?
2. How, if at all, do the competency levels of professional development leaders impact teachers' perceptions of professional development?

a. Do higher levels of competency in the design domain of professional development have a positive relationship on teachers' perceptions of professional development?
b. Do higher levels of competency in the delivery domain of professional development have a positive relationship on teachers' perceptions of professional development?
c. Do higher levels of competency in the evaluation domain of professional development have a positive relationship on teachers' perceptions of professional development?

Two sources of data were used to conduct the study. The results from the *2014 North Carolina Teacher Working Conditions Survey* (NCTWC), aggregated at the district level, served as the dependent variable, and the 49 responding professional development leaders' competency data were the independent variable. Data were analyzed using SPSS to determine the impact on perceptions.

Analysis

Professional Development Leaders

As discussed in Chapter One, professional development leaders are vital to the overall professional development process. These leaders are expected to have the competencies to impart knowledge while engaging in all areas of the professional development process (Guskey, 1991). The success or failure of a professional development program is often attributed to how well it was planned, implemented, and evaluated. To achieve high quality professional development, professional development leaders should have an active role in the planning, designing, delivery, and evaluation of the overall professional development program. Analysis of

the data revealed that about a third of the professional development leaders felt they were highly competent in the design and delivery domain, meaning they rated themselves at a 4 or higher. In the evaluation domain, a fifth of the professional development leaders rated themselves at a 4 or higher (see Table 4.6). Only one professional development leader rated him/herself a perfect 5 in each of the domains. All the professional development leaders rated their competency in the delivery domain higher than the teachers' perceptions of the delivery of professional development in their respective districts. The statistical findings for the second question and sub-questions of the study are explained in the next section.

Correlations and Regression Models

After establishing the framework of competencies, the second question sought to determine how, if at all, do the competency levels of professional development leaders impact teachers' perceptions of professional development. A regression analysis was conducted using professional development leaders' competency levels as a predictor of teachers' perceptions in each of the three domains. For the design domain, the model revealed that professional development leaders' competencies account for 1% of the variance in the design domain with a Pearson $r = -.120$, $F(1,48) = .682$, $p = .413$. There was no statistically significant difference between the professional development leaders' competency level and teachers' perceptions on the design of professional development. For the second domain on delivery, the model revealed that professional development leaders' competencies had no statistical differences when compared against teachers' perceptions on the delivery of professional development. The model revealed a Pearson $r = 0.12$, $F(1,48) = .007$, $p = .935$. Finally, for the evaluation domain, the model revealed a Pearson $r = 0.008$, $F(1,48) = .003$, $p = .956$. Again, there was no statistically significant difference between the professional development leaders' competency level and

teachers' perceptions on the evaluation of professional development. Based on the statistical data, the relationship was weak and a professional development leader's competency levels did not significantly impact teachers' perceptions of professional development (Creswell, 2012). However, the data did reveal some slight differences between ratings within the domains. An additional regression model was conducted to analyze the differences using additional data such as student spending per district and the percentage of students enrolled in free and reduced lunch for each district, which is a good indication of the wealth in a district. This was done to see if district wealth could serve as a predictor for the differences found within each domain. The results were not statistically significant (see Table 4.7).

Discussion

Several studies on the impact of professional development have been conducted. Some studies purport that professional development does indeed have a positive impact on student achievement, while other studies report no impact on student achievement. However, despite the end results, there is much agreement on the components needed for a professional development program to be considered effective. Adult principles of learning, systems thinking, group facilitation, models of effective presentations and a model for evaluating professional development are some of the principles found throughout the literature on effective professional development (Guskey, 1991; Little, 1993; Loucks-Horsley et al., 1996). If professional development leaders possess and apply these competencies in the fulfillment of their job responsibilities, it was reasonable to hypothesize that higher levels of competency within each domain would equate to a positive significant relationship with teachers' perceptions in each domain. However, the analyses yielded no statistically significant relationships. This would

lead one to question whether a professional development leader is indeed vital to the design, delivery, and evaluation of a program's effectiveness. A discussion of the findings follows.

Non-Significant Relationships

Although no significance was found within the domains between professional development leaders' competencies and teachers' perception of professional development, additional explanation is warranted. This researcher is hesitant to accept the findings unequivocally. First, it might be concluded that not enough professional development leaders participated in the survey. Most districts have several individuals that are directly involved in the design, delivery, and evaluation of professional development. These additional individuals were not surveyed and are not captured in the data. This researcher believes limiting the survey to one district contact may have negatively impacted the sample size. With only 49 respondents, this researcher surmises that the sample size of professional development leaders was insufficient. There appeared to be a lack of variation in the data. Each respondent self-assessed their knowledge and this may have led to response bias. Respondents may have given themselves high ratings for competencies that they may not have acquired or only partially acquired.

This researcher also believes that teachers' perceptions of professional development in each domain should have been lower. The overall ratings in each domain for teachers averaged around 3.0 out of 5.0. Recent research found that most teachers aren't given the kind of professional development that would help them improve (National Schools Boards Association's Center for Public Education, 2013). Also, recent research revealed that most professional development is ineffective and neither changes teacher practices nor improves student learning (Gulamhussein, 2013). Finally, in another study on the impact of professional development, 90% of the participants felt professional development was useless. The method of professional

development most widely used was a workshop-training (Darling-Hammond, et al., 2009). Research into effective professional development found that the one-shot workshop model is the least effective model of professional development and often doesn't change teacher practice (Yoon et al., 2007). In this researcher's eight years of experience being directly involved in the design, delivery, and evaluation of professional development, there is usually a lack of fidelity with implementing and adhering to best practices. An overwhelming majority of the professional development experienced, either through participation or facilitation, was the one-shot workshop model. Parallel to the research findings, there is very little to no opportunity for sustained follow up, which is a big factor in determining the overall effectiveness of a program.

Earlier in Chapter Two, the What Works Clearinghouse study identified nine studies that showed a positive effect on student achievement because of professional development. Professional development activities that produced positive student achievement results were sustained, well-defined, and content focused (Yoon et al., 2007). Professional development of this nature requires ongoing follow up with multiple opportunities for participants to receive feedback as they implement the newly learned skills and strategies. This type of professional development is time intensive and often requires a substantial amount of funding if outside expertise is employed (Odden, et al., 2002). Districts usually respond to the time and funding challenge by offering one-shot workshops. The one-shot workshop is fast and inexpensive, and it is the method most widely utilized by school districts. However, school districts are practically dependent on this model due to the lack of funding available for professional development. With recent state cuts and outright elimination of funding for professional development in North Carolina (Carpenter, 2011), and the possibility that federal Title II funding may be eliminated, all major sources of funding for professional development will be gone (Christensen, 2011; Camera,

2017; Sanchez, 2011). One could assume that teachers' perceptions of professional development would be much lower than what the data revealed. Further analysis beyond the scope of this research is needed to parse out why teacher perceptions aren't lower.

Implications and Recommendations

The findings for this research indicate no significant relationship between professional development leaders' competency levels within the three domains and teachers' perceptions of professional development within the three domains. The differences between ratings could not be attributed to the wealth of the district, as there were also no significant findings. If a professional development leader is vital to a program, then these findings are perplexing in that what a professional development leader knows and assuming that they put their knowledge into action, should have a relationship congruent to the quality and effectiveness of a district professional development program. Therefore, it should influence a teacher's perception of professional development. This researcher believes that the lack of a relationship between the two may be an opportunity to better refine the role of the professional development leader through policy, practice, and research. An examination of several implications follows.

Policy Implications

Policy makers need to delve deeper into the results of teachers' perceptions of professional development. Perception results may not reflect the real impact of a district's program. District professional development programs are tasked with the responsibility of enhancing teacher skills and changing practice to improve student achievement. The method most widely employed by districts is the least effective model according to research. With the scarcity of resources available for professional development, it's imperative that professional development leaders possess a level of competency in the principles of effective professional

development to maximize a program's impact on student achievement. The NC Department of Public Instruction created an evaluation tool, North Carolina Teacher Leadership Specialist (NCDPI, 2015), that addresses some the principles associated with effective professional development, but how often it is used to evaluate professional development leaders is not publicly available. Policy makers should consider that there is no licensure area in North Carolina that specifically addresses the role of a professional development leader. Knowing that professional development is the primary method employed to bring about change and help educators acquire and refine their skills (Guskey, 1994), it would make sense to develop credentials for the individuals in this important role. As it stands now, there is no formal pathway to assuming this role in a district.

Practical Implications

Professional development leaders need a process for acquiring the competencies associated with effective professional development. The theories, concepts, and principles found in the conceptual framework's domains are a collection of best practices. Packaging these domain concepts into unified curriculum that current and future professional development leaders could access may create opportunities to enhance the overall effectiveness of the professional development leader. These leaders are expected to have the competencies to impart knowledge while engaging in all areas of the professional development process (Guskey, 1991). The success or failure of a professional development program is often attributed to how well it was planned, implemented, and evaluated. How then do these individuals acquire and refine their knowledge in these areas in the absence of a formal structure? Preparation programs already exist for teachers, counselors, and various levels of school and district administration. A structured, organized method for enhancing professional development leaders' competencies is

more likely to translate their knowledge into action, thus creating an organization that can react efficiently to the diverse needs of their educators.

Standard III of the North Carolina Standards for Teacher Leadership Specialist directs the teacher leadership specialist to incorporate adult learning strategies and effective teaching and learning practices as they implement change (NCDPI, 2015). A practical implication of this research is that these leaders cannot haphazardly acquire the knowledge needed to design, develop, and evaluate professional development. To help professional development leaders meet this standard, districts and education preparation programs should develop a formalized structure by which individuals can learn these theories and concepts in a deliberate manner. A professional development academy would provide guidance and prepare professional development leaders as they facilitate improved student achievement.

Research Implications

This research relied on quantitative data. However, infusing a qualitative perspective will enable future researchers to truly examine self-assessed perceptions of professional development leaders. Interviews would offer a rich source of data for analyzing professional development leader competencies. Interviews coupled with survey data allows for deeper insights as to how design, delivery, and evaluation knowledge were acquired. It will also give a more detailed picture as to how professional development leaders apply their knowledge in the fulfillment of their duties. Surveys in isolation can't quantify all the subtleties of overseeing a professional development program; qualitative data may add a deeper understanding of how the application of their knowledge influences district level professional development.

Future Research

Additional research is needed to broaden the literature pertaining to the professional development leaders' role. There exists plenty of research into the effectiveness of professional development and how it impacts student achievement. Researchers have identified several theories, principles, and components that must be in place for professional development to be considered effective. However, little if any research has been conducted on professional development leaders and their ability to influence a professional development program based on what they know or don't know. Furthermore, how has the lack of funding impacted how professional development leaders acquire knowledge on the principles of effective professional development? This lack of research has left room for further investigation. Areas for further exploration should include, but are not limited to, the following:

1. Case studies of professional development leaders and how they design, deliver, and evaluate professional development in their district.
2. Case studies of professional development leaders' preparation programs to determine how they acquire and further their knowledge around the theories and principles that make professional development effective.
3. Outcome studies to examine teacher perception data on professional development and student achievement results when professional development leader competencies are applied with fidelity.
4. Targeted surveys to determine if teachers feel that their district professional development leaders are making a difference to the overall professional development program.

5. Interviews with professional development leaders to identify similarities and differences in hopes of drawing some conclusions about their continued professional learning and how they further broaden their knowledge base.

Due to the small variability among the perception data used in this research, it may prove beneficial to replicate this study, but expand it to all the district individuals who play a role in the design, delivery, and evaluation of professional development. This may produce more variance among professional development leaders' responses. Furthermore, the addition of more variables may also add to the literature. For example, adding the number of years each professional development leader has been doing the job may reveal significant findings. Also, adding in the amount of money a district spends on professional development related activities may reveal some significant relationships in the data.

Conclusion

Professional development is the primary method employed to bring about change and help educators acquire and refine skills (Guskey, 1994). This study focused on the leaders of professional development, specifically whether their competency levels in the design, delivery, and evaluation of professional development had an impact on teachers' perceptions of professional development. If professional development leaders are acting on their knowledge, they should have some influence over their professional development program. District professional development leaders from across the state were invited to complete a survey that asked them to rate their knowledge on theories and principles that are associated with effective professional development. Although the study did not reveal any significant results in the data, it did highlight a lack of research regarding the impact of a professional development leader on a professional development program. School districts will continue to utilize professional

development as a means of improving student achievement. If districts are going to get the most return on their investment with regards to professional development, they will need to employ professional development leaders that have an in-depth understanding of how to effectively design, deliver, and evaluate professional development to change teacher practices and improve student achievement.

APPENDIX A: IRB NOTICE – 17-1163

IRB Notice – 17-1163

To: Gregory McKnight
School of Education Deans Office

From: Office of Human Research Ethics

Date: 5/26/2017
RE: Determination that Research or Research-Like Activity does not require IRB Approval
Study #: 17-1163

Study Title: Exploring the relationship between professional development leaders' competencies of effective professional learning and teachers' perceptions of offered professional development

This submission was reviewed by the Office of Human Research Ethics, which has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f) and 21 CFR 56.102(c)(e)(l)] and does not require IRB approval.

Study Description:

Purpose: This study seeks to establish a comprehensive framework that clearly outlines the competencies a district level professional development leader should have to design, deliver, and evaluate professional development for educators. Additionally, the study will explore the relationship of professional development leaders' competencies to teachers' perceptions of professional development using a causal-comparative design.

Participants: NC District Professional Development Leaders and NC Teachers

Procedures (methods):Causal Comparative design
Please be aware that approval may still be required from other relevant authorities or "gatekeepers" (e.g., school principals, facility directors, custodians of records), even though IRB approval is not required.

If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.

CC:
Dana Thompson Dorsey, School of Education Deans Office
Kathleen Brown , School of Education Deans Office
Jill Hamm , School of Education Deans Office
David Churchill , School of Education Deans Office IRB Informational Message - please do not use email REPLY to this address

APPENDIX B: NEW TEACHER CENTER DATA AGREEMENT

New Teacher Center

NEW TEACHER CENTER DATA SHARING AGREEMENT

This Data Sharing Agreement ("Agreement") by and between **New Teacher Center**, a California public benefit corporation ("NTC") and **Gregory McKnight** located at University of North Carolina at Chapel Hill ("Requestor") is effective upon a fully executed New Teacher Center Data Sharing Agreement being in place.

WHEREAS, NTC offers K-12 induction, teacher and school leader professional development, and teaching and learning condition survey services for teachers and school administrators.

WHEREAS, NTC's Teaching, Empowering, Leading and Learning (TELL) survey originates from the Governor's Teacher Working Conditions Initiative in the Office of the Governor, North Carolina (2002–2009), has been adapted by NTC, and has been externally validated by the American Institute for Research.

WHEREAS, NTC has collected TELL data for **North Carolina** for 2015;

WHEREAS, Requestor would like access to **a whole state set of data from teacher respondents for the professional development construct of the survey; the only demographic data needed for analysis is district name.** ("Data") for the purposes of doing research regarding **(i) the relationship between professional development leaders' competency in three domains of professional development (design, delivery, and evaluation) and (ii) teacher's perception of professional development in their district as reported on the NCTWCS. Professional development leaders self-assessed their competency levels via a survey – the NCTWCS data is needed to pair with PD leaders survey data and run correlations to determine the strength and direction of the relationship and answer the question: is there a relationship between higher competency levels and teachers' view of professional development?** ("Research").

NOW, THEREFORE, in consideration of the mutual covenants and promises contained herein and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

1. **License.** Subject to Requestor's complete and ongoing compliance with this Agreement, NTC grants Requestor a non-exclusive, non-transferable, non-sublicenseable, revocable license to access and use the **Data** solely for the Research. As between the parties, NTC retains all right, title and interest in and to all Data. Requestor obtains only the rights specifically granted in this Agreement; NTC reserves all rights not specifically granted. Requestor may not directly or indirectly receive remuneration, financial or otherwise, from or on behalf of the recipient in exchange for Data and may not use or disclose Data for marketing purposes. Requestor may not access or use the Data for any purpose other than expressed in this Agreement. Researcher is not permitted to attempt to or successfully re-identify any anonymized or aggregate Data.

2. **Fees.** No fee applies.
3. **Procedures for Exchanging and Storing Data.** Requestor agrees to use the secure website provided by NTC to access and download the Data files. NTC agrees to provide a username and password for the website.

Issued 10/2/15

4. **Confidentiality**. For the purposes of this Agreement, Confidential Information includes all Data, including data that identifies a school, district, or individual. Requestor agrees to preserve the confidentiality and anonymity of the Data. Requestor agrees to implement reasonable and appropriate administrative, physical and technical safeguards to protect the confidentiality of the Data and develop and enforce related policies and procedures. Requestor shall not lose, provide, disclose, release, publish or otherwise make Data available in any form to a third party. Anonymized and aggregate data derived from Data shall not be considered Confidential Information and may be published in accordance with this Agreement and for the purposes of the Research permitted under this Agreement.

5. **Personnel.** Requestor shall ensure that its workforce members and employees are aware of and agree to comply with the provisions of this Agreement.

6. **Security Incident.** Requestor shall immediately, and without unreasonable delay, report to NTC any use or disclosure of Data not permitted by this Agreement, or applicable law ("Security Incident") of which Requestor becomes aware. Such notification shall be given to NTC immediately after Requestor discovers the Security Incident, but in no case more than 24 hours after such discovery. The time of discovery shall be the moment Requestor, its workforce, agents or contractors become aware of the Security Incident. The obligations of this paragraph shall apply whether or not the Security Incident is determined by Requestor to constitute a data breach under any federal or state law. Requestor shall mitigate, to the extent practicable, any harmful effect that is known to Requestor or to NTC related to the Security Incident. In the event either party discovers a Security Incident that Requestor's acts or omissions were a factor in causing, Requestor shall fulfill the following responsibilities: immediately investigate, at its sole expense, the Security Incident and shall produce to NTC a fulsome, detailed report of the Security Incident, which is updated as necessary to remain current and accurate; provide timely and accurate responses to NTC questions regarding the Security Incident; indemnify NTC for any costs associated with the Security Incident, including without limitation breach notification costs, credit monitoring and call center costs, and costs, including reasonable attorneys fees, damages, and penalties from associated government investigations and private litigation.

7. **Publication.** Requestor agrees that for any publications that result from the use of the Data, Requestor will provide NTC with a copy of such publication at least 7 days prior to submission for publication to allow NTC to reasonably review and amend the publication. NTC may in its sole discretion disallow the publication if it determines that Requestor has violated any provision of this Agreement. Any (i) data derived from Data and (ii) conclusions, other findings or statements resulting from analysis of Data (collectively "Analysis"), that Requestor makes public must be aggregated at a school district level or less granularly. Any Analysis shall not include personally identifiable information (i.e., information that can reasonably be used to identify an individual).

8. **Term of the Agreement**. The license granted by this Agreement is effective upon the full execution of the New Teacher Center Data Sharing Agreement and shall last for one year from the effective data. This Agreement shall automatically renew for successive one-year terms until terminated at the end of a one-year term by either party after the terminating party gives at least 30 days' notice to the other party. NTC may terminate this Agreement at any time following 30 days notice to Requestor. Upon termination, Requestor agrees to destroy all copies of the Data in any form, including electronic and paper form and shall retain no copies of Data. This provision also shall apply to Data that is in the possession of subcontractors or agents of Requestor. Requestor's subcontractors and agents shall destroy and retain no copies of the Data upon termination of this Agreement. Requestor may retain anonymized and aggregate data derived from Data following termination of this Agreement.

9. **Trademarks**. NTC's trademarks, trade names, logos and other proprietary notices (the "NTC Marks"), including "TELL," are proprietary to NTC. NTC hereby grants to Requestor a limited,

non-exclusive, non-transferable, non-sublicenseable license to display the NTC Marks as part of the attribution requirements set forth in this Agreement. Any display of the NTC Marks is subject to the NTC's trademark usage guidelines as may be provided by NTC in writing to Requestor from time to time.

10. **Attribution**. Requestor must provide attribution to NTC in any publication that incorporates Data or findings or analysis derived from Data by including the following language: "This publication was made possible through research conducted by the New Teacher Center as part of its TEACHING, EMPOWERING, LEADING AND LEARNING (TELL) Survey Initiative."

11. **Independent Contractor.** NTC is an independent contractor. Neither party shall represent itself as the agent or legal representative of the other party for any purpose whatsoever, and shall have no right to create or assume any obligation of any kind, express or implied, for or on behalf of the other party in any way whatsoever. This Agreement will not create or be deemed to create or imply any relationship between the parties in the nature of any joint venture, employer/employee, principal/agent or partnership.

12. **Limitation of NTC Liability.** Under no circumstances, and under no legal theory, whether in tort, contract, or otherwise will NTC or its directors, officers, employees, or agents be liable for any special, indirect, incidental, consequential, punitive or exemplary damages (including, without limitation, loss of goodwill, or cost of cover) arising out of or relating to this Agreement, even if NTC has been advised of the possibility of such damages.

13. **No Warranties by NTC.** The Data is provided to Requestor on an "as is" basis. NTC makes no representations or warranties of any kind, whether oral or written, whether express, implied, or arising by statute, custom, course of dealing or trade usage, with respect to the Data.

14. **Indemnification.** Requestor shall defend, indemnify, and hold harmless NTC from and against any and all losses, costs, damages, government-issued fines, or expenses, including reasonable attorneys' fees, that arise out of any contractual breach of this Agreement by Requestor, violations of any applicable privacy and security laws and regulations by Requestor, and/or the need for NTC to enforce any provision of this Agreement.

15. **Notice**. Any notice required or permitted by the terms of this Agreement shall be sent via email if possible to:

    New Teacher Center
    c/o Sue Perkins
    110 Cooper Street, Suite 500
    Santa Cruz, CA 95060
    sperkins@newteachercenter.org

    Gregory McKnight
    University of North Carolina at Chapel Hill
    Chapel Hill, NC
    greg.mcknight@gmail.com

16. **Compliance with Law.** With respect to the Data and any data derived from Data, Requestor agrees to comply with applicable laws including, without limitation, any laws related to the collection, receipt, use, maintenance, disclosure, and security of information.

17. **Governing Law; Jurisdiction.** This Agreement is governed by California law. NTC and Requestor consent to the exclusive jurisdiction of the state and federal courts for Santa Cruz, California.

18. **Force Majeure.** Neither party will be required to perform or be held liable for failure to perform if, beyond the control of either party, nonperformance is caused by destruction, material damage, or other unavailability of facilities at project sites; strikes or other labor disputes; national emergency; acts of God; the elements; power failures, computer system hacking, or software or hardware failures; or any other causes beyond the control of the party unable to perform. The non-performing party will notify the other of such problems and will use reasonable efforts to address the problem and carry out its obligations.

19. **Injunction.** Notwithstanding any other rights or remedies provided for in this Agreement, NTC retains all rights to injunctive relief to prevent or stop the unauthorized use or disclosure of Data by Requestor, or any agent, subcontractor or other third party that received Data as a result of this Agreement.

20. **No Assignment.** Requestor may not assign its rights or delegate its duties under this Agreement to anyone else without the prior written consent of NTC.

21. **Entire Agreement**. This Agreement sets forth the entire agreement of the parties with respect to the subject matter hereof and supersedes all prior or contemporaneous writings, negotiations, and discussions. Neither party has relied upon any such prior or contemporaneous communications.

22. **Amendment.** This Agreement may be amended only as stated in and by a writing signed by both NTC and Requestor which recites that it is an amendment to this Agreement.

23. **Severability.** If any provision in this Agreement is held invalid or unenforceable, the other provisions will remain enforceable, and the invalid or unenforceable provision will be considered modified so that it is valid and enforceable to the maximum extent permitted by law.

24. **Survival.** Sections 4, 5, 6, 7, 9, 10, 12, 13, 14, 16, 17 shall survive termination or expiration of this Agreement.

25. **Counterparts**. This Agreement may be executed in one or more counterparts, each of which will be deemed an original and all of which will be taken together and deemed to be one instrument. Transmission by fax or PDF of executed counterparts constitutes effective delivery.

In witness whereof, the parties have executed this Agreement:

NEW TEACHER CENTER	GREGORY MCKNIGHT
By: DocuSigned by: Sue Perkins Sue Perkins 454	By: Gregory McKnight
Title: CFO & EVP of Business Operations	Name: Gregory McKnight
	Title: Student
Date: 11/24/2015	Date: 11/25/2015

APPENDIX C: PANELIST RATING SURVEY

Please rate your level of agreement with the assigned competency tag. Circle your choice.

1= Not aligned 3= Moderately aligned 5= Strongly aligned

Survey Items	Competency Domain
Sufficient resources are available for PD in my school. 1 2 3 4 5	Design
An appropriate amount of time is provided for PD. 1 2 3 4 5	Design
PD offerings are data driven. 1 2 3 4 5	Design
Professional learning opportunities are aligned with the school's improvement plan. 1 2 3 4 5	Design
PD is differentiated to meet the individual needs of teachers. 1 2 3 4 5	Deliver
PD deepens teachers' content knowledge. 1 2 3 4 5	Design
Teachers have sufficient training to fully utilize instructional technology. 1 2 3 4 5	Deliver
Teachers are encouraged to reflect on their own practice. 1 2 3 4 5	Design
In this school, follow up is provided from PD. 1 2 3 4 5	Design

PD provides ongoing opportunities for teachers to work with colleagues to refine teaching practices.	Design
1 2 3 4 5	
PD is evaluated and results are communicated to teachers.	Evaluate
1 2 3 4 5	
PD enhances teachers' ability to implement instructional strategies that meet diverse student learning needs.	Design
1 2 3 4 5	
PD enhances teachers' abilities to improve student learning.	Design
1 2 3 4 5	

APPENDIX D: NCTWCS AGGREGATED RATINGS

	NC14_ pdl021 time	NC14_ pdl021 datadriven	NC14_ pdl021 alignsip	NC14_ pdl021 deepeffect	NC14_ pdl021 followup	NC14_ pdl021 colleague	NC14_ pdl021 implement	NC14_ pdl021 enhance	NC14_ pdl021 different	NC14_ pdl021 sufftrain	NC14_ pdl021 eval
Anson County Schools	2.91	3.31	3.38	3.06	3.03	3.09	3.13	3.17	3.0	2.85	3.06
Ashe County Schools	2.97	3.34	3.41	3.19	3.06	3.13	3.24	3.29	3.03	3.08	2.95
Asheville City Schools	2.73	3.11	3.33	2.68	2.64	2.70	2.84	2.93	2.59	2.77	2.68
Avery County Schools	2.59	3.33	3.27	3.09	2.87	2.87	3.00	3.11	2.9	2.99	2.95
Beaufort County Schools	2.99	3.29	3.37	2.99	3.05	3.05	3.09	3.11	2.98	2.99	2.99
Buncombe County Schools	2.78	3.19	3.27	2.86	2.97	2.95	2.99	3.04	2.71	2.8	2.76
Cabarrus County Schools	2.95	3.31	3.32	2.95	3.00	3.02	3.06	3.10	2.89	3.03	2.96
Caldwell County Schools	3.02	3.27	3.38	2.99	3.02	3.06	3.09	3.11	2.94	2.88	2.91
Carteret County Public Schools	2.76	3.27	3.33	2.98	2.89	2.92	3.04	3.11	2.93	2.88	2.91
Caswell County Schools	2.92	3.14	3.30	3.03	2.99	3.05	3.05	3.14	3.03	2.8	2.92
Catawba County Schools	2.99	3.25	3.26	2.95	2.98	2.98	3.07	3.11	2.8	2.9	2.85
Charlotte-Mecklenburg Schools	2.98	3.21	3.35	2.91	2.92	2.98	3.03	3.08	2.83	2.83	2.83
Chatham County Schools	2.82	3.21	3.27	2.80	2.80	2.88	2.94	2.99	2.72	2.76	2.74
Cherokee County Schools	2.91	3.25	3.20	3.15	2.98	3.00	3.18	3.20	3.08	2.92	3
Columbus County Schools	3.11	3.22	3.31	2.87	3.05	3.08	3.10	3.12	2.82	2.86	2.84
Cumberland County Schools	3.06	3.27	3.34	3.07	3.04	3.09	3.11	3.16	2.98	3	2.99
Davidson County Schools	3.01	3.16	3.28	2.86	2.93	2.97	2.98	3.02	2.7	2.95	2.85
Duplin County Schools	2.98	3.12	3.19	2.88	2.95	3.00	3.03	3.01	2.8	2.96	2.85
Durham Public Schools	2.95	3.27	3.41	2.95	2.98	3.01	3.06	3.09	2.85	2.98	2.93
Edgecombe County Public Schools	2.95	3.27	3.33	3.06	3.01	3.08	3.12	3.19	2.93	3.07	3.05
Franklin County Schools	2.89	3.26	3.36	3.01	3.02	3.04	3.08	3.12	2.98	2.93	2.97
Gaston County Schools	2.90	3.20	3.26	2.93	2.93	2.95	3.00	3.06	2.83	2.95	2.83
Graham County Schools	2.90	3.25	3.38	3.09	2.97	3.10	3.07	3.14	3.08	3.08	2.99
Granville County Schools	2.76	3.15	3.23	2.85	2.88	2.92	2.94	3.04	2.76	2.87	2.74
Halifax County Schools	2.91	3.25	3.34	3.02	3.00	2.97	3.03	3.11	2.91	2.82	3.01
Harnett County Schools	2.95	3.19	3.26	2.90	3.02	2.99	3.02	3.07	2.83	2.96	2.89
Haywood County Schools	2.94	3.32	3.38	3.06	2.99	3.03	3.13	3.16	2.95	2.85	2.86

Henderson County Schools	3.07	3.37	3.41	3.05	3.11	3.14	3.14	3.19	2.95	3	3.08
Hoke County Schools	2.90	3.14	3.29	2.95	2.98	3.02	3.03	3.07	2.85	2.87	2.94
Iredell-Statesville Schools	3.07	3.27	3.31	2.90	3.04	3.03	3.04	3.10	2.87	2.92	2.97
Johnston County Schools	2.88	3.25	3.31	2.92	2.92	2.96	3.00	3.06	2.85	2.84	2.89
Jones County Schools	3.08	3.25	3.24	3.15	3.11	3.13	3.19	3.25	2.98	3.12	2.94
Macon County Schools	2.52	3.28	3.22	2.98	3.02	2.89	2.97	3.00	2.97	2.75	2.94
Nash-Rocky Mount Schools	3.05	3.20	3.34	2.85	2.96	2.99	3.02	3.05	2.79	2.86	2.92
New Hanover County Schools	2.76	3.22	3.31	2.88	2.92	2.91	2.97	3.02	2.79	2.76	2.81
Orange County Schools	2.87	3.20	3.30	2.89	2.92	2.92	3.09	3.10	2.82	2.95	2.85
Person County Schools	3.04	3.13	3.32	2.89	2.97	2.99	3.07	3.14	2.87	2.99	2.87
Pitt County Schools	2.93	3.26	3.33	2.99	3.03	3.05	3.07	3.11	2.91	2.99	2.96
Polk County Schools	3.03	3.37	3.43	3.16	3.12	3.10	3.22	3.23	3.1	3.08	3.13
Roanoke Rapids City Schools	2.72	3.18	3.34	2.73	2.78	2.84	2.92	2.92	2.64	2.75	2.65
Surry County Schools	3.06	3.28	3.33	3.04	3.12	3.12	3.18	3.21	2.98	3.18	2.96
Swain County Schools	3.09	3.25	3.36	2.96	3.15	3.05	3.07	3.17	2.97	3.05	2.95
Tyrrell County Schools	3.12	3.42	3.41	3.12	3.15	3.22	3.26	3.36	3.19	3.12	3.36
Union County Public Schools	2.90	3.29	3.37	3.00	3.03	3.03	3.07	3.11	2.94	2.95	2.98
Vance County Schools	2.80	3.12	3.25	2.99	2.91	2.98	3.03	3.06	2.94	2.75	2.9
Wake County Schools	2.91	3.20	3.28	2.87	2.94	2.96	3.01	3.05	2.79	2.85	2.88
Warren County Schools	2.80	2.93	3.28	2.86	2.70	2.83	2.92	2.97	2.79	2.77	2.55
Watauga County Schools	2.84	3.31	3.42	3.07	2.93	2.97	3.08	3.17	3.01	3.01	2.93
Wilson County Schools	2.83	3.21	3.31	3.01	2.93	2.97	3.05	3.08	2.91	2.88	2.95

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