Professional Development Plus:

Rethinking Professional Learning

by

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ABSTRACT

The purpose of professional development is to enhance educator practices so that students may achieve at high levels. Too often, professional development tends to be too broad, general, or unrelated to problems of practice that teachers face in their own classrooms.

This action research project builds upon the scholarly research that recognizes the need for professional development to be sustained, connected to teachers' own contexts, focused on specific subject matter, collaborative, and reflective. The goal of this action research study was to facilitate a culture of continuous improvement in teaching and learning by utilizing a model of professional development that challenges teachers to question their practices, utilize research to support their instruction, design an inquiry project that supports a change in practice, and examine changes in student growth.

Results suggest that although teachers recognize the complexities that surround professional development, they found that this professional development model focused on their needs as professionals, was sustained over time, and was supported by a variety of professional influences. As a result of the model implemented, teachers reported shifts in their instructional practices and student growth related to personal inquiry projects.

DEDICATION

Often in education, to meet the demands in a data driven age, educators rely on quick fixes to attempt to close the achievement gap. When this happens, the professional is often not consulted; rather they are told what they must implement to "fix" the achievement problem. Quick fixes are often not the answer. Quality teaching is. Daily, I am surrounded by individuals who question their practices, consult with each other to work toward solutions, and change their instruction to meet the needs of their learners. I dedicate this work to them --the passionate hard-working teachers at Central who make coming to work, every day, a pleasure. I never worked with a collective group of educators who share a similar passion and desire for student success as I do. I am humbled and honored to be in your presence.

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TABLE OF CONTENTS

CHAPTER Page

CHAPTER Page

CHAPTER Page

APPENDIX

LIST OF TABLES

Table Page

Chapter 1

LEADERSHIP CONTEXT AND PURPOSE OF THE ACTION

"Improving professional learning for educators is a crucial step in transforming schools and improving academic achievement" (Wei, et al., 2009, p. ii). Yet, determining what constitutes effective professional development continues to be a challenge for educators. Most would agree that the purpose of professional development is two-fold. First, professional development should enhance the practice of educators. Second, as a result of enhanced practice, student achievement should increase. Though the formula seems simple, the complexity of the systems through which educators work poses challenges for high quality, effective professional learning. Hargreaves and Shirley (2009) assert that distracters in the system divert teachers from the core purposes and proven practices that support their ability to teach well. They purport that professional learning occurs when "leaders pull responsible, qualified, and highly capable teachers together in pursuit of improvement within a culture that celebrates persistent questioning and celebration of the art and craft of teaching" (p. 87). My action research project builds upon their proposal for professional development. As a leader in my context, the goal of this action research study is to facilitate a culture of continuous improvement in teaching and learning by utilizing a model of professional development that challenges teachers to question their practices, utilize research to support their instruction, design an innovation to support a change in practice, and measure the results of their students' growth.

Situated Context

I serve as the Dean of Academics at an independent charter school in the northwest valley of suburban Phoenix. Central School (a pseudonym), a young school, opened in 2008. Currently, 480 students are enrolled in kindergarten through grade six. Central School has twenty classes, with nineteen general education teachers, four special area teachers, and one special education teacher. Central School earned an "excelling" or "A rating" by the Arizona State Department of Education since opening.

I hold responsibility for implementing Central's curriculum and instructional program. To guide instruction, we utilize Core Knowledge, a classical curriculum, in conjunction with the Arizona and Common Core State Standards. Our goal is to deliver the curriculum in innovative ways using research-based methods. At Central, I work with teachers in various ways: as a consultant, coach, and collaborator. Additionally, I plan professional development opportunities for teachers.

Currently, our professional development framework includes seven full days of development prior to beginning the instructional year. New teachers to Central School participate six additional days of in-service. During the school year, students are released one and a half hours early, every Wednesday. Thus, two hours per week are set aside specifically for professional development purposes. Teachers also have opportunities to attend professional development workshops and conferences outside of the building with approval from the head of school and me. Leaders at Central School believe that continuous professional development is a key to increased student achievement.

The Problem

Professional development requirements, both statewide and locally, tend to be broad and general. Teachers have the option of taking professional development courses and/or workshops through their local school district and/or through the university. Speck and Knipe (2005) explain that shallow professional development will not get to the heart of providing in-depth experiences for teachers to learn deeply and for students to achieve.

Arizona Professional Learning Requirements

Professional learning requirements for teachers in Arizona can best be described as minimal. The criteria for professional learning criteria required for recertification in Arizona are quite general and may not necessarily lend themselves to educators' sustained, focused growth over time. Ball and Cohen (1999) explain that teachers are often thought to need updating, rather than opportunities for serious and sustained learning of curriculum, students, and teaching. Arizona's requirements for certification renewal appear to support Ball and Cohen's notion.

The state of Arizona requires the following criteria for teachers to renew a teaching certificate for 6 years: "Certificates may be renewed upon completion of 180 clock hours of professional development activities or 12 semester hours of education coursework posted on official transcripts or a combination of the two, completed during the valid period of the certificate" (Arizona Department of Education, 2011). Two general criteria are suggested for professional development: (1) the activities should represent professional growth related to education and, (2) the activities should represent development that either provides training to improve teaching or administrative skills (Arizona Department of Education, 2011). Thus, in a six-year period, teachers must

engage in, on average, 30 hours of professional learning each year. Because of the general criteria, professional development may be disjointed and/or lack the coherence that researchers believe is necessary for sustained teacher growth over time (Ball & Cohen, 1999; Cochran-Smith & Lytle, 2009).

Local Professional Development Context

I would characterize Central School's approach to professional development as intensive and driven by important, but not necessarily linked, topics. Since beginning at Central School as a classroom teacher in 2009, I have observed and participated in the following types of professional development: book studies, goal writing, action research, collaborative inquiry, peer observations, one day workshops, on and off-site trainings, updates (both curriculum and administrative), and both local and national conferences. Topics and programming often change rapidly based on a current need or observation from either administrators or staff members. Follow through on most of these topics for sustained learning has been a challenge for both leaders and staff.

The difficulty to focus our professional development seems due, in part, to the fact that Central School is a young, independent school that is still in its developmental years. Though curriculum and instructional methodology were clearly defined when Central School opened, some instructional approaches were not familiar to many of the teachers who were hired. For example, teachers at Central were unfamiliar with using comprehensive literacy practices and Singapore math methodologies as a primary means for instruction. As the Head of School and teacher leaders observed gaps in either curriculum or instruction, professional development updates were provided to close the gap. Opportunities for sustained and focused learning were not central to professional

development, as leaders often reacted to obvious gaps in the teachers' ability to understand and use the school's expected practices. Now, in our fifth year, curriculum and instructional methodology are more clearly defined, understood, and thoughtfully delivered by the majority of teachers. My role as Dean of Academics was added last year as a response to the need for one individual to focus on the continuous development of teachers and their impact on students' learning.

Last year, teachers and administrators read and discussed current research on grading and reporting practices. Many staff members indicated, through an informal survey, that teachers use our current grading and reporting practices inconsistently and that parents find them confusing. At the beginning of the 2011-2012 school year, staff members received professional literature to embark on a year-long discussion about grading and reporting practices. Once a month, a Wednesday staff development session was set aside for teachers to discuss, question, and determine what worked best for our school population in terms of grading and reporting based on current research. Our goal was to implement a new system that was less subjective among staff, less confusing to parents, and more conducive to helping students understand how to improve. This was the first time that professional learning was focused and sustained on a single topic since Central opened.

Additionally, Central School administrators and teachers share a goal for all professionals to take an inquiry stance toward improving classroom practice and student achievement. Though strides have been made to incorporate inquiry models in Central classrooms, a limited amount of time during professional development is dedicated to promoting, learning about, and encouraging the use of inquiry. Rather, teachers are told

where they need to focus their goals, provided a limited amount of knowledge to conduct action research, and given a very limited amount of time during professional days to develop their inquiry projects to support meeting their goals. Moreover, most teachers continue to remain the passive recipients of information selected for them and offered by those deemed as building experts.

With the implementation of the value-added growth model in Arizona, student growth after third grade is now directly linked directly to teachers. At Central, teachers and building leaders noticed that reading scores fell from third to fourth grade, from fourth to fifth grade, and from fifth to sixth grade from spring of 2010 to spring of 2011. In spring of 2012, fifth grade saw an increase in students' reading scores. Math scores, with the exception of two classrooms, stayed the same or increased. Table 1 summarizes three years of reading data among three cohorts of students.

Finally, Central teachers also reported challenges with student achievement in science and social studies. The Core Knowledge curriculum sequence emphasizes a specific body of knowledge that students need to learn in each grade level. Knowledge builds upon knowledge, year after year. Students who enter Central in the upper grades often arrive with limited science and social studies background knowledge as well as a lack of study skills to support their learning in these areas. With the implementation of the Common Core State Standards, students are now required to read a true balance of fiction and non-fiction text. Texts need to be read closely and students should be capable of finding text-based evidence to support their answers and arguments (National Governors Association Center for Best Practices, & Council of Chief State School

Officers, 2010). As a result, teachers desire to find ways to improve content area instruction to support language arts instruction.

Collaboratively, building leaders and teachers hypothesized different reasons for the consistent drop in the scores of students who exceed the standard in reading. In response to the data, teachers set building and classroom goals in the area of reading. Teachers then targeted areas for growth as evidenced by their data and determined an area of focus for the year. In content areas, vertical grade level teams met on occasion to better understand instructional practices, test development, note-taking expectations, and study skills from one year to the next. Yet, a limited amount of time was provided during professional development for teachers to better understand these problems, collaborate with colleagues to determine an instructional focus, plan ways to measure student growth, and/or reflect on changes in their practices. In fact, teachers often report that they are simply "checking a box" when asked to write and execute goals targeted at increasing student achievement.

I wonder whether providing teachers the opportunity to research real problems in their classrooms, giving them a research context through which to understand the problem, and providing time to collaborate with other colleagues may empower and transform Central School teachers. As Cochran-Smith and Lytle (2009) assert, in a practitioner inquiry model, teachers shift from a single role as practitioner to one who takes on the dual role of researcher. Historically, practitioners have often been the subject of research conducted by outsiders. Practitioners who participate in an inquiry oriented process become researchers who work from the inside. Therefore, my research taps into the existing professional development opportunities to insert a systematic

inquiry orientation designed to assist teachers to identify problems of practice and then create an action plan for addressing them.

The Innovation

Lawrence Stenhouse (1981) stated, "It is teachers who, in the end, will change the world of school by understanding it" (as cited in Hall, 2009, p. 669). The goal of this action research study is to move the Central School staff toward a true inquiry model of professional learning. I believe that professional learning should be recast as the practice of teachers as researchers who identify their research questions and receive support to develop these professional practices so that students achieve at high levels. Teachers should be provided with the opportunity to identify their own needs for professional learning based on real problems in their classrooms, seek professional literature to support their need for change, determine a course of action to change or enhance professional practice based on their study of supporting literature, work collaboratively with individuals or groups to deeply understand their practice, and measure the effects of student learning that may result from that action. As Shagoury and Power (2012) explain, "More and more, teachers depend on using their reflective abilities to research these problems and then to build a corps of reflective learners in their schools who can work well together around tough issues" (p. 7). At present, Central School has two challenging issues: a continuous drop in exceeding reading scores after third grade and a professional development model that does not promote focused, sustained learning. Thus, using an inquiry model as the foundation for professional learning is important to this study because I wonder if informed inquiry oriented practitioners are the change agents necessary at Central and for broader educational reform in the 21st century.

Research Questions

The purpose of my innovation is to introduce a job-embedded professional development model that focuses on the practice of teachers' classroom research, to enhance teacher expertise and increase student achievement. As a result of implementing my innovation, I hope to better understand the following research questions:

1. In what ways do teachers' attitudes, beliefs and preferences for professional development change as a result of using teacher research as a primary vehicle for professional development?
2. In what ways does a systematic, on-going, inquiry oriented professional development model with a focus on teacher research impact teachers' instructional practices?
3. What impact does an inquiry oriented professional development model with a focus on inquiry have on student growth?
4. What characteristics of this newly designed professional learning model do classroom teachers deem most important for impacting their practices and student learning?

Theoretical Framework

The theoretical lens through which I will frame my study is based on two theories: (1) Mezirow's learning as transformation, and (2) Lave and Wenger's theory of situated learning.

Learning as Transformation

Mezirow (2000) defines transformative learning as:

> "…the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mind-sets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action." (p. 8)

As an adult learning theory, Mezirow believes that the goal of the transformed learner is to recognize and act on his or her own purposes, feelings, values, and meanings as socially responsible, clear thinking decision makers. Mezirow discusses two domains of learning that originated with Habernas: (1) instrumental learning, and (2) communicative learning. Instrumental learning refers to the technical success with which the learner meets his/her objectives. Communicative learning refers to the ability of the learner to negotiate his/her own purposes, values, feelings, and meanings rather than to act on those of others. The use of specialized dialogue, referred to as reflective discourse, assumes importance to becoming a transformed learner because reflective discourse encourages the learner to critically assess one's assumptions. Mezirow believes that to more freely and fully participate in discourse, learners must have the following:

- More accurate and complete information
- Freedom from coercion and distorting self-deception
- Openness to alternative points of view: empathy and concern about how others think and feel
- The ability to weigh evidence and assess arguments objectively
- Greater awareness of the context of ideas and, more critically, reflectiveness of assumptions, including their own

- An equal opportunity to participate in the various roles of discourse
- Willingness to seek understanding and agreement and to accept a resulting best judgment as a test of validity until new perspectives, evidence, or arguments are encountered and validated through discourse as yielding a better judgment (Mezirow, 2000, p. 13-14).

Mezirow also recognizes that learners' frames of reference often represent their cultural paradigms. He defines cultural paradigms as "…learning that is unintentionally assimilated from the culture—or personal perspectives from the idiosyncrasies of primary caregivers" (p. 16-17). Mezirow reports that frames of reference are composed of two dimensions, a habit of mind and resulting points of view. He defines a habit of mind as a set of assumptions that act as a filter for interpreting the meaning of experience. Habits of mind then become expressed points of view. For Mezirow, "learning occurs in one of four ways: by elaborating existing frames of reference, by learning new frames of reference, by transforming points of view, or by transforming habits of mind" (p. 19). Cranton (1996) asserts the importance of transformative learning in relation to professional development. She believes that the professional development should allow educators to develop habits of mind that critically examine various aspects of their teaching. Transformative learning assumes importance to my study. Specifically, teachers will initially generate a question based on a query or problematic frame of reference that they hope to make more reliable (Mezirow, 2000). They then will examine their research, practice, and resulting student achievement. Hopefully, they will ultimately generate opinions and interpretations that are more justified. Additionally, teachers may alter their frames of reference, thus transforming their learning as a result of

examining research to answer their questions and participating in reflective discourse with other members of the Central School learning community.

Situated Learning: Legitimate Peripheral Participation

To further support my theoretical framework, Lave and Wenger's theory of situated learning is important because of the social nature of learning. Becoming a transformed learner does not occur in a vacuum; rather, the participation of learners in communities is essential to transformation (Mezirow, 2000). Lave and Wenger (1991) view learning as a situated activity. They theorize that general knowledge only has power in specific circumstances, while learning is a process of participation in communities. They view legitimate peripheral participation as the process by which newcomers learn the practices of a community, first peripherally, but then move toward full participation in the community as they learn from apprentices, masters, and/or old-timers in the community. According to Lave and Wenger, "Viewing learning as legitimate peripheral participation means that learning is not merely a condition for membership, but is itself an evolving form of membership" (p. 53). Regarding my study, Lave and Wenger's theory aligns with the purpose of my innovation, which is to move teachers from a top-down professional development model to one situated in a way that moves teachers away from peripheral participation and toward full participation as practitioner researchers.

In summary, the goal of the administration and teacher leaders at Central School is for practitioner inquiry to become the primary means through which professional learning takes place. As a result of implementing this job-embedded professional development model that focuses on the practice of classroom research, I hope to

understand if teachers' attitudes and beliefs about professional development change, if this model of professional development impacts teachers' instructional practices, if student achievement increases, and whether teachers consider this professional model important for impacting teacher practices and student learning.

Practitioner research is a challenging endeavor. It is my hope that Central School colleagues will come together to realize the power they have as professionals to solve problems in an ongoing, systematic, collaborative way with a focus on the examination of research to inform and potentially transform their practice.

Chapter 2

REVIEW OF SUPPORTING SCHOLARSHIP

For many scholars, providing high quality professional development is a key to improving teacher practice and student achievement (e.g., Ball & Cohen, 1999; Darling-Hammond 2010; U.S. Department of Education, 2001; Wei, et. al., 2009). In fact, the No Child Left Behind Act of 2001 recognized the lack of high quality professional development in the United States, and responded to these findings by setting five criteria for high quality professional development (U.S. Department of Education, 2001). A summary of these criteria follow:

- It is sustained, intensive, and content-focused—to have positive and lasting impact on classroom instruction and teacher performance.
- It is aligned with and directly related to state academic content standards, student achievement standards, and assessments.
- It improves and increases teachers' knowledge of the subjects they teach.
- It advances teachers' understanding of effective instructional strategies founded on scientifically based research.
- It is regularly evaluated for effects on teacher effectiveness and student achievement. (as cited in Wei, et al., 2009, p. 1-2).

Other scholars contend that creating opportunities for teachers to engage as learners, build disciplinary and pedagogical knowledge, and co-construct and enact new practices through teacher inquiry may effect change not only in individual classrooms, but also in larger educational contexts (Nelson & Slavit, 2008).

With these assertions in mind, I examine two areas of research relevant for my current study: professional development and teachers as researchers. In my examination of professional development literature, I will review two models of professional development that dominate K-12 schools in the United States, explore the attributes of high quality professional development that receive current consideration, relate the challenges of measuring the effects of professional development on teachers' practices and their students' learning, and redefine professional learning as it relates to my local context and to this study. Inquiry as an umbrella term under which teacher research rests will be defined, followed by the challenges that teacher researchers face in today's educational landscape. I will follow with examples of empirical studies that support teacher research in three areas: reflective practice, collaborative engagement, and school reform. I will conclude my literature review by discussing the few studies that have been conducted in which a teacher research or an inquiry stance serves as the basis for the professional development of teachers within large-scale settings.

Professional Development

In designing a high quality professional development program that improves teacher practice and increases student achievement, numerous challenges face school leaders, teachers, researchers, and the systems through which these stakeholders work. School districts across the United States spend large amounts of district money and time on professional development for teachers (Flint, Zisook, & Fisher, 2011). Hill (2009) reports that professional development spending is estimated at between 1% and 6% of district expenditures. However, although schools spend large amounts of money to develop teachers in some schools, student achievement does not appear to increase on

international assessments (Darling-Hammond, 2010). School leaders struggle to create conditions for teachers to develop and refine best instructional practices that support student achievement (Fullan, 2008). Teachers, too, face an ever-changing educational landscape and the expectation to revise or change their practices as a result of numerous shifts such as societal structures, resource availability, and evolving learning theories (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004). Additionally, traditional professional development models often impose topics on teachers with little input from teachers about their own learning needs as a professional. Finally, researchers recognize and face the need for and challenge to design more valid methods of studying professional development (Desimone, 2009). Among the various challenges that the aforementioned stakeholders face, Elmore (2009) reminds us that the greatest challenge to effective professional development sometimes results from the "nested" systems through which we work. Elmore uses this term to refer to system-level improvement strategies. For example, classrooms are nested within schools, which are nested within districts, which are nested within a broader policy and governance system. According to Elmore, nested systems often push down problems until they can't be pushed any further. These nested systems thus add to the complexity of what may be called a "wicked problem" (Conklin, 2006).

In the next section, I review two broad existing models of professional development that serve teachers in K-12 schools in the United States. I will then discuss the attributes of quality professional development, followed by the challenges of measuring the effects of professional development on teacher practice and student

achievement. I conclude my review on professional development by redefining professional learning as it applies to this action research study.

Models of Professional Development

Smith and Gillespie (2007) identify two of the most commonly researched models of professional development in the K-12 setting: traditional and job-embedded professional models. In the following sections, I compare and contrast the two models.

Traditional models. Traditional models of professional development have dominated the K-12 learning community for decades. According to Fenstermacher and Berliner (1985), the traditional model of professional development bases its approach on the belief that when teachers acquire new competencies and strong teaching behaviors over their career, students benefit. Examples of traditional professional development offerings include short-term or one session workshops, lectures, trainings, and/or conference sessions. Menus of options offer a wide range of topics. Teachers choose workshops based on interest, availability, or a need for continuing education credits for recertification. Teachers may also attend professional learning sessions that school leadership recommends (Smith & Gillespie, 2007).

Criticisms of traditional models. Researchers cite numerous criticisms of traditional professional development models. Studies suggest professional development that is managerial and technical in its approach does not effectively contribute to the teachers' knowledge base or to their professional identity (Ball & Cohen, 1999; Darling-Hammond & McLaughlin, 1995). Scholars such as Flint, Zisook and Fisher (2011) and Hill (2009) characterize these traditional models of professional development as a one-shot, generic, one-size fits all model. Teachers whose professional development

primarily includes professional conferences typically attend isolated one or two day events in which they passively receive information on strategies or approaches that some consider ineffective (Butler, et al., 2004; Flint, Zisook, & Fisher, 2011). Ball and Cohen (1999) concur, characterizing professional development sessions and workshops as "intellectually superficial, disconnected from deep issues of curriculum and learning, and fragmented, and noncumulative" (p. 4). Briscoe and Wells (2002) characterize this type of learning as a top down approach and argue that this traditional model does not result in long-term change in the classroom. Two research studies support these claims. Joyce, Wolf, and Calhoun (1993) studied a school that provided teachers with extensive traditional training, and found that teachers adopted only 10% of the practices learned, unless the training was followed by coaching or action research. Porter, Garet, Desimone, Yoon, and Birman (2000) conducted research on teacher change as a result of professional development and found, after three years, teachers self-reported that little change occurred in regard to their improvement in content taught, pedagogical shifts, or emphasis on performance goals for students. A further criticism of the traditional model of professional development comes from teachers who believe that professional development is often imposed on them, suggesting that knowledge is defined by experts and they, the practitioners, are the passive recipients of that knowledge (Flint, Zisook, & Fisher, 2011).

Change to traditional models. Because traditional models of professional development prevail in education, numerous reviews and studies have outlined ways in which a traditional model can better promote teacher change or affect student achievement (e.g., Knapp, 2003; Porter et. al., 2000; Supovitz & Turner, 2000). Smith

and Gillespie have summarized ways in which traditional models of professional development can be more effective:

- Be of longer duration.
- Make a strong connection between what is learned in the professional development and the teacher's own work context.
- Focus on subject-matter knowledge.
- Include a strong emphasis on analysis and reflection, rather than just demonstrating techniques.
- Include a variety of activities.
- Encourage teachers from the same workplace to participate together.
- Focus on the quality and features of professional development, rather than on format or type. (Smith & Gillespie, 2007, p. 216-219).

Job-embedded models. According to Hord (1997), job-embedded professional development models originate within a school, program, or other local context. Smith and Gillespie (2007) note that professional development opportunities that take place within a job-embedded model may include study circles, sharing groups, or inquiry groups made up of teachers from within a local context. This model of professional development focuses on "developing teacher knowledge in the content area, analyzing student thinking, and identifying how that knowledge can be applied to changes in instructional practices tailored to the local educational context" (p. 219). In a traditional professional development model, experts do most of the talking, while teachers listen. However, in job-embedded professional development models, teachers often do the talking, thinking, and learning (Feiman-Nemser, 2001).

Recent research demonstrates the value of a job-embedded model of professional development (e.g., Carpenter and Franke, 1998; Kazemi & Franke, 2003; Langer, 2000; Taylor, Pearson, Peterson, & Rodriguez, 2005). Smith and Gillespie (2007) indicate support for job-embedded professional development when the development includes the following features:

- A focus on helping teachers to study their students' thinking, not just try new techniques.
- Collaborative learning activities among teachers.
- Activities in which teachers make use of student performance data.
- Help from facilitators to organize job-embedded professional development. (Smith & Gillespie, 2007, p. 220-221)

The following section highlights additional attributes of quality, job-embedded professional development that researchers have found impacts teacher practice and/or student learning.

Attributes of Quality Professional Development

A strong system of teacher learning does not end in teacher education and induction programs at the beginning of teaching careers. Rather, teachers must receive ongoing opportunities for learning throughout their careers (Darling-Hammond, 2010). Effective professional development is "sustained, ongoing, content-focused, and embedded in professional learning communities" (Darling-Hammond, 2010, p. 227). Wei, et. al. (2009) contends that school systems, with the support of their state departments of education, need to ensure that professional learning is planned, organized, of high quality, and sustained.

Standards for professional learning. Learning Forward (formerly known as the National Staff Development Council) (2011) recently revised their Standards for Professional Learning. Learning Forward derived seven standards from a comprehensive examination of research on professional learning conducted by Stanford University's Stanford Center for Opportunity Policy in Education and led by Linda Darling-Hammond. The seven standards include: learning communities, leadership, resources, data, learning designs, implementation, and outcomes. Each of the seven standards begins with the common statement, "Professional learning that increases educator effectiveness and results for all students…" (p. 19). The common statement names three key components of significance to my study: professional learning, educator effectiveness, and results for all students. This organization recognizes that these three attributes must work in tandem. Learning Forward asserts that choosing to focus on a few of the standards is not optional for professional learning, since empirical studies support all three (e.g., Chambers, Lam & Mahitivanichcha, 2008; Desimone, Porter, Garet, Yoon, & Birman, 2002; Penuel, Fishman, Yamaguchi & Gallagher, 2007; Saunders, Goldenberg & Gallimore, 2009; York-Barr & Duke, 2004).

Attributes of high quality professional development. Porter, et al. (2000) collected data from a national sample of teachers over a three year period in which teachers were asked to self report on how their teaching practices changed as a result of their professional development experiences. The authors concluded that six key features were found to improve teaching practice. Three attributes involve the structure of the professional development activity. These structures include the organization of the activity, specifically a reform type (e.g. study group, teacher network), in contrast to a

traditional workshop; the duration of the activity; and the extent to which groups of teachers from the same school, department or grade collectively participated in the development. The remaining three attributes relate to the substance of the activity. Those attributes include the degree to which the development allowed for active learning, a subject-specific or content focus (specifically in math and science), and the degree to which the development established coherence between teachers' goals and alignment to state standards

Several other empirical studies identify additional attributes for high quality professional learning. Saxe, Gearhart, and Nasir (2001) compared three types of professional support for teachers and found that professional development that was sustained, collaborative, content specific, and deeply embedded in improving pedagogical practices showed the greatest academic gains among students. McGill-Frazen, Allington, Yokoi, and Brooks (1999) found that students whose teacher received 30 hours of professional development in reading instruction and library use along with 250 books donated to classroom libraries achieved at higher levels than those students whose teacher had simply received classroom libraries without the 30 hours of professional development. Both studies revealed that professional development that is content-focused, sustained, and leads to changes in professional practice improves student learning (Wei, et. al., 2009).

Professional development and student achievement. Other studies link professional development to student achievement. For example, Kennedy (1998) reviewed a number of empirical studies to find out if structural and organizational features of professional development models influenced student achievement. She found

that professional development programs whose content focused on teachers' knowledge of the subject, on the curriculum, or on how students learn the subject made the greatest difference in student learning. Strahan (2003) conducted an investigation of three schools to identify what caused a dramatic increase in student achievement. Though different approaches and foci of professional development occurred at the three schools, several commonalities emerged. First, the teachers and administrators identified priorities for school improvement based on data collected from formal and informal assessments. Areas for improving teaching were then targeted. School-based professional development was then initiated that allowed teachers to identify and enact more effective instruction.

In summary, researchers have identified a number of attributes that typify quality professional development. They concluded that well-planned, collaborative, sustained, content-focused, and coherent professional development enhance teacher practice and increase student achievement.

Challenges of Measuring the Effects Professional Development

As stated at the beginning of this study, the purpose of professional learning is two-fold: to enhance teacher practice which results in increased student achievement. The literature on professional development is replete with studies on various aspects of staff development. However, limited empirical research exists on how to accurately measure the direct effects of quality professional development on improved teacher practice that directly results in increased student achievement (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

Desimone (2009) recognizes that the field of education acknowledges a need for more valid methods of studying professional development. Locating empirical research that rigorously measures the effects of professional development on teacher practice and student achievement is challenging for a myriad of reasons. Desimone notes that accurately measuring the effect of professional development on teacher practice and student achievement necessitates the identification of a core set of features of effective professional development and a core conceptual framework. She asserts that rather than studying the type of activity in which teachers engage, researchers should study the characteristics of the activity that make it effective for increasing teacher learning and practice and ultimately student achievement.

Opfer and Pedder (2011) further examine the complexity of measuring the effects of professional development on teacher learning, teacher practice, and student achievement. They indicate that one challenge that researchers face in measuring the effectiveness of professional development models stems from a lack of replication of positive effects across studies and the consistency in these effects across contexts. In addition, Clarke and Hollingsworth (2002) discuss the challenge of the correlational research on features of teacher professional development and change. From a systems perspective, change may occur in one area of influence, but may not lead to change in another. For example, teachers may change their beliefs but not their practices; may change their practices but not their beliefs, and may ultimately change their practice but not impact the learning outcomes of their students.

Yoon, et al. (2007) reviewed 1,300 studies on how teacher professional development affects student achievement. Of the 1,300 studies reviewed, only nine

studies met the criteria set by the What Works Clearinghouse evidence standards. The overall results of this review indicate that studies in which 14 or more hours of professional development were provided showed a positive and significant effect of student achievement as a result of the professional development provided. In addition, Yoon and colleagues reveal the challenge of linking professional development to student achievement:

> To substantiate the empirical link between professional development and student achievement, studies should ideally establish two points. One is that there are links among professional development, teacher learning and practice, and student learning. The other is that the empirical evidence is of high quality—that the study proves what it claims to prove. (Yoon, et. al., 2007, p. 3)

To establish an empirical link between professional development and student achievement, they assert that researchers adhere to the following guidelines:

1. Rigorous research design must ensure the internal validity of causal inferences about the effectiveness of professional development.
2. Executed with high fidelity and sufficient implementation of professional development.
3. Psychometric properties of measures must be adequate.
4. Analytic models must be well specified.

Redefining Professional Development

As a result of recognizing the prevalent models of professional development in the United States, identifying the attributes of high quality professional development, and understanding the challenges of measuring the effects of professional development on

teacher practice and/or student achievement, developing a working definition of professional development, as it relates to this action research study is necessary. Yoon, et. al. (2007) defines professional development as "that which results in improvements in teachers' knowledge and instructional practice, as well as improved student learning outcomes" (p. 3). Importantly, researchers indicate a trend that moves away from professional development to a more comprehensive shift toward professional learning. Though one may argue the relevance of a name change, I believe that professional development signifies an event that begins and ends, with or without a focus; whereas, professional learning implies continuous growth and improvement. Learning Forward (2011) qualifies the reason for the change:

> By making learning the focus, those who are responsible for professional learning will concentrate their efforts on assuring that learning for educators leads to learning for students. For too long, practices associated with professional development have treated educators as individual, passive recipients of information, and school systems have expected little or no change in practice. (p. 13).

Wei, et. al. (2009) affirms the shift in language. These authors emphasize that professional development is recognized as an activity that takes place, whereas, professional learning recognizes learning as a complex process. Avalos affirms the complexity of professional learning:

> Teacher professional learning is a complex process, which requires cognitive and emotional involvement of teachers individually and collectively, the capacity and willingness to examine where each one stands in terms of convictions and beliefs

> and the perusal and enactment of appropriate alternatives for improvement or change. All this occurs in particular educational policy environments or school cultures, some of which are more appropriate and conducive to learning than others. (Avalos, 2011, p. 10)

Shifting away from a development model to a comprehensive learning model allows teachers to recognize the necessity of the connectivity of their learning to their practice which should result in student achievement.

In summary, researchers have identified dominant models of professional learning for K-12 educators in the United States, proposed attributes for effective professional learning, and illuminated the challenges that researchers face in measuring the effects of professional learning on changing teacher practices and/or student achievement. Based on the existing scholarship and this redefinition of professional development, the action research professional learning model I propose leads to the focus from attendance at professional development and implementation of the ideas stemming from it, to a consideration of teachers as researchers. In this redirection, teachers will control the ideas, the attributes of the practices, and the assessment of their efforts. In the following section, I explore the job-embedded professional learning model of practitioner inquiry, which places the power of professional learning directly in the hands of teachers, while experts serve as facilitators of professional learning.

Teachers as Researchers

Having defined and examined professional development from multiple perspectives, I now move toward an examination of literature that places teachers in the role of both practitioners and researchers in the classroom. Developing a model of

teacher research that serves as a primary vehicle for professional learning is important to me. I believe that empowering teachers to more deeply understand their own classroom practice may transform their beliefs in themselves as professional educators.

I begin this section by defining terms under the inquiry umbrella for clarification. Secondly, I will report on the challenges that teacher researchers face as a result of the current educational landscape. I will then report on the empirical research that has been conducted which supports teacher research in three areas: reflective practice, collaborative engagement, and school reform. I conclude this review of literature by synthesizing professional development and teacher research as it relates to my study.

Defining Inquiry

The overall goal of my action research study is for teachers to change their professional practice from one of implementation to one of transformation. According to Dana and Yendol-Hoppey (2009), developing an inquiry stance toward teaching allows for the questioning of one's own practice, which, in turn, enhances professional growth, thus leading to meaningful change for students. In their recent work, Cochran-Smith & Lytle (2009) portray practitioner inquiry or practitioner research as an overarching umbrella that encompasses five major research genres: action research, teacher research, self study, the scholarship of teaching, and using practice as a site for research.

Cochran-Smith & Lytle (1993) define teacher research as "systematic and intentional inquiry about teaching, learning, and schooling carried out by teachers in their own school and classroom settings" (p. 27). In their updated work, Cochran-Smith and Lytle (2009), along with Dana and Yendol-Hoppey (2009) concur that teacher

researchers work in local inquiry communities. Teacher researchers examine their own beliefs about teaching and learning, develop local knowledge by posing questions and gathering data to support their questions, read relevant literature, shift practice as a result of new understandings, and share findings with others. For the purpose of my study, practitioner research or practitioner inquiry will be used as an umbrella term that may encompass any one of the aforementioned research genres; whereas, teacher research will be the genre through which I will frame my action research study.

Teacher Research in the Age of Accountability

Teachers conducting research in their own classrooms is a phenomenon that has been studied for many decades (e.g., Cochran-Smith & Lytle, 1993; King, 2002; Oja & Pine, 1987; Stenhouse, 1975). Yet, in an era of high stakes testing, accountability, and imposed penalties for not meeting student learning goals Cochran-Smith and Lytle (2009) recognize that teacher learning often translates into programs that train teachers to use assessment data to determine what and how to teach children. They criticize the current educational regime which assumes narrow beliefs about teaching and learning: "…teachers are primarily technicians; the goal of teacher learning initiatives is to make teachers more faithful implementers of received knowledge and curriculum; subject matter is a more or less static object to be transmitted from teachers to students" (Cochran-Smith & Lytle, 2009, p. 2). This quotation assumes that teachers do not have the knowledge, skills, and dispositions to make thoughtful decisions for the benefit of their students. In fact, Cochran-Smith and Lytle strongly suggest that the accountability movement led to the de-emphasis of local knowledge, local contexts, and the role of teachers as decision makers and change agents.

In a study about teachers becoming action researchers, Christenson, Slutsky, Bendau, Covert, Dyer, Risko, and Johnston (2002), found that teacher-participants wondered why many of their principals did not support of many of their teacher research outcomes of their personal studies. The authors explain that because research models empower teachers to take control of their own learning, advocate for change, and question the nature of schooling, principals may feel threatened by questions and empowerment that results from taking an inquiry stance. The findings in this study support the assertions made by Cochran-Smith and Lytle.

Furthermore, an assumption has been held that formalized knowledge is constructed by researchers who serve as outside experts and then convey the knowledge to teachers who implement the research findings (Butler, et. al., 2004, Dana & Yendol-Hoppey, 2009). This dominant paradigm, according to Dana and Yendol-Hoppey, portrays teaching as a linear activity where teachers serve as technicians whose role is to implement the findings of the outside experts, who are often university researchers. A second dominant paradigm portrays teaching as a highly complex, context-specific, interactive activity. Again, in this qualitative or interpretive paradigm, many of the studies in this paradigm are conducted by university researchers—outsiders to the school and the classroom. Thus, a third role emerges which places the classroom teacher as a "knowledge generator." Dana and Yendol-Hoppey term this third paradigm teacher inquiry. In this movement, the concerns of the teachers are the focus. Classroom teachers are engaged in the design, data collection, and interpretation of data around a question of their choosing.

In the sections that follow, I report on the studies that support inquiry models of professional learning. I examine the studies through three lenses that have emerged through the analysis of current and relevant literature: reflective practice, collaborative engagement, and school reform.

Reflective Practice

A number of research studies examine the reflective practices that develop as a result of teachers engaging in research or inquiry models of professional learning (see Kirkwood & Christie, 2006; Briscoe & Wells, 2002; Bingham, et. al., 2006). King (2002) asserts that the concept of inquiry is "…not a one-time activity or project, but a defining feature of community in which teachers investigate and critically examine practices, theories, and research, and collectively confront issues in a systematic and continuous way" (p. 244). Developing an inquiry stance toward teaching and learning requires teachers to shift from recognizing teaching and learning as a set of procedural tasks to teaching and learning as conceptual understanding--where teachers view questions as opportunities for learning, tolerate ambiguity, seek out answers, and make changes based on the evidence they find (Snow-Gerono, 2005). Snow-Gerono studied a small group of Professional Development School (PDS) teachers and found that teacher inquiry is a reflective process that involves personal experiences, intuition, and input from students. The teachers studied not only recognized inquiry as a means for changing their personal practice, but also as a means for impacting the teaching profession as a scholarly endeavor.

Likewise, Roberts, Crawford and Hickmann (2010) studied teachers who participated in a 3-year professional development initiative called the Master Teacher

Program (MTP). Central to this program was the development and facilitation of a voluntary program built on the foundation of teacher research through reflective practice. One of the findings of the study indicates that ongoing reflection provides the foundation for teacher research. Additionally, time, freedom to participate, active collaborative engagement, contextualized professional development topics, and optimal conditions for learning were important findings from the study.

In summary, Shagoury and Power (2012) contend that when teachers use their reflective abilities to research problems, they build a corps of reflective learners who work together to solve difficult problems. In designing my innovation, continuous reflection is paramount as teachers embark on their inquiry journeys.

Collaborative Engagement

Emerging professional development models attempt to bring researchers and teachers together to co-construct both formal and practical knowledge (Butler, et. al., 2004). In addition to recognizing teacher research as one avenue for developing reflective practitioners, inquiry models allow for and encourage increased collaboration among practitioners. Chan and Pang (2006) affirm, "Increased research on teacher collaboration and teachers learning together is particularly important in the light of changing educational contexts" (p. 3). Bingham, et. al. (2006) agrees that when conducting classroom action research, teachers want to collaborate. Their study reveals that collaboratively conducting action research projects leads to enhanced efficacy and professionalism. Roberts, Crawford, and Hickmann's (2010) study of the Master Teacher Program (MTP) exposed three themes that emerged for teachers from their reflective professional development model that featured teacher research in the first year of their

study: confidence in teaching, appreciation of collaboration and community, and increased professionalism.

King (2002) discusses the importance of inquiry as a collaborative activity that contributes to a strong professional community. He underscores the importance of whole faculty versus individual teacher learning in an effort to promote organizational learning toward an inquiry stance. In fact, King contends that when inquiry is pursued individually or by small groups of teachers within a school, organizational fragmentation may occur which may weaken overall staff and student learning. He suggests, however, the need for more research to understand how teacher inquiry contributes to professional community, instructional quality, and student achievement. King's study supports my belief that using a research or inquiry model of professional learning is not only important for those small groups of teachers who want to conduct classroom research, but necessary for all members of a learning organization

Implementation of inquiry models of professional learning is not easy. Having utilized an action research model during my first cycle was challenging, especially because of limited collaborative support within my local context. Loughran (2003) discusses three necessary conditions when undertaking teacher research. First, collaboration and sharing with other colleagues may move research from a specific focus to a broader context. Second, in studying personal practice, developing one's own confidence is necessary, as learning through teacher research may create a sense of dissonance. Finally, within safe collaborative cultures, teacher researchers need to communicate their findings in various ways so that others may learn from both their successes and failures.

The aforementioned conditions not only recognize the need for collaboration, but also the necessity for increased teacher supports when using inquiry models. Nelson and Slavit's (2008) recommendations augment a collaborative stance toward teacher research: establishing a set of collaborative norms that allow teachers to challenge beliefs and broaden the lens that frames their work, increasing time available for teachers to collaborate, and providing a facilitator or "critical other" who can provide both logistical and intellectual support for teachers. Roe and Kleinsajjer (2000) call this potential facilitator a cultural synthesizer. The authors purport that a cultural synthesizer is neither a traditional academic nor a classroom teacher. Rather, this individual develops his or her own role that is grounded in both theoretical and practical knowledge to assist both researchers and practitioners in developing cultural coherency. Within this study, I aimed to serve as the cultural synthesizer between the university and my local school context.

School Reform

Briscoe and Wells (2002) affirm that greater demands for teachers to be problem solvers, rather than technicians carrying out tasks set by others, is imperative to 21st century educational reform. Likewise, Chan and Pang (2006), relate that the role of the teacher has changed in the 21st century from one of a source of content and discipline to one who designs learning environments in an effort to create shared understanding among the learning community.

Teachers serving as researchers is more common than one might think. According to Babkie and Provost (2004), teachers often conduct informal, accidental research in their classrooms. For example, when a teacher makes decisions about a particular methodology's effectiveness, the teacher is conducting research. When a

teacher is evaluating the effectiveness of interventions for a student, the teacher is conducting research. Babkie and Provost (2004) recognize what they term "de facto" research; however, they advocate for teachers to move beyond accidental research. They believe that "research should be planned, systematic, and involve collecting evidence to answer specific questions" (p. 261). When teachers engage in systematic research, answers may be found that lead to change in both instructional practice and student achievement.

As more demands are placed on teachers to use evidence based practices to promote student achievement, teacher research appears to be a natural solution to examine the effect of evidence based practices on student achievement in local contexts. Many research studies analyzed for this review of literature examined the effects of teacher research on individual teachers and/or cohorts of teachers (e.g. Babkie and Provost, 2004; Bingham, et. al., 2006; Briscoe & Wells, 2002; Snow-Gerono, 2005). Hargreaves and Shirley (2009) support the need for inquiry through reflective practice and collaborative cultures. However, they assert that for educational reform to occur, inquiry models that promote reflective practice and collaborative cultures must also be directly connected to student learning and achievement. Much of the literature reviewed in the area of reflective practice and collaborative cultures have not measured the effects of either on student learning and achievement. In addition, fewer studies promote teacher research as the primary mode for professional learning in schools or districts.

Two research studies that connect teacher inquiry and professional development on a large scale are set in England and Scotland. In Scotland, Kirkwood and Christie (2006) report on the development of professional development modules that emphasize

teacher research for those undertaking the rigorous Chartered Teacher Programme (CTP). In addition to becoming a teacher who is committed to change and development through the inquiry process, formal outcomes of the CTP include a Master's degree as well as the professional designation of 'Chartered Teacher.' As of 2006, 7,000 teachers were eligible to apply to the program, while 3,000 teachers registered. By 2006, 229 teachers completed the program.

In England, Hall (2009) reports on a project called Learning to Learn (L2L) that took place from 2003-2007 in 33 settings across England. During this project, teachers had the autonomy to choose their focus for classroom research based on an immediate classroom problem that they wished to explore. The L2L framework was designed in the context of an increasingly structured profession in England with the purpose of better understanding the role of inquiry and research in schools where the professional practice has become more regulated and homogeneous. The work of this innovation stems from Stenhouse's (1981) belief that becoming a teacher researcher is not about solving problems, but developing a more thorough understanding of them. The results of the study realized the importance of teacher autonomy in assessing the needs of learners in the classroom and the necessary interplay of engaging in research literature to better understand problems of practice. Additionally, participation in a wider learning community, by making their work public, fosters critical engagement among professional educators.

Teacher Research as the Foundation for Professional Learning

The purpose of this literature review was to gain a broad understanding of the scholarly work that has been conducted to better understand the successes and challenges

of two conceptual models that are important to my work: professional development and teachers as researchers. Though researchers have conducted studies about both concepts from multiple perspectives, few empirical studies establish a causal effect between teacher research, changed professional practice, and resulting student achievement. Additionally, due to the political landscape few studies have been identified that recognize teacher research as the primary vehicle for professional learning as a school-wide model of professional development. Because of the limited scope and design of my action research study, I do not intend to attempt to establish a causal effect between teacher research, changed professional practice and student achievement. Rather, it is my intent, through this study, to better understand the impact of inquiry based research on teacher practice and student growth as well as the value that a teacher research model of professional development holds for teachers at Central School.

Chapter 3

RESEARCH DESIGN

This action research investigation uses a mixed methods design. To support the selection of the methodology, I initially explore a brief history of mixed methods research, provide a definition of this research methodology, and share challenges associated with this type of research. I then justify my use of a mixed methods approach for the questions that guide this investigation, provide a detailed account of my setting, site, and participants, explain the qualitative and quantitative data sources and methods of analyses, and describe my plan of action. I end this chapter by elaborating on limitations of this study.

The Selection of Mixed Methods

According to Creswell (2009), mixed methods research is relatively new in the social and human sciences. As Creswell explains, Campbell and Fiske (1959) introduced the multitrait-multimethod matrix to study psychological phenomenon. Other researchers, such as Jick (1979), began mixing methods in an effort to seek convergence or triangulation among quantitative and qualitative data. This early work led to the development of mixed methods research as a distinct methodology of inquiry by contemporary researchers (e.g. Creswell & Plano Clark, 2007; Greene, 2007; Tashakkori & Teddlie, 1998).

Creswell (2009) defines mixed methods research as

> …an approach to inquiry that combines or associates both qualitative and quantitative forms…it is more than simply collecting and analyzing both kinds of data; it also involves the use of both approaches in tandem so that the overall

strength of a study is greater than either qualitative or quantitative research. (Creswell, 2009, p. 4)

Greene (2007) elaborates on the overall purpose of mixing methods, which is to develop a deeper understanding of social phenomena that is often complex and contextual. To better understand the complexities of social phenomena, Greene cites five purposes for mixing methods: triangulation, complementarity, development, initiation, and expansion.

In my study, I mixed methods to increase the validity of my findings through the triangulation of my data sources. Greene explains that triangulation is the use of different methods to study the same phenomenon. When triangulating data sources, the analyses of these sources may increase the validity of a study. Thus, according to Greene, if results from different sources yield similar information about the same phenomenon being studied, confidence in the inferences that yield from the sources is heightened.

I also sought complementarity in my study, another purpose for mixing methods. Greene notes that when seeking complementarity, a researcher uses multiple methods to understand different dimensions of the same complex phenomenon. I hope that the results from my study will serve to broaden and deepen this study's overall interpretation.

Creswell (2009) notes challenges faced by mixed methods researchers. First, in a mixed methods study, extensive time is needed for data collection and the resulting analyses. Additionally, researchers must be familiar with qualitative and quantitative types of research.

I used a mixed methods research design to explore the impact of an enhanced professional learning program as a model for professional development. As expected, both quantitative and qualitative data sources were collected. Quantitative data sources

included a pre and post survey to measure the relationship between teachers' beliefs, attitudes, and preferences for professional learning before and after the proposed innovation. Additionally, student growth data, through artifacts and interviews, were collected before and after the innovation to examine if teachers believed a relationship existed as a result of professional learning opportunities, where the classroom teacher undertook an inquiry project. In conjunction with these quantitative sources, the impact of this professional learning program was explored using qualitative data sources: individual interviews, observations, artifacts (such as research briefs, written reflections, and student growth data), and a researcher's journal. Triangulating and converging both quantitative and qualitative data sources provided a rich understanding of my research questions (Greene, 2007).

Design

Setting and Site

My study took place at an independent charter school in northwest Phoenix. Central School is an elementary school that serves approximately 480 students in grades K-6. The school doubled in population from year one to year three, and began to stabilize in its' fourth and fifth years. Central's total minority population is thirteen percent. Because most students served come from the mid to high socioeconomic range, Central does not participate in the free and reduced school lunch program. As a reminder, I work at this school, so its selection follows the expectation for action research to inform a location of personal and local importance.

Participants

Teachers. Because our Central School teacher teams already share a collaborative identity, the Executive Director and I agreed that all teachers should move through the proposed innovation at the same time. Nine general education teachers, who have been teaching at Central for more than one year, willingly participated in data collection. By having all teachers participate in the innovation, I intend to build capacity among Central's teaching staff. According to Newmann, King, and Youngs (2000), capacity refers to the knowledge, dispositions, and skills of individual staff members that must be put to use in an organized, collective enterprise. The authors define a strong professional community as one that involves: "…(a) the staff sharing clear goals for student learning, (b) collaboration and collective responsibility among staff to achieve the goals, (c) professional inquiry by the staff to address the challenges they face, and (d) opportunities for staff to influence the school's activities and policies" (p. 262). Additional research indicates that a decision to exclude some teachers from an innovative staff development initiative, such as teacher inquiry, can create a divisive wedge among the staff (King, 2002). Moreover, the selection of general education teachers who taught at Central for at least one year was important because of the challenging curriculum and methodology shifts that occur for first year teachers at Central. Though new teachers at Central participated in professional development sessions, read the assigned text, and observed those teachers completing an inquiry project, they were not required to complete a project of their own so as not to overwhelm them during their first year at Central. Additionally, teachers who taught at Central for more than one year participated in some form of inquiry in previous years, and possessed the necessary background

knowledge to support the innovation. Special area teachers (art, music, physical education, foreign language, and special education), though participants in the innovation, were not included in data collection.

Of the nine teachers who participated in this study, eight participants were female and one participant was male. Three teachers reported one to five years of teaching experience; five teachers reported six to ten years of teaching experience; one teacher reported sixteen to twenty years of teaching experience. Four teachers taught in grades in the primary grades (K-2), while five teachers taught in the intermediate grades (3-5).

Researcher. As a researcher and participant in this study, I need to make my philosophical worldview assumptions transparent, as they influence the way in which I designed and executed my study. I hold a pragmatic worldview, which derives from the work of Dewey, Peirce, and Mead as well as recent scholars, such as Cherryholmes, Rorty, and Patton (Creswell, 2009). According to Creswell, those holding a pragmatic worldview tend to emphasize the research problem and use multiple approaches to understand the problem. Pragmatists are concerned with application—finding solutions to problems. The purpose of this action research was to study a potential innovative solution to a problem with professional learning at Central School.

Creswell further extends why pragmatism provides a strong philosophical basis for my research. Using a pragmatic philosophical worldview, researchers have the freedom to choose the methods that best serve their purposes. Rather than subscribing to one approach for collecting and analyzing data, pragmatists look to many approaches. Similarly, pragmatists "do not see the world as an absolute unity" (p. 11). They look to the "what" and "how" in order to conduct research. In using a mixed methods approach,

researchers establish a rationale for their reasons for mixing. In essence, "…pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis." (Creswell, 2009, p. 11).

My goal for this action research project was to find out if this newly-designed professional development model benefitted teachers and the students they serve. In my role as the researcher, it is important to note the various roles I served in this study. Gay, Mills, and Airasian (2009) explain the necessity of the researcher to clearly define the researcher's role, especially when the researcher serves as an instrument in the study. In my role as Dean of Academics at Central, I provide targeted, job-embedded support related to teaching and learning (including planning and executing professional development). Last year, I participated in the informal and formal evaluation of teachers during the school year. However, during this study, I did not formally evaluate teachers because of the need to reduce the risk to validity in this study that comes with an evaluative role, as well as to focus my role on teacher support. Weekly, I participate in an administrative triad, where my focus is to report on the support I provide to specific teachers and/or teams as well as to find out from the administrative team where other needs for support may lie.

In my role as a researcher, I facilitated and implemented the proposed professional development model, as well as surveyed, interviewed, and observed the participants in the implementation of this professional development model. I also served as a mentor for all teachers in the building, as they worked through their individual inquiries. To clarify my role, it is important to note that although I am a researcher, I do hold leverage over the teachers because of my administrative role at Central. I clarified

my role as a researcher rather than administrator, especially when I observed in teachers' classrooms. When scheduling the observations, I informed them that my field notes would only be used for research purposes, rather than for evaluative purposes. Johnson and Christensen (2008) define four roles of the researcher based on Gold's (1958) work: complete participant, participant-as-observer, observer-as-participant, and complete observer. During the innovation, my primary role was participant-as-observer. I explained to the participants at the beginning of the study that I am not a bona fide group member, but am participating as a facilitator, mentor, and observer to better understand my research questions.

Action plan

The intervention and subsequent data collection and analysis began on August 29, 2012 and continued through the third week of December, 2012. Before initiating the study, I sought permission to conduct research at my school site (Appendix A). Permission was granted, in June, by the Executive Director (Appendix B).

All teachers at Central were provided with the text, *Living the Questions (*Shagoury and Power, 2012). This resource served as the anchor text for our professional development sessions. Professional development time is embedded weekly, on Wednesdays, as students are released at 1:30 p.m. Teachers participate in professional development from 2:00 to 4:00. During this time period, the new professional development model was implemented. Throughout the 2012-2013 school year, a minimum of two professional development sessions per month, the first and second Wednesdays, were dedicated to the implementation of the professional development innovation. The third Wednesday was utilized additionally as needed (given that week

long breaks occurred during two of the four months of the proposed innovation). The fourth Wednesday of the month was used as a collaborative session among grade level teams to reflect upon their instruction and revise grade levels curriculum maps, as necessary.

Procedures

To introduce the study, potential participants received a letter that informed them about the purpose and intent of my study and asked their permission to participate (Appendix C). An additional letter was provided, explaining my dual role as a researcher and administrator (see Appendix D). After securing permissions from nine of the potential eleven participants, I distributed the professional development pre-survey (Appendix E) at the August meeting. All teachers at Central were then provided a copy of *Living the Questions*. Teachers were asked to read chapter one by the following Wednesday. A timeline for professional learning opportunities focused on teacher inquiry was presented (Appendix F).

During the first Wednesday of each month, professional development sessions were facilitated by me using the Shagoury and Power (2012) resource to introduce the systematic process of teacher research. At our first meeting in September, I provided a professional development vignette to teachers (Appendix G) and facilitated a conversation about the strengths and challenges faced by the educator in the vignette related to professional development. Because two participants did not give permission for audio recordings of them during professional development sessions to be used in this research, I opted to take notes in my researcher's journal at each session and compared my notes with those taken by one teacher on staff who takes notes at all professional

development meetings. I followed the discussion of the vignette with a PowerPoint presentation of our direction for professional learning for the semester. The session concluded with a discussion of chapter one of *Living the Questions* (Shagoury & Power, 2012). The facilitated professional development session was dedicated to exploring the importance of making observations and developing research questions. Teachers collectively reflected on chapter one of *Living the Questions* as a whole group, and learning focused on various ways to develop their own questions for research. Two additional resources, *The Reflective Educator's Guide to Classroom Research* (Dana & Yendol-Hoppey, 2009) and *The Art of Classroom Inquiry* (Hubbard & Power, 2003) served as additional resources I personally utilized as part of the planning process, to provide additional background knowledge. Two remaining professional development sessions in September were dedicated to providing teachers with the opportunity to work collaboratively or individually on their inquiry projects and to read the second chapter of *Living the Questions*. During these sessions, teachers utilized me as a mentor as needed. By the end of September, each teacher developed a research question for potential study and made initial observations of their students to support the direction for study.

During the first professional development session in October, all teachers briefly shared their research questions and the student and classroom observations that led them to the question they chose for study. Teachers offered questions and suggestions to each other during the whole group sharing session. Teachers also read chapters three and six of *Living the Questions* in preparation for their work in October. Chapter three discussed research design, while chapter six discussed the importance of consulting research that supports their questions. Shagoury and Power (2012) note that when teachers read

published research that informs their direction, teachers experience a transformative shift, as teacher researchers begin to challenge traditional notions of the research process. Again, utilizing a PowerPoint, I facilitated the discussion about chapters three and six. During one additional professional development session in October, teachers read chapter four and developed a research brief that included relevant literature to support their individual or collaborative direction for professional learning. Initial research briefs (Appendix H) were submitted to me by the end of October. Individual appointments were made with me, as needed, to provide assistance and/or direction. Baseline data collection began for some teachers, while other teachers did not begin collecting data until November.

In November, teachers met to discuss chapter five, which focused on data analysis. A PowerPoint was used to facilitate the session. At this time, teachers were immersed in their projects and initial data collection. Facilitation focused on sharing progress to date and methods for data analysis. During this session, small groups of teachers in cross grade level teams shared their research briefs, which included research questions, literature that supported teachers' research direction, and data collection methods. Reflection on the process to date was also shared both orally and in written form. Again, because of a week-long break in November, teachers worked on inquiry projects during one additional professional development session. Also, during the last week of November and the first week of December, I conducted classroom observations of each teacher-participant. I scheduled 30-40 minute observations that focused on watching how teachers' roles as researcher practitioners influenced their classroom practice.

In December, teachers met to discuss chapter eight and the epilogue. Chapter seven was purposely skipped, as teachers will read this chapter later in the school year, as inquiry projects conclude. As in prior months, the facilitated session began with teachers sharing progress to date in cross grade level teams with a focus on sharing strengths, challenges, and questions for each other. A PowerPoint was used to facilitate the discussion of the chapters. Teachers were afforded one additional professional development session in December to analyze data collected, reflect on their personal growth as practitioner researchers and determine their direction for the second half of the school year. Prior to the end of December, teachers submitted updated research briefs and any additional artifacts that supported their research. During the last week of December prior to winter break, I completed semi-structured interviews (Appendix I) with each participant. I re-administered the survey that I gave teachers at the beginning of the innovation. The post survey (Appendix J) was changed slightly to reflect the inclusion of the specific innovation, embedded within various questions.

Data Sources

To reiterate, because I utilized a mixed methods research design, I used both quantitative and qualitative instruments in my study. In combination, these data collection instruments were used to help answer my research questions:

1. In what ways do teachers' attitudes, beliefs about and preferences for professional development change as a result of using teacher research as a primary vehicle for professional development?

2. In what way does a systematic, on-going, inquiry oriented professional development model with a focus on teacher research impact teachers' instructional practices?
3. What impact does an inquiry-oriented professional development model with a focus on inquiry have on student growth?
4. What characteristics of this newly designed professional learning model do classroom teachers deem most important for impacting their practices and student learning?

Pre and post surveys. Gay, Mills, and Airasian (2009) note that one purpose for using surveys as data collection instruments is to "gather information about a group's beliefs, attitudes, behaviors, and demographic composition" (p. 176). I designed a professional development survey to collect quantifiable baseline data prior to beginning my innovation. The survey was divided into five sections. The first four sections, or constructs, of the survey asked participants to respond to statements regarding their beliefs, attitudes, context preferences, and content preferences for professional development. Each construct included four to five statements. The fifth section of the survey asked for specific demographic information. I developed the 22 question survey using a 5 point Likert scale format, consisting of the following categories: strongly agree, agree, neutral, disagree, strongly disagree The first construct, Beliefs about Professional Development, addressed four statements regarding overarching beliefs about professional development. The second construct of the survey, which measured attitudes toward professional development, was adapted from the *Assessment of Teachers' Attitudes Toward Professional Development (TAP)* scale (Torff, Sessions, & Byrnes,

2005), with permission for adaptation and use by Dr. Torff (Appendix K). The post-survey assessed the same measures. The third construct measured teachers' context preferences, or how teachers prefer to learn professionally. The fourth construct addressed content preferences, or what teachers prefer to learn about professionally. In the post survey, phrases that addressed the specific innovation for this study were added to various statements to address the specific innovation that was implemented.

The professional development survey was created in Microsoft Word and piloted in the spring of 2012 with four teachers not included in my study, nor teachers at Central. The survey was revised as a result of this pilot information. Teachers participating in the study took the pre-survey at the introductory professional development session in August. At the conclusion of the innovation in December, participants took the post-survey.

Professional development vignette. The use of vignettes in educational research has been used for more than 25 years (Spalding & Phillips, 2007). Finch (1987/1999) describes vignettes as "short stories about hypothetical characters in specified circumstances, to whose situation the interviewee is invited to respond" (p. 105). I presented a professional development vignette to all staff members at the beginning of the innovation. The purpose of this vignette was two-fold. First, the vignette was based on a professional development experience at Central School that occurred when the building first opened. In presenting the vignette to the staff, my intent was to elicit deeper understandings about beliefs, attitudes, and preferences for professional development prior to beginning my innovation. Secondly, as a researcher, I hoped to establish trustworthiness among the staff by acknowledging our limitations in

professional development as a young staff, and eliciting their responses to the difficult situation presented in the vignette.

After reading the vignette and making notes (if deemed necessary), I facilitated a discussion about the vignette. Again, because two participants did not give permission for recordings to be taken during professional development meeting, I took notes, along with another staff member. I compared my notes with the notes taken by another staff member to assure that our notes collectively captured the discussion. I used the information gleaned from the vignette with the information gathered from the survey to better understand teachers' beliefs, attitudes, and professional development preferences.

Semi-structured interviews. I conducted semi-structured interviews during the second and third week in December with the nine teacher participants. In a semi-structured interview participants are asked a series of structured questions. The researcher then has the opportunity to probe more deeply using open-form questions if additional information is needed to enhance or clarify understandings (Gall, Gall, and Borg, 2003). Gall, Gall, and Borg (2003) note that using a semi-structured approach to interviewing allows for standardization across respondents, but still allows for greater depth than what can be gleaned from a structured interview.

The questions in my study were designed for participants to provide information that will inform each of my research questions. The interviews were conducted after the innovation concluded so that participants could reflect on their experiences with the new professional development model as well as their experiences prior to the implementation of the professional development model. Interviews were recorded using a digital audio

recorder. Each interview was transcribed for analysis using Express Scribe software. (Appendix I).

Teacher artifacts. Gay, Mills, and Arasian (2009) define research artifacts in educational settings as "written or visual sources of data that contribute to our understanding of what is happening in classrooms and schools" (p. 374). I collected various artifacts throughout this study. Teacher research briefs were collected from all Central School staff at various points in the process. Although all staff members are participating in the professional development model, I only utilized the research briefs of those participating in the study for analysis. Student growth data was collected from participating teachers based on their individual or grade level research questions. Also contained within research briefs was a reflective component, where teachers reflected on their implementation of their specific innovations.

Observations. For the purpose of triangulation, I documented the content of the professional development sessions, mentoring sessions, and the observations of teachers' classrooms. I took field notes during every professional development meeting. Another staff member, who regularly takes notes at all staff meetings, also sent electronic copies of her notes to augment the notes I took. Corbin and Strauss (2008) note that observations play an important role as a data collection method. They explain that participants may say they are doing one thing, yet when the researcher observes, the participants may be doing something else, hence the power of the observation. Johnson and Christensen (2008) note a drawback in that participants may not act naturally because they know they are being observed. However, because of my presence in staff

development sessions and within in their classrooms on a regular basis, I anticipate that participants trusted me in my role as researcher.

When scheduling the classroom observations, I informed teachers of my intent to observe the implementation of their inquiry projects. I reminded them that confidentiality would be assured. I asked the teachers to choose a day and time between the last week of November and first week of December for the observation. I came prepared with each teacher's research brief. In my field notes, I looked specifically for actions and behaviors that related directly to their personal studies. While observing, I recorded what I saw happening, what was being said and done, and by whom (Corbin & Strauss, 2008). As a researcher, I recognized the nature of reflexivity (Corbin & Strauss, 2008) during the data collection process. Thus, in my field notes, I acknowledged my influence on the research process by making researcher notes (thoughts, reflections) alongside the observation to ensure transparency.

Researcher's journal. Gay, Mills, and Airasian (2009) note that the use of a research journal allows for transparency, reflexivity, and increased the trustworthiness of a study. In my research journal, I not only documented each step of the research process, but also recorded my reflections and musings regularly. I also ensured that I utilized my researcher's journal in an effort to be candid about the biases I hold regarding my study. As Gay, Mills, and Airasian note, I used the journal to note instances where I made judgments about my data that may validate my position. I wrote in my researchers' journal weekly throughout my study. On days where formal data collection occurred, a thorough description of the events and my responses to the events were recorded in the journal. In addition, I also summarized any mentoring meetings that I engaged in with

teachers throughout the study. At the end of each week, I wrote a reflective entry about my thoughts and musings of the past week.

Data Analysis

Data collection and analysis occurred concurrently and sequentially throughout my study. I looked at the results of both my quantitative and qualitative data in the analysis phase to determine if multiple sources revealed similar findings (Gay, Mills & Airasian, 2009). An explanation follows of how I analyzed my quantitative and qualitative data sources both individually and collectively.

Quantitative data sources. Gay, Mills, and Airasian (2009) caution against analyzing the results of a survey using item by item description due to the overload of information that could be difficult to synthesize. Rather, they recommend clustering items into constructs that are related to each other and finding the mean or average of the cluster. They indicate that the development and analysis of items in a cluster or construct improves the reliability of the scores themselves. As previously explained, the survey was divided into four constructs: beliefs, attitudes, context preferences, and content preferences. The purpose of the survey was to measure the impact of the innovation on Central teachers' beliefs, attitudes, and preferences for professional development. During the analysis phase, I recorded individual item responses in each construct using a statistics software program called Statistical Package for the Social Science (SPSS). First, I computed a reliability measure using Cronbach's alpha. Then, I computed descriptive statistics for each of the four constructs. The means of pre and post survey data were compared to determine if a change in attitudes, beliefs, or preferences for professional development occurred. A paired t-test was performed to determine whether

the means between the pre and post survey data were statistically significant (Johnson & Christensen, 2008). Because of the small number of participants in this study, frequency counts of each item across respondents were recorded. Quantitative data were triangulated with other qualitative data sources to seek corroboration.

Qualitative data sources. According to Creswell (2009), collecting qualitative data is an ongoing process that involves continuous reflection about the data being collected. As mentioned, data collection in this study was conducted concurrently with data analysis. In preparing for qualitative data analysis, I first organized and prepared the data as I collected it. This included numbering all data sources in the order they were collected, transcribing interviews, and typing my field notes. I then read through each data source to gain a general sense of the information. Corbin and Strauss (2008) discuss the importance of reading qualitative sources from beginning to end prior to making notations. They explain:

> When doing the first reading, analysts should resist the urge to write in the margins, underline or take notes. The idea behind the first reading is to enter vicariously into the life of participants, feel what they are experiencing and listen to what they are telling us. (p. 163)

After the initial reading, I went back to each data source and made notes in the margins of these data sources about initial impressions regarding the data collected. Johnson and Christensen (2008) call this initial process of recording initial ideas during data analysis memoing. Memos are reflective notes that researchers write about what the data are telling them. For each piece of raw data I analyzed, I wrote memos in the margins of the

data. Often, concepts changed as my level of interpretation deepened, or as additional data were analyzed, that caused a shift in my interpretation.

As initial categories emerged through the process of memoing, I assigned inductive open codes to the data. Inductive codes are generated by the researcher as a result of examining data (Johnson & Christensen, 2008). As a master list of open codes emerged from the data, I entered the codes into a software program called Dedoose (www.dedoose.com). I then uploaded transcriptions of interviews, observations, research briefs, and typed portions of my researcher's journal into the program. I was able to assign codes to specific excerpts of text in each source. Utilizing this resource allowed me to organize the data by code, and collapse the data into themes. Throughout the coding process, I continuously reread previously analyzed data and compared it to the new data I collected. This constant comparison method (Lincoln & Guba, 1985) of analysis for each of my qualitative data sources (vignette, semi-structured interviews, artifacts, field notes from observations, mentoring sessions, development sessions, and researcher's journal) were used to determine whether these themes and categories emerged across multiple data sources. Johnson and Christensen (2008) recognize the importance of continuous comparison and revision of categories until the researcher clarifies the meaning of each category, creates distinction among categories, and decides which categories are most important to the study. Themes were assigned as a result of the constant comparison and revision of the categories.

I reviewed the results of both my quantitative and qualitative data in the analysis phase to determine if multiple sources revealed similar findings (Gay, Mills & Airasian, 2009). To do this, I applied Erickson's (1986) method of analytic induction. Erickson's

method is based on the researcher's repeated readings of the data set as a whole to arrive at a set of credible assertions. According to Smith (1997) "Assertions are statements that the researcher believes to be true based on an understanding of all the data" (p. 80). To establish a warrant for each assertion, the researcher needs to find confirming evidence in the data as well as searching for disconfirming evidence among the data that may refute the assertion. To establish a warrant for each of my preliminary assertions, I systematically searched through each data source to find segments that confirmed the assertion being made. After finding confirming evidence to warrant the assertion, I then searched for evidence of disconfirming data. If disconfirming evidence was strong, I discarded the assertion. If the confirming evidence was strong, the assertion was warranted. For each preliminary assertion generated, I followed the same procedure. When using Erickson's method, Smith (1997) explains that there is no specific test for determining the balance of confirming versus disconfirming evidence.

Potential Threats to Validity

Experimenter effect. The mixed roles I hold introduced possible limitations into my study. Gall, Gall, and Borg (2003) note that conducting research in one's own context has both advantages and disadvantages. Obtaining approval from the institution, having access to decision makers in the institution, and deeply understanding the context of the institution are benefits of conducting research in my context. On the other hand, the position in an institution and the interpersonal relationships with the participants in the study may impact the study negatively. In my context, I have a strong professional relationship with the teachers in my building. Having been a classroom teacher at Central, teachers indicate that my experience as a classroom teacher at Central makes it

easier for them to come to me with questions and concerns. Knowing that I have an administrative role introduces a limitation in my study, as participants may say what they think I want to hear. Knowing that I did not participate in the formal evaluation of teachers during this study as well as maintaining an open and honest professional relationship with teachers reduced this limitation.

A potential threat to the validity of this study is researcher bias. Johnson and Christensen (2008) define researcher bias as "obtaining results consistent with what the researcher wants to find" (p. 275). They explain that researcher bias tends to occur more frequently in qualitative research. Because this is a mixed methods research study, I collected data which will be analyzed quantitatively and qualitatively to seek triangulation and complementarity. To reduce the possibility of researcher bias, I used a strategy called reflexivity. Johnson and Christensen note that the researcher will engage in "critical self reflection about his or her potential biases and predispositions" (p. 275). By utilizing a research journal, I continuously critically self reflected about my biases.

History. Teachers at Central may have chosen to read additional professional development resources or attend professional development sessions outside of the innovation being offered to them. This may influence the findings in the study. To control for this, I asked a final question in the semi-structured interview addressing other professional development opportunities that they attended and the outcomes of those sessions.

Maturation. In my study teachers newer to the profession may react differently to the innovation than those who are veterans. To control for this, I asked specific demographic information about years of experience in the profession. In the analysis of

my data, I considered maturation as a threat to validity. It is important to note; however, that teachers who are teaching at Central for the first time were not participants in the study. Though they attended all facilitated professional development sessions, they were not responsible for implementing a full inquiry project. Many of their professional development sessions were focused on their needs as first year teachers in our school.

In this chapter, I presented my research design and plan for data collection and analysis, and potential threats to the validity of my study. In the next chapter, I will provide a detailed presentation of the results of my study.

Chapter 4

ANALYSIS AND RESULTS

Corbin and Strauss (2008) discuss and define the importance of analysis. They contend that researchers cannot collect data indefinitely; rather, something has to be done to give the data significance. Analysis is the process that gives substance to data. Corbin and Strauss define analysis as "a process of examining something in order to find out what it is and how it works" (p. 46). They explain that data are broken apart into various components by the researchers and examined to identify their properties and dimensions. As a result, the researcher uses the acquired knowledge to make inferences about the data as a whole. In this action research study, I hoped to better understand the impact of an inquiry based professional development model on teacher practice and student growth as well as the value that such a model holds for teachers within my local context.

In the previous chapter, I described my action plan, data collection methods, and plan for data analysis. In this chapter, I present an inventory of the various data sources used in this study, a more specific accounting of how I analyzed data, and the results from both quantitative and qualitative data sources as they relate to my research questions.

Inventory of Data Sources and Their Findings

An inventory of all data sources used in this study noting the type, description and contents of the source is displayed in Table 2. In the following sections, I detail the attributes and purpose of each data source along with the findings from them for each research question.

Attitudes, Beliefs and Preferences for Professional Development

Pre and post survey analysis and results. In this study, I utilized one quantitative data source, a pre and post survey, to better understand if teachers' attitudes, beliefs about and preferences for professional development changed as a result of using teacher research as a primary vehicle for professional development. Pre-surveys were distributed prior to the innovation beginning at the end of August, while post surveys were distributed at the conclusion of the study in December. As a reminder, the post survey changed slightly to find out if teachers' attitudes, beliefs, and preferences shifted as a result of the innovation. To ensure confidentiality and anonymity, teachers filled out the surveys privately, as desired, and identified their surveys using the first two letters of their mother's maiden name and numeric month of her birth. The pre-survey survey was piloted during the spring of 2012, and changes were made based on the statistical data gathered during that time.

First, I entered teacher responses to each survey item in the Statistical Package of Social Sciences (SPSS). I then calculated the Cronbach's Alpha of the survey to determine its reliability. For the survey to be deemed reliable, it should receive a score of 0.70 or higher (Cronbach, 1951). The pre-survey yielded an overall value of 0.72, while the post-survey yielded a slightly lower overall value of 0.70. Next, I ran descriptive statistics to calculate means (M) and standard deviations (SD) for each of the four constructs (see Table 3).

The first construct measured how strongly teachers felt about their own beliefs regarding professional development, and then how their beliefs may or may not have changed as a result of the innovation. Results indicate that teachers' beliefs about

professional development changed (pre survey, M = 3.58) over the course of the innovation (post survey, M = 4.11). The second construct measured teachers' attitudes toward professional development. Data indicate that attitudes toward professional development, too, shifted slightly from the beginning (M = 3.86) to the end (M = 3.98) of the innovation. The third construct measured teachers' professional development context preferences. Context preferences include ways that teachers prefer to learn (i.e. educational experts, colleagues, books, journals, outside conferences, alone). Again, post survey questions were specifically targeted to the context preferences in relation to the proposed professional development model. Context preferences resulted in a miniscule downward trend (MD = -.04) from the pre-survey (M = 3.60) to the post survey (M = 3.56). The fourth construct, content preferences for professional development, showed an upward trend from the pre-survey (M = 3.72) to the post survey (M = 4.06). I used a paired *t*-test to determine if the changes between the means of the pre and post survey showed statistical significance (see Table 4). Though none of the results yielded statistically significant changes, results in three of four constructs (beliefs, attitudes, and content preferences) suggested a trend toward agree and strongly agree.

Results from the surveys are not surprising with regard to a lack of statistical significance for two reasons. First, survey results indicate that most respondents, with the exception of one teacher, generally took a neutral or positive stance toward their beliefs, attitudes, and preferences about professional development in the pre-survey, and the results held similarly at the end of the innovation. However, one teacher's responses in the pre-survey indicated disagreement, strong disagreement, or neutral feelings on ten of eighteen survey items, and in the post-survey, the same teacher reported strong agreement

or agreement on thirteen items, neutral feelings on four items, and disagreement on one item. Secondly, recognizing that the innovation lasted for a short duration (fourteen weeks), a significant change in beliefs and attitudes may not be surprising. The literature regarding school change and professional development supports possible reasons for the lack of significant change. Scholars recognize that any school change or reform effort takes time, often due to a myriad of factors, such as school culture, emotional and relational aspects of teaching, school leadership, school capacity availability of and time for professional development (Hargreaves & Shirley, 2009; Hinde, 2003; Newmann, King, & Youngs, 2000).

Qualitative data analysis and results. To more deeply understand each research question, the qualitative analysis of multiple data sources (vignette, semi-structured interviews, artifacts, and researcher's journal) provided contextually rich information. After open coding, writing memos, and constantly comparing the codes to data previously analyzed, I entered the raw data and initial codes into a qualitative research program called Dedoose. Within the program, I highlighted those excerpts that were assigned initial codes during the open coding process. I also entered specific information from my hand-written researcher's journal that I deemed relevant to answering my research questions. At times, a single excerpt was assigned multiple codes. I constantly compared codes to sources previously analyzed, collapsed codes, and reassigned and/or added codes. A final list codes generated during the coding process is presented in Table 5.

I utilized two analytical tools within Dedoose to assist in the development of themes for each of my research questions. First, I used a code co-occurrence chart. A

chart of this nature shows how many times a code co-occurred with another code. For example, the code professional community co-occurred with collaboration thirteen times. This tool assisted in collapsing codes and developing themes. Another useful tool in the development of themes was the code application chart. In this chart, data sources were cross-referenced with the codes assigned to it, along with the number of times the code was assigned within that document. This tool was especially helpful as it provided a visual and numerical representation of how many times codes occurred, not only within a single data source, but also across sources. For example, the code collaboration (CB) occurred seven times within one interview, but re-occurred across ten data sources, and was specifically referenced within nine data sources thirty-four times. In the next several sections, I present the themes I generated for each research question with an explanation of how I arrived at each theme and data to support the themes.

The following themes emerged in relation to teacher's attitudes, beliefs, and preferences for professional development: (a) complexity of professional development, (b) professional discourse, and (c) focused choice. What follows is an explanation of each theme, explained in depth, with evidence to support the theme.

The first theme, complexity of professional development, resulted from teachers' reporting out multiple considerations that need to be made when determining supportive professional development practices. All participants, when asked about the purpose for professional development, reported that the purpose for professional development was to provide support for teachers so that students will learn. Of the nine participants, only one did not mention student learning, but concurred with need to "help keep teaching fresh." Teacher A captures the essence of the purpose:

> I think the main purpose is obviously to make teachers more capable in their profession. I think that just like in any other career—doctors, lawyers, they are continually learning, being pushed to learn. Teachers need the same type of push because our job is obviously to make sure that our students, or our charges, are getting better and are successful, so if we don't grow as professionals, we can't help our students, so I think it's mainly for our growth and that will lead to the students' growth.

Teacher E adds that the profession and our students are always changing and, as professionals, we need to hone our expertise to keep up in an ever-changing field. She reports, "I feel that professional development is so important because things are always changing and it gives us such a great opportunity to re-evaluate things and see what we need to do differently in and out of the classroom."

Though all teachers interviewed agreed on the purpose of professional development, teachers also discussed the complexities associated with professional development during professional development meetings, during interviews, and when we spoke one on one throughout the course of the innovation. Codes from each source collapsed to support the theme of complexity include challenges with professional development (CPD), time for professional development (TMPD), reactive professional development (RPD), meaningfulness of professional development (MF), and overwhelming feelings (OW) about professional learning. All participants spoke to the multiple challenges faced when implementing professional development to effectively meet the needs of all teachers. In response to the professional development vignette, Teacher G, a primary teacher, reported that too many professional development meetings

deal with concerns not suitable to their grade level. She states, "We [teachers] are supposed to differentiate, but it's not done in meetings. They're doing to staff what we're not supposed to do with students." Teacher B discussed the need for professional development to focus on the needs of the school, but questioned who determines the needs of the school. Often the needs of the school are based on test scores, and the needs of teachers and students are not considered. At times, she reported that professional development seemed like "the flavor of the week." All teachers reported time as a challenge, but for different reasons. Teacher F talked about the need for teachers to be respectful of people's time by being on time to professional development meetings, while Teacher H talked about how much time is wasted when professional development does not apply to her. Teacher E discussed the time it takes to get to know her students before determining where her professional development needs lie.

In listening to teachers talk about the new professional development model in relation to the complexities that surround professional development, the next three themes suggest a difference that this professional development model may have made for teachers in the study. Through the analysis of semi-structured interviews, my researcher's journal, and a consideration of both pre and post survey results, professional discourse emerged as a theme. The following codes support this theme: collaboration (CB), interaction (IN), professional community (PC), and small group conversations (SGC). In the analysis of the nine semi-structured interviews and entries from my researcher's journal, I found the four codes referenced recurred a total of 73 times across these data sources. I specifically collapsed the four codes to develop this theme because of the repeated co-occurrences I found among them.

Regarding professional discourse, teachers report the importance of professional dialogue as they work to understand the needs of their students. Teacher G explains:

> I was able to look at my specific students and talk to another grade level and find out what they felt was missing from our kids coming up...that had come up previously and what direction would help them, and just look at the skill set of our students and what they were capable of. We actually did something that actually impacted instruction because not only did they go back and look in the text and find explicit answers, but it helped with their reading comprehension.

Teacher F talks about the necessity of professional discourse as she works on her inquiry project with her team:

> Well first of all, the big impact is working with a group. I love to talk, I love to collaborate and share ideas and ask questions and I love the fact that I'm not doing this on my own. The group is very important to me.

Teacher B concurs:

> With the action research, we have a lot of time to talk to our colleagues, and immerse ourselves in what we're doing and question and talk. I'll go to a colleague's house for dinner and be talking about what I'm doing for my action research, and I will text someone and tell them that my data is really interesting. It goes to that collegial bonding piece, which has been huge.

Teacher A shifted in his views about the importance of professional discourse. He reports,

> I think working together for me is important. I've never really done that. Really, this is my first year of feeling like I'm working with a partner. So, that's new for

me. I've never seen the benefits of that before--definitely, bringing together the community to work together, whether it's the whole community or grade levels.

All teachers referenced some type of professional discourse as a desired preference for professional development. Data suggest that attitudes toward professional development appear positive when teachers are provided the opportunity to dialogue with other professionals. Teacher D captures the essence of professional discourse, "What better model for students than professionals working together."

I constructed the theme of focused choice as a result of collapsing the following codes: choice of professional development (CH), differentiated (DF), focused professional development (FPD), meaningfulness of professional development (MF), and feedback for professional development (FB). During the semi-structured interviews, I asked teachers to think about professional development sessions that were of benefit to them. One answer reported among six of the nine participants included the incorporation of differentiated professional development sessions during teacher in-service week, prior to the beginning of the school year. At Central, differentiated sessions occurred over the last two years. Staff members who hold expertise in a particular area facilitate one hour sessions that they believe will be of benefit to teachers at Central. Session choices result from survey information collected at the end of the prior school year. A matrix of choices is provided, and teachers attend the sessions that they believe may impact their practices. Though these sessions were not tied to my innovation (which began at the end of August), they were designed by me after I took this administrative position two years ago. I find it important to report this information in my results section due to the number of times teachers reported the effectiveness of these sessions and the value the sessions

hold for them. Teacher D succinctly synthesizes the information reported in similar ways by other participants.

> I think that some of the best pd [professional development] I've received in the last year has come from the opportunities where I've gotten to choose which pd sessions to attend because, like I said, it's knowing yourself as a professional, knowing what your own needs are as well as the needs of your students and filling in those gaps.

With regard to this particular innovation, Teacher A discusses the value that this model holds for him regarding focus and choice:

> I think the professional development has been much more focused. It has allowed us to choose what we feel is important to us. I know in previous years it's been a little bit more makeshift, I think. This year it's been really honed into some of our own needs.

Teacher E explains the meaning and purpose behind her personal professional development this year versus the completion of a list of assigned tasks by administration. She reports, “It was just a check sheet before rather than really being something purposeful that I could use to guide my instruction. Some of it was good, but this year I feel like it's ALL [emphasis added] very purposeful.” Teacher B talks about past professional development practices both at Central and at other places she worked; and how this year her professional development is targeted to the needs of teachers’ classrooms.

> I think sometimes that it's too often, you know, oh hey we're going to make this goal as a school we're going to do this...and we need to increase our literacy

> practices and it just becomes this big mess and jumble of professional development. It's been really targeted and focused for our own classrooms. I think it's good.

Teacher G discusses the way this newly designed model anchors learning that is applicable to everyone, but also allows for focused choice when determining the needs of the teacher. She contrasts it with traditional models of professional development.

> Like I said, it's more differentiated. It's either something that applies to everybody so that everybody can use it....like the research book we've been reading...it applies to anybody...or breakout groups that we've had that is meaningful and will help your instruction or that help your grade level or collaboration versus sitting in a room, everybody doing the same thing, whether it applies to you or not.

Impact of Ongoing Professional Development on Instructional Practices

To more deeply understand the impact of this model of ongoing professional development on teachers' instructional practices, results from three data sources applied: classroom observations, research briefs, and semi-structured interviews. I collapsed several codes to determine the following theme, instructional shifts resulting from inquiry

The theme, instructional shifts resulting from inquiry, resulted from collapsing the following list of seven codes: application of professional development (APD), relationship of inquiry to practice (RIP), instructional shifts (IS), impact of professional development (IPD), focus on student needs (FSN), focus on instructional practice (FIP), and focus on assessment (FA). To better understand the impact of this ongoing professional development model on instructional practices, I conducted classroom

observations of eight teachers. During each classroom observation, I brought a small notepad along with the teacher's research brief to the classroom. After each observation, I transcribed the observation. Then, I reread each observation, assigning codes, making notes in the margins, and comparing the observations to what was reported in the research briefs and stated in interviews. To deepen the analysis after the coding process, I developed a holistic rating scale to bring overall meaning to classroom observation data. I assigned a holistic rating of 0-4 to the observation with regard to instructional shifts that resulted from this model of ongoing professional development. Table 6 provides the criteria rating scale and criteria for that rating. What follows is a rating and an explanation of the rating assigned to each participant.

Teacher A's practices coincided with a holistic rating of four. Teacher A's classroom observation was directly related to his research brief. During the observation, Teacher A actively collected data on his students' interaction during a Socratic Circle, a formal discussion among students based on a common text, in which the leader asks open-ended questions for discussion. Teacher A interjected to help the leader focus the students, and he asked the students to reflect on what went well at the end of the discussion. In his interview, he indicated that this was the first type of professional development that directly impacted his practice. In both his research brief reflection and interview, he indicates that using this method of discussion is new and now impacts his method of discussion with students, not only during Socratic discussion, but across the curriculum. In his interview, he shared that he learned something about his practice. He reflects, "I did not scaffold them enough. I wanted to try to remain aloof, on the side, like

the method is supposed to and just let them go. I realized, and that's why I've changed my practice, I've realized that they need a little bit more direction."

I did not conduct a classroom observation of Teacher B due to the delay in beginning her innovation. However, in three individual meetings with her, she shared parent and student survey data she used to determine the specific needs of her students and families in an effort to design a parent-student-teacher study skills seminar to improve content area assessment scores, which she believes may also impact her students' abilities to comprehend non-fiction texts.

Teacher C wonders whether the implementation of a monthly review session of science and social studies content will increase long-term retention of content. During my observation of Teacher C's review session, she read questions to the students and gave them time to respond on paper. In her research brief, she indicated that she conducts the review sessions once a month, but she does not provide additional or different instruction before, during, or after the review sessions, or as a result of how the students perform. Also, at the conclusion of the observation, she shared with me that she thought she should do something to provide additional instruction at the conclusion of each review session and indicated that she accessed literature on the specific review method to better understand if additional instruction is recommended by those who developed the method. A shift in practice was neither observed nor reported across other data sources, yet Teacher C wonders whether she should implement an instructional practice component at the conclusion of the review sessions. Of note, in reviewing other data sources, she shared that presentations from outside experts impacted her instructional practices the most, but when questioned specifically about those practices

learned by outside experts, she relayed that outside experts simply give her a greater understanding of the challenges children face which make her more compassionate when working with students.

Upon the analysis of Teacher D's classroom observation, her instructional practice directly related to the actions she proposed in her research brief as well as discussed during her interview. Thus, I assigned the observation a holistic rating of four. Upon entering the classroom for the observation, Teacher D handed me a list of questions she intended to ask the students during the lesson. The questions she initiated were knowledge and comprehension questions specifically used to summarize what students learned the previous day. As the lesson progressed, questions increased in complexity. When reviewing her research brief, Teacher D reported that she read the book, *Making Thinking Visible*, along with numerous articles from *The Reading Teacher* that focused on questioning and classroom talk this past summer and during the school year. She wondered if students would more strongly apply content area learning across the curriculum if she purposefully planned questions, scaffolded in complexity, for students during content area instruction. During her interview, I asked about specific shifts in practice as a result of her inquiry. She reports:

> Last year I was focused on making sure that students were exposed to all of the content that they needed to know from the Core Knowledge sequence, and that they have a thorough understanding of the "what" and the "how". This year it's more of the "why" and the "what if"… a lot of the development I've been seeking and finding is things like higher order questioning and digging deeper into the

curriculum and asking the "why" questions and "How come we're learning this?" and "What does this have to do with our lives today?".

She further shares, “It's just I'm mindful, in every lesson, how I'm engaging students through questioning, and how to base subsequent questions off of their answers depending on what they need, depending on where the conversation goes, and what questions they’re asking me.”

Upon entering Teacher E’s classroom, she immediately led me to the study skills chart that listed five study skills she taught to the students at the beginning of her innovation. She showed me the post-it notes with student names next to a skill and explained that each student set goals related to a specific study skill. She then called the students by table to the carpet and began a grammar lesson. Once during the lesson, she drew students’ attention to one of the study skills on the chart, following directions. She asked, “Who can tell me why it’s important to follow directions? What happened to Quigley when he didn’t follow directions?” Outside of that question related specifically to her inquiry, the grammar lesson continued without reference to study skills. In searching for evidence in other sources to support an instructional shift, she shared in her interview, “I find myself taking more just quick notes on my students more than I've ever done before because I love seeing how those notes and how those observations of my students with study skills have helped me help them.” These data suggest that she shifted in her observational skills of students, taught specific lessons on study skills at the beginning of the year, but a shift of practice related to her research question was not directly observed during the lesson, and was therefore assigned a rating of three.

When I walked into Teacher F's classroom, she immediately pulled one student to the back table. The student, one of nine struggling readers, was targeted for a specific reading intervention program that the grade level team chose to inquire about this year. She began the lesson by sharing current reading data with him about his progress. Throughout the lesson, when the student was engaged independently, she shared the shifts she made as a result of the inquiry with me. She reports that the program provided a necessary structure that was lacking in her guided reading instruction. In the past, she felt like she did a "little bit of everything" during her lessons, but recognizes the value of daily, consistent instruction for readers who experience the greatest challenges. She reports, "I've learned from that piece of the writing component, the guided writing, which I've never done with my reading groups, so it's impacted me because it's brought new information in and it's helped me become a better teacher in that area." I assigned a holistic rating of four to Teacher F as a result of the observation and the impact reported through other data sources. Like Teacher F, Teacher G and H collaboratively engaged in their inquiry this year. They, too, were also assigned holistic scores of four, as they, like teacher F, experienced shifts in practice which was documented not only in the observation, but also in their interviews and within their collaborative research brief, and in personal conversations documented in my researcher's journal. Teacher G shares the impact of her ongoing inquiry, not only with her targeted group of students, but also across her classroom:

> Not only has it impacted my teaching practice, with those that really need that intervention, but it's actually helping all of my reading groups and the way that I structure my guided reading groups has changed and I've only been doing that for

four weeks. It has that guided writing component that I'm now taking and utilizing for all my groups. That's been huge.

Teacher H shares her shifts in practice, but for her, she realized that the guided writing component of the intervention program was very successful, but more importantly Teacher H learned that her professional expertise still matters—even when a scripted program is utilized.

The observation in Teacher I's classroom coincided with a holistic rating of two. Teacher I questioned whether or not reflection would help children become more mindful with improved classroom participation. During the observation, Teacher I shared a read aloud with her students. Throughout the read aloud, she asked questions of the students, engaged in dialogue and twice during the observation, she quietly whispered to two students. At the conclusion of the observation, she showed me a checklist where she marked a chart. When asked about what the chart indicated, she explained that the chart recorded behaviors that necessitated reflection. When asked when the students are given the opportunity to reflect, she replied that she would reflect with them later in the day. The observation was somewhat related to the research brief; however, a shift in practice, outside of marking a chart was not observed.

This theme received additional consideration and explanation as compared to other themes in this chapter for two reasons. First, the primary purpose of professional development is to improve teacher practice. Therefore, given the small number of participants in the study and the diversity of their inquiries, I wanted to provide a descriptive picture of the impact of their self chosen inquiries on their practice or lack thereof. Second this theme revealed the challenges that some teachers faced with linking

their research question to a specific innovation that resulted in a personal change in their instructional practices.

Impact of Professional Development on Student Growth

Several concerns arise within and beyond this study when considering the potential impact of professional development on student growth. As many scholars attest, establishing an empirical link between professional development and student achievement is challenging because of the challenges faced with the necessity of implementing a rigorous research design that establishes an empirical link between the two (Yoon, et al., 2007). Moreover, multiple links between the variety of professional development opportunities offered and the accumulation of professional knowledge over time makes the link between professional development and its effects on student learning difficult to measure (Knapp, 2003). Finally, various studies on professional development examine the attributes of the development that may contribute to student growth, but improvements in conceptualization, methodologies and measures that study these attributes remain challenging to establish (Desimone, 2009; Kennedy, 1998; Saxe, et. al., 2001 & Wei, et. al., 2009).

In this study, understanding the impact of professional development on student growth became the most difficult question to answer. In addition, the implementation of this new professional development model took time—time for teachers to learn the process of action research, to observe their own students and determine where their tensions lie, and to design a systematic way to more deeply understand those tensions. One of the challenges of this particular study, which I will discuss in more depth in chapter six, includes time limitations for data collection. However, because the purpose

of professional development is to develop teacher expertise so that students learn remains important to the study. As a reminder, my study is not designed to prove that the implementation of professional development increases student learning. Yet, I wanted to understand what impact, if any, this model held in regard to student growth.

To bring meaning to the question of student growth in this study, I used two data sources to gather information about student growth as a result of teachers' individual inquiries: research briefs and semi-structured interviews. Initially, I coded responses regarding student growth in three ways: student outcomes related to inquiry (SOI), measured outcomes (MO) and perceived outcomes (PO). Based on the collapsed data, the theme, perceptions of student growth, received the most prominence.

In the semi-structured interviews, I specifically asked how the students' academic outcomes were impacted by their professional development, specific to their inquiry projects. Of the nine participants, seven participants discussed perceptions of student growth related to their individual inquiries. One teacher provided a general response about growth not related to her project, and one teacher began her innovation in January, after data collection for this study ended. Teacher A talked about the growth not necessarily reflected in grades, rather in what he observed and noted during the Socratic discussions in class. He explains:

> And my growth is not reflected in grades...it's more what types of questions and comments they're making. I'm still not seeing as much as I want from them at this point. So, I've had to go back and scaffold them with, here's what I want you to do the night before, here are some questions, look for and cite the evidence.

Whereas Teacher A talks about not seeing as much growth as he wants at this point, Teacher F perceives immediate growth as a result of her inquiry:

> I'm really pleased with the academic growth we're seeing with the kids. I've seen pretty close to immediate results...even the set up, that routine and procedure...it's giving the kids structure...even though I think we did it before, it's even more structure...which guides the children as to what self-directed learners should be doing--that academic outcome, and it has been relatively quick on the impact too.

Although Teacher G notes evidence of student growth, she holds a concern that as she pushes students through the levels of her intervention program, they still exhibit challenges in their reading behaviors:

> As we began level G, the students began to show behaviors which had not been exhibited before. In previous levels they had demonstrated significant improvement in fluency. With the introduction of longer and more complex texts and vowel patterns, at the level G, I have seen a decline in fluency. Their reading has become robotic and it takes them a long time to finish a book. I have also noticed that they are not using all of their strategic reading behaviors and are relying solely on decoding. Skills such as cross checking are not longer being used.

She realized that her expertise matters. In a conversation noted in my researcher's journal, Teacher G, though appreciative of the intervention program she selected, realizes that simply following a script is not a substitute for excellent teaching. She is now combining the benefit of the intervention program (materials, structure, and consistency)

with her expertise regarding what each of her readers' needs—and deviating from the script as the need warrants.

Teacher C perceived growth in her students that goes beyond grades and assessment. She learned, through her inquiry that students think metacognitively and ask questions about the brain, their thinking, and memory. She reflects:

> Yesterday, we were talking about the brain and memory and a student goes 'Where do things go after you forget them? Or why do you forget things and remember things?' 'Yeah,' he said, 'those questions you give us, how come sometimes we remember them and sometimes we don't? Who says, ok this is something you need to remember and then what about the others?' And I was like, wow that was such an interesting question like because it does, it's like, why can't we pick and choose what we want to remember? And what makes things easier to remember or not. So, it's kind of like, that's how it's impacted....they're starting to question....why does this work, why can't I do this or that?

Of the nine participants, five participants turned in data (through the submission of their research briefs) to support their students' growth as it related to their individual inquiries. Nine first grade students, who were targeted for intervention using a specific intervention program, all demonstrated increased growth in their reading ability. Teacher C turned in a chart to show the increase in students' ability to retain science and social studies content over the course of the school year versus only holding students accountable for the retention of information at the end of a unit of study. Teacher A's study focused on the implementation of a specific methodology (Socratic Circles) to aid in students' ability to cite information from text to support their discussions. He turned in data which

showed a small increase in students' ability to cite text to support discussions using the Socratic method. Teacher B did not begin her innovation with students until January, after the study concluded. Teachers D and E shared in their December research brief reflections the need for assistance to determine how to accurately report growth specific to their inquiries, and Teacher I shared a checklist of behaviors she is marking as she observes students in her classroom, but did not indicate an increase or a decrease on the self reflective behaviors of students that she targeted.

Of note, one of the challenges noted by many teachers during individual meetings with me was how to adequately determine the best way to measure student growth in relation to their inquiries. The team that implemented the reading intervention program found it easiest to measure growth; whereas other teachers struggled with how to best measure student growth related to their inquiries. Many teachers held a quantitative stance in relation to measurement of student growth, yet some teachers opted to try some qualitative documentation of student growth. Empirical data can be insensitive to the growth that teachers observe and appreciate. Student achievement does not simply mean a numerical increase in test scores or levels. Rather, valuing those subtle but important shifts matter for students and their teachers. This professional model seemed to contribute to those subtle shifts in student growth.

Characteristics of Model Deemed Important by Teachers

Quantitative analysis and results. To determine the characteristics of this newly designed professional development model that teachers deemed most important for impacting their practices and student learning, I analyzed results of the post-survey question by question, as most questions specifically referenced the innovation. In eight

of the eighteen questions, none of the participants disagreed nor strongly disagreed with any of the questions; whereas, in the pre-survey, there was disagreement, strong disagreement, or a higher number of neutral feelings among some participants. Table 8 displays the questions and the percentage of agreement among participants. The data suggest that all teachers in the study either agree or strongly agree that this model of professional development improved their teaching practices (SA=.33; A=.67) and impacted student growth (SA=.22; A=.78). Most teachers strongly agree (SA=.44) or agree (A=.44) that professional development focused on inquiry aligns with school goals. Specific content and contexts reported out positively include using research as a basis for learning (SA=.22; A=.67; N=.11), learning about elements of inquiry with colleagues (SA=.44; A=.56), sustaining inquiry topics or content over time (SA=.11; A=.78; N=.11), and basing inquiry on teachers' own needs (SA=.67; A=.33). The attributes that teachers deemed important are also characteristics deemed important in the literature. Opfer and Pedder (2011) discuss the need for time that teachers need to absorb, discuss, develop, and practice new knowledge. Effectiveness of professional development has also been shown to be positive when teachers participate in the development collectively and collaboratively. Likewise, King (2002) notes the importance of collective inquiry where teachers critically examine their practices, theories, and research and work together to confront those issues in a systematic way.

Qualitative analysis and results. The qualitative data provided a deeper understanding of my question about the characteristics of this new model that teachers deemed most important. Two themes were collapsed from the data collected: (a) focus on teachers' needs and (b) professional influences. The first theme, focus on teachers'

needs, resulted from collapsing the following codes: change (CG), reflection (RF), meaningfulness of professional development (MF), impact of professional development (IPD), and application of professional development (APD).

Teachers reported, through interviews and meeting notes from professional development and/or individual meetings, positive feelings about choosing their own paths for professional learning this year. In the past, the focus for professional development was determined solely by administration and/or a handful of teachers. As a building administrator and researcher, I was interested in finding out how a model of professional development that places teachers at the center of their own inquiries might benefit them. Though I provided the framework for systematic and intentional inquiry into problems of practice, teachers chose their focus for inquiry informed by a number of factors: school-wide data, horizontal and vertical grade level data, collaborative conversations within and among teams, but most importantly through their own observations of the tensions, or authentic problems of practice, that lie within their classrooms. Teacher E relates, "I felt like this year, we had a lot of time to really think of our students and what they needed and then they came up with something that was good for them. Not just a little check sheet, get it done." Teacher G notes the difference in professional development this year. "I think our professional development is so different. Like when I think of how I am in my classroom...focused. That's how I feel professional development has been. It's very targeted." To summarize, eight of nine participants, used words such as "targeted," "focused," "meaningful," and "personal" when discussing characteristics of this professional development model and the value this type of model held for them.

The theme, professional influences, resulted from collapsing the codes administrative support (AS), professional reading (PR), within-school expertise (WSE), teacher as learner (TL) and feedback for professional development (FB). In my role as Dean of Academics, I hold responsibility for the planning and implementation of professional development. Since assuming this position, I ask teachers for feedback regarding their needs for professional development, which led to the development of this model for professional learning. Four teachers reported the importance of administration listening to their needs for development. Teacher E summarizes, "That's what I was talking about earlier with our surveys and talking and doing what's best for the building. I feel like that's what made professional development so great here because you do listen to our needs."

Teacher F discusses how her perception of 'research' has changed:

> I love that we are looking at an area that we need to work on, and so it's very personal, which I think is very effective. So, I've grown not only in the areas that we've tackled but just even perceiving what it is to do research. Because it would have scared me...it did scare me...a lot of the fear has left from that.

While, Teacher D finds professional reading to be of importance in developing her professional expertise, "I engage in professional reading, I subscribe to *The Reading Teacher*. That's been of value to me…I have an idea of exactly what I'm looking for because I know what my students need." All nine participants, through their research brief, indicate various professional resources that guide their inquiries—articles from peer reviewed journals, professional books, articles from non-peer reviewed journals, programs with research to support the program, professional development DVDs.

Finally, regarding professional influences, teachers talked about the support that my role holds. Each of the participants in the study voluntarily scheduled one or more meetings with me throughout the duration of the innovation to discuss their projects. The meetings, documented in my researcher's journal, were scheduled for a variety of reasons related to their projects. I assisted in helping teachers narrow a research question, finding peer-reviewed articles to support their work, and talking about ways to collect and analyze data. The meetings were not mandated; rather, suggested if assistance was needed. I even received a text message one weekend from Teacher B. She writes, "I need another three months to extrapolate survey data…seriously fascinating. Do you have time on your calendar tomorrow?" Data suggest the importance of a within-school expert or facilitator to provide assistance as necessary.

Summary of Findings

To summarize, quantitative and qualitative data uncovered both the complexities and benefits teachers experience in their development as professionals. Teachers reported challenges of professional development that include a lack of time, lack of personal benefit to themselves or the students they teach, and lack of coherence among professional development topics. Teachers participating in this professional development innovation shifted slightly in their attitudes, beliefs, and preferences for professional development, were impacted personally and professionally by their personal studies, perceived and reported growth among their students, and recognized characteristics of professional development that were important to them. In the next chapter, I will provide my interpretations of the results in relation to each of my research questions.

Chapter 5

FINDINGS AND INTERPRETATIONS

This action research study sought to investigate whether an inquiry oriented professional development model focused on assisting teachers to identify problems of practice and then creating an action for addressing them was of benefit to the teachers and students at Central School. The lens through which I designed my study drew upon the theories of transformational and situated learning. The assertions presented from the results of the study reflect theories as well as support the scholarship regarding professional development.

Assertions

I wanted to more deeply understand whether practitioner inquiry as the primary source of professional development at Central School specifically changed teachers' attitudes, beliefs, and preferences for professional development, impacted teachers' instructional practices, and increased student growth. I also intended to determine which characteristics of the model, if any, teachers deemed important for impacting practice and student achievement. Considering both my theoretical framework and the triangulated results presented in chapter four, I assert the following:

1. Teachers recognized the complexities tied to professional development, yet found professional discourse and focused choice to be of greatest value related to their beliefs, attitudes, and preferences for professional learning.
2. As a result of their implementation of an inquiry-oriented action research project, the majority of teachers in this study reported and/or demonstrated shifts in their instructional practices.

3. Teachers perceived and reported student growth as a result of professional development, but recognized challenges associated with designing ways to measure growth in relation to their individual inquiries and/or isolating that growth to their development alone.
4. Implementing a professional development model that sustains and focuses learning over time, focuses on teachers' individual needs, and recognizes the importance of varied professional influences to support their learning are characteristics deemed important by teachers in this study.

These assertions are more deeply explored in the following sections, with consideration given to Erikson's method of analytic induction—searching for instances of disconfirming evidence and weighing that evidence against confirming evidence to assure each assertion is warranted (Erikson, 1986; as cited in Smith, 1997).

Complexity, Discourse, and Choice

Teachers, at the beginning of the study, reported challenges faced with professional development, both on a large scale, and within their local context. The complexities discussed by teachers are commensurate with those reported in professional development literature —specifically in relation to traditional models of professional development. In traditional models, topics are often imposed on teachers with little regard for their needs, and are one-shot, generic, or one-size fits all models that rarely meet the needs of the majority (Desimone, 2009; Flint, Zisook, & Fisher, 2011; Hill, 2009). At the beginning of this study, teachers reported that professional development in their former places of employment as well as in their earlier years at Central tended to be imposed on them with limited input from them regarding their needs as professionals.

One teacher referenced professional development as “the flavor of the week” when talking about her experiences. When asked, in interviews, what teachers might include if given the opportunity to design a professional development program, they used words and phrases such as “let us decide what we need,” “meaningful,” “collaborative,” “scaffolded,” “interactive,” “differentiated,” “immediate implementation,” and “allowing the model to change when the needs of the building change.” When asked the value teachers found with the professional development model implemented as part of this study, teachers reported more positive thoughts. “That book has been amazing in helping me kind of transform my thoughts and ideas on paper and into the classroom;” “I feel much more reflective as a teacher because I'm focusing on this area and it's forcing me to be reflective;” “I also like the fact that we get to choose what we want to do.” The model in this study followed a job-embedded model of professional development. It allowed teachers to study their own students, collaboratively learn, determine their needs as a result of student data and observations, and gain assistance from facilitators to organize their own learning (Smith and Gillespie, 2007).

Professional discourse, a theme reported in chapter four, was deemed a necessity to the professional development of teachers at Central. Across data sources, teachers reported the desire for professional development to include opportunities to discuss students, instructional practices, and their inquiry projects with others. In the anchor resource used in this study, *Living the Questions,* Shagoury and Power (2012) wrote an entire chapter devoted to sustaining research through building and extending research communities. After the discussion of this chapter in December, teachers talked about the necessity of “continuing the conversation” even though the formal book study and

innovation concluded. As a result, following the study, research teams were formed to provide teachers the opportunity to meet during the first Wednesday of the month for one hour to continue conversations about their research projects. This suggestion arose from the teachers because of the value they found in their discourse with each other, rather than being mandated by administration.

A professional development preference teachers valued in this study included the opportunity to choose their opportunities for investigation based on understanding the needs of the building as well as the needs of their own students--supported by data they collect and conversations teachers held with teachers from the previous year. Roberts, Crawford, and Hickmann (2010) illuminated the importance of choice within a professional development program that places teachers at the center of their own inquiries. "Participants are encouraged to be inquirers who bring their own concerns to the professional development table, so that the information, strategies, and habits of mind…can be thoughtfully considered, applied, and reconsidered within one's own work" (p. 260). In reflecting upon the theoretical framework upon which this work rests, a thread of continuity runs between theory, supporting scholarship, and this innovation.

Instructional Shifts

Shagoury and Power (2012) remind us that the primary purpose of teacher research is to improve practice in specific, concrete ways as well as to understand the needs of students. Seven of the nine teachers in the study reported, through their research briefs or interviews, a specific shift made in their instructional practice as a result of the implementation of their research projects. I directly observed instruction in six of the eight classrooms that were related to the research questions posed. Documentation of

instructional shifts came through three main sources: interviews, research briefs, and classroom observations. During the whole group professional development sessions at the beginning of each month, I reminded teachers that the purpose for professional development involved improving their practices so that students achieve. I asked them to reflect on how the questions they posed and their proposed innovations impacted their practices. Teachers spoke to both general and specific ways that their instructional practices changed, and some of the shifts were observed in their classrooms. One teacher in the study captured the essence of her professional development. She talked about appreciating professional development that affirms her teaching, "…but really, the most impactful, is it [professional development] really results in a change in the teaching." One teacher changed the way that she asked questions of her students. She learned that asking questions at higher levels allowed for deeper levels of understanding, greater student engagement, and even greater understanding of the content for her. "Why" and "how" became important to both the teacher and her students. Another teacher, through the implementation of a published intervention program that she selected, recognized the benefits of the program. She shifted her mindset to implement the program as recommended, but realized that programs don't fix reading difficulties —teachers do. She appreciated the structure proposed through the programs, and the materials to support the readers. However, she realized the importance of recognizing what her students need in the teaching moment, and deviated from the proposed script to ensure individual needs were being met. Even in classrooms where an instructional shift was not observable, teachers, through other data sources, reflected on the practices they implemented and questioned those practices in relation to the achievement of their students.

Clarke and Hollingsworth (2002) discuss the shift of focus in professional development from an event that is done to teachers to remediate a deficit to programs to one that allows teachers to be active learners who shape their professional growth through reflective participation that fulfills them as practitioners. Interestingly, the model implemented here did expect teachers to identify a question of importance to them, but it did not necessarily work from a deficit model. In this study, teachers spoke to their frustration with setting a school goal, based on external data, which had little to do with their own students and their own problems of practice. They appreciated not being forced to study something determined to be a deficit by someone other than themselves. Some of the proposed innovations in this study were not due to deficits per se, but innovations that teachers thought would enhance the learning of others. For example, one teacher implemented Socratic discussions in his classroom. Though his external reading data from the previous year were outstanding, he wanted to deepen the discussion in his classroom and use these discussions as a way for students to become familiar with citing evidence to justify their arguments.

In summary, all teachers in this study reported something that they did to shift instructional practices, though shifts were not necessarily directly observable in some of the classrooms I visited. Clarke and Hollingsworth (2002) describe six perspectives on teacher change in relation to professional growth. In this study, instructional shifts reported and observed resonated with three of them: change as personal development, change as local reform, and/or change as growth or learning The other perspectives, change as training, change as adaptation (to changed condition), and change as systematic restructuring, are examples of change done to teachers. The intent of the proposed

model, in conjunction with my theoretical framework, was not to do something to teachers, rather to allow teachers to take control of their own learning and determine their path for change.

Student Growth

In this particular study, student growth related to the individual inquiries proposed was challenging to measure. Because of the time involved for teachers to learn the process of inquiry, recognize and design their own innovations to help solve a problem of practice, and implement the innovation, limited student growth data were available by the conclusion of the innovation in December. Yet, six of the nine teachers reported growth in different ways. Three teachers reported an increase in student reading levels, according to an internal building-wide measure. One teacher reported an increase in her students' ability to retain content specific information taught from the beginning of the school year. One teacher shared a chart that showed an increase in students' abilities to self reflect. Another teacher shared data showing an increase in students' abilities to cite textual information when participating in Socratic discussions. Two teachers met with me on a number of occasions to discuss ways to measure student growth related to their specific research questions, and at the conclusion of the study still struggled to determine how to best measure student growth based on the research question posed. Again, one teacher did not report a measure of student growth, as her innovation did not begin until January, after the study concluded. The growth that teachers preferred to report in their research briefs was quantitative. Yet, when listening to teachers discuss student growth during the interviews, their responses were more qualitative in nature. Phrases such as "I take more anecdotal notes on kids, "I watch my students a lot more," "…my growth is

not reflected in grades...it's more what types of questions and comments they're making," and "students are more engaged than they have been in the past" remind me, as the researcher and practitioner, that student growth is not always measured in numbers.

Moreover, when asked how teachers knew that reported student growth was directly related to their professional development, most teachers indicated that they could not isolate student growth to their proposed innovations. They talked about a number of outside factors that also influence their students' growth such as the natural developmental growth of children, other instruction that takes place throughout the day, and/or parental influences. Researchers, too, recognize the challenge of isolating a particular event to student learning. Yoon, et al. (2007), when examining over 1,300 studies to directly assess the effect of professional development on student achievement, were only able to isolate nine studies that were rigorous enough to establish such a link.

Finally, as reported in chapter four, designing and reporting student growth as a result of individual inquiries proved challenging for some teachers. The research briefs in the study were meant to be a fluid document that changed throughout the course of their individual studies. In multiple meetings with teachers, refinement of the research questions and the overall scope of the studies were constantly reconsidered and tweaked as teachers implemented their proposed actions and attempted to measure growth as a result of those actions.

Characteristics for Consideration

Three characteristics of this professional development innovation teachers deemed important include: sustaining and focusing learning over time, focusing development on teachers' individual needs, and recognizing the importance of varied

professional influences. These characteristics also receive much consideration in professional development literature and warrant a close look.

Sustaining and focusing learning over time. One of the characteristics of successful professional development models discussed in the literature includes the importance of sustaining learning over time (Flint, Zisook, & Fisher, 2011; Hirsh & Killion, 2009; King, 2002; Opfer and Pedder, 2011; Smith and Gillespie, 2007; Yoon, et al., 2007,). Studies of professional development in which teachers were provided with more than 14 hours of development reported a positive and significant effect on student achievement (Yoon, et al., 2007). During the course of the innovation, 12 hours of development were provided to teachers formally during our weekly professional development sessions (two hours, twice per month). All teachers reported spending time outside the hours provided to work on their projects. Additional time included time for professional reading, time to meet with me, time to meet with colleagues, time to analyze data, and time within their classrooms to implement their actions. As a reminder, although data collection ended in December, the innovation and model continued throughout the school year. All teachers in the study reported an appreciation for keeping our development focused and sustained, rather than changing topics monthly as had been done in the past. One teacher remarked, "Last year I just felt like there was so much going on… I feel like this year it's been very consistent, it's been the same, we know what to expect, and we know what we're going to be doing."

Focusing development on teachers' needs. A second important characteristic reported by all teachers in the study focused on professional development that addressed the needs of individual teachers. One of the strengths of the model implemented,

reported by several teachers, included the ability to learn about the process of teacher research collectively. Yet, the specific action to be taken was based on what individual teachers and their students needed. Teacher E explained, "I love how we get to decide for ourselves what we are going to be doing. I love having the plan and knowing how you've mapped that out for me. I love knowing that, ok, this week we're doing this, and we're going to read this portion of the book. I don't have to wonder what we should be doing." Scholarly literature, too, affirms the importance of teachers choosing their own path for inquiry. King (2002) reports, "Inquiry puts teacher practice and student learning under scrutiny…Teachers become students of their craft as they struggle to with key issues…" Moreover, Hirsh and Killion (2009) report that complex problems of teaching and learning are best solved by tapping internal expertise. They explain that teachers often look externally to solve their challenging problems, and when this happens, teachers may lose their identities as professionals and become complicit—potentially removing individual commitment and investment.

Professional influences. Professional influences considered important by teachers in this study included professional literature, administrative support, and support from colleagues. Supporting scholarship gives much consideration to the importance of collective expertise. When collective expertise exists within a system, every student benefits (Hirsh & Killion, 2009). This innovation allowed for teachers to work through problems of practice similarly and systematically. In fact, King cautions against stressing only individual teacher learning, and advocates for ensuring whole faculty involvement in the integration of their learning for the advancement of organizational learning. Though only nine members participated in this study, the entire faculty moved through the

proposed innovation at the same time. Members of the study reflected on the importance of sharing their learning with each other. They found that their colleagues provided them with additional support, encouragement, and advice as they worked through personal problems of practice. Participants often talked about how their collaboration with others sparked a change in their thinking, led them to additional literature to support their inquiries, or aided in the refinement of the studies. One teacher comments, "I feel like we've been given many opportunities to talk with other people about things we're working on, so I've loved that portion of it...when we're kind of talking in groups." Another teacher, who never valued collaboration, recognized the value of working together, "I think working together for me is important….I've never seen the benefits of that before." One teacher in the study stopped me in the hall one day and thanked me for the articles I found to support her inquiry. She explained that the articles made her think differently about her students, she felt recharged after reading them, and she was making shifts in her innovation as a result of what she learned. Most valuable to me as a facilitator of the innovation and as a primary source of teacher support has been the ability of the teachers to seek my support, not necessarily as a problem solver, but as a reflective partner.

As discussed earlier, Cranton (1996) asserts that professional development should allow educators to develop habits of mind that allows for the critical examination of their teaching and learning. Likewise, Mezirow (2000) affirms the importance of the participation of learners in communities in order for transformation to occur. Finally, Lave and Wenger (1991) note the importance learning as a social process which allows learners to move from peripheral to full participation in the learning community. The

professional development innovation resonated strongly with the theoretical lens I used to frame this study. Elements of the professional scholarship examined to design and support the proposed innovation were confirmed by the data collected and analyzed. In the final chapter, I review my journey as a researcher practitioner, discuss the limitations of the study, and propose implications resulting from the study.

Chapter 6

DISCUSSION AND CONCLUSION

Almost three years ago, I began my formal journey as an action researcher. Then, I examined my own practice as a third grade teacher in a systematic way, grounded in theory and supporting scholarship. I desired to better understand the impact that teacher conferencing made on students during independent reading. As a novice researcher, I sought answers to each research question I posed. What I learned, however, was that my investigation led to a deeper understanding of the questions I posed rather than leading to a single answer or truth from them.

After that first formal cycle of action research, my role as a teacher in my context shifted to that of administrator. In this new role, I was thrown into the position of problem solver—for administration, for teachers, for parents, and for students. Because I see the world through a pragmatic lens, the role of problem solver enticed me. Yet, attempting to solve problems for multiple stakeholders at a building-wide level can be daunting. Hence, this challenge became one impetus for the study I proposed.

Designing, planning, and executing professional development that meets the needs of all is a formidable task for a professional in any field. In education, professional development should be a key factor in improving student achievement. Yet, scholarly literature confirms that professional development is often broad, lacks depth, and does not connect to real problems of practice in the classroom (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004; Darling-Hammond,1999; Hill, 2009; Hirsh & Killion, 2009).

I wondered if implementing a professional development model that allowed teachers to take control of their own learning might empower them to critically examine their own problems of practice, access existing scholarship to support a change in practice, systematically implement that change, and measure the results of their personal inquiries. Rather than taking on the role of professional development problem solver, my role shifted to professional development facilitator. Theoretical support for this model was derived from Mezirow's theory of transformational learning (2000) and Lave and Wenger's theory of situated learning (1991). At the heart of both theories lies the end result of the learner becoming empowered in such a way that they recognize and act on their purposes, values, and feelings to become powerful problem solvers of practice within a community of learners.

The triangulated results of the study deepened my understandings regarding professional development in my local context. Quantitative data evidenced an overall increase in beliefs, attitudes, and preferences for professional development utilizing an inquiry model. The data also unveiled specific characteristics that teachers found valuable, including sustained focused learning over time, relevance to teacher's needs, and a variety of professional influences. Almost every participant reported evidence of various forms of student growth. Some forms took quantitative directions; whereas, other results included qualitative support. Yet, teachers recognized that growth took place, not strictly because of what they implemented, but for a combination of reasons. Finally, the innovation participants demonstrated and/or reported specific changes in practice. Every participant did something different in his or her classroom that was not done in the past, though not every shift was an observed instructional shift. Each research brief

documented a specific change that teachers made in their classrooms to support the questions they posed. For example, in one teacher's classroom, she wondered if the explicit teaching of study skills to students would improve achievement in content areas. Though I did not observe study skill instruction (as the explicit instruction concluded prior to my scheduled observation), evidence of the skills taught were documented on her classroom bulletin boards (students set goals to improve in a certain skill) and addressed in her research brief.

Limitations of the Study

Time

Several limitations of this study stemmed from time limitations and time constraints. First, the innovation began later than originally scheduled because of internal challenges. The innovation lasted for 14 weeks rather than 18 weeks. Learning the process of action research, while important, lessened the time available for delving into the teachers' projects. If the innovation began four weeks earlier, more time might have been available for teachers to delve more deeply into determining their questions, proposing their actions, and deciding how best to measure growth. Moreover, if data collection had lasted throughout the school year, stronger measures of student growth or lack thereof might have been reported.

Participants

The number of participants in the study totaled nine. When the study was originally proposed, seventeen general education teachers would have been given the opportunity to participate. However, due to staff turnover resulting from other opportunities, relocation, and pregnancies, the number of general education teachers not

new to Central dropped to twelve. Of the twelve, nine agreed to participate. Given such a small number of participants, the amount of potential quantitative and qualitative data decreased significantly.

Administrative Role

One of the greatest challenges in this study was ensuring that the administrative role I held did not influence participants' responses. I assured teachers at various times throughout the study that the information they shared with me would remain confidential. Additionally, I implored teachers to be honest with me because of the nature of this action research study. I explained that their feedback would have a direct impact on planning and executing future professional development opportunities. Still, I recognize the possibility that the administrative position I held may have influenced the results of the study.

Implications

This study held many implications for my local school context —especially for me as an educational leader and for the teachers. Overall, this action research study sought to solve a specific problem in my school: enhancing teacher professional development and improving the learning of students at Central. Implications for specific subgroups in my context follow.

Implications for Central

One of the benefits of working in a charter school is the ability to be autonomous, rather than being forced to implement district level mandates and initiatives that may or may not be necessary for a school. Central holds prominence in the west valley of suburban Phoenix as an exemplary elementary charter school. Public officials, members

of learning organizations, administrators, and teachers visit Central's campus regularly to learn about the programs and practices that make our school successful. Next year, Central is expanding the campus to include middle school and is seeking national accreditation. Professional development is an important part of the accreditation process, and I look forward to sharing our model with the assessors. The professional development model also gained recognition by members of the educational community, and I was invited to share the model for inclusion in *The Handbook of Professional Development PK-12: Successful Models and Practices* to be published later this year. Finally, because of the success of our flagship school, we hope to expand campuses throughout the Phoenix area. We look forward to continuing to develop inquiry-oriented practitioners throughout our schools.

Implications for the Researcher

As a leader in my local context, and through this study, I learned that allowing teachers the freedom to choose their own path for professional learning within a guided structure increased their attitudes and beliefs about professional development. Teachers became their own problem solvers of practice, and I became the guide on the side, encouraging them and working toward solutions collectively. Because of the positive results of the study, I plan to continue investigating elements of the model that all teachers at Central believe are important: focused, sustained, needs-based, differentiated, and collaborative. By doing so, I hope to improve upon the measures I used in this study. If I were to repeat the study, I would locate or develop more quantitative measures. Because of the tight time frame within this program of study to locate, design, and pilot data collection tools, I felt a lack of a comfortable balance between my quantitative and

qualitative sources. Moreover, though special area teachers were not invited to participate in the study, I wonder if the model might be of value to them, especially since their professional learning needs are often less considered or set aside in the scope of education in a data driven age. At the conclusion of the school year, I plan to survey all teachers at Central, as I do every year. Specifically, I will ask questions of all teachers specific to our model of inquiry, and how we might improve upon the model.

Implications for Teachers

As a result of this study, teachers realized the value of the learning community at large. When asked at the conclusion of the innovation in December how we might continue in January, I was excited that teachers spoke to the desire for and need to continue their conversations in research communities. Teachers, overall, felt empowered and in control of their learning, rather than feeling overwhelmed by different professional development sessions weekly or monthly. They appreciated learning the process of action research together, yet were satisfied that they were not forced to study something that resulted from an external measure of student growth that may not have applied to them. Moreover, in applying the theory of situated learning, the model assists teachers in moving from peripheral participation to full participation in our professional learning community. Those who have completed their first full cycle will serve as mentors to those who will take on their first project next year. New teachers to Central, who were not asked to take on an inquiry project, have talked excitedly about the ideas they already hold for potential study during the next school year. Moreover, several teachers have discussed the possibility of utilizing their research and innovations as opportunities for professional learning during our in-service week this coming July.

Final Thoughts

Hargreaves and Shirley (2009) report that teachers feel empowered when their purposes are clear, focused, and achievable and they are not at the beck and call of others. Data should inform rather than drive judgments about practice. Teachers and administrators must work together in learning teams to improve practice daily, not simply in mandated meetings. As Hargreaves and Shirley affirm:

> When teachers have structured opportunities to explore the nitty-gritty challenges of their practice through thoughtful exchanges with colleagues and in relation to relevant research, they rediscover the passion for learning and their own personal and professional growth that brought them into teaching in the first place. (p. 93)

From the time I began teaching, I was an avid reader of professional literature. I spent my first ten years in a school district that valued job-embedded professional learning. Collaboration was paramount, professional reading was the norm, and student achievement was consistently high regardless of the shifts in our district's population over the years. My early years as a professional prepared me well for the challenges faced as an educator in Arizona. However, my experiences did not prepare me to comfortably release responsibility for professional learning to teachers. The professional development model in my early years, though job-embedded and highly successful, was heavily mandated and scripted from the top-down, and proved challenging to those teachers who wanted more control over their professional learning. Thus, a personal challenge I faced when implementing this model was my own anxiousness to release the responsibility for professional learning to the teachers. Without a doubt, I am satisfied with the result, and look forward to continuing a teacher-driven model of professional

development as Central moves forth as an elementary leader in Arizona. A veteran teacher on our staff provides a powerful closing thought.

> I really appreciate the fact that this school that I'm at focuses on making teachers look at our teaching practices and improve upon them or look upon how we view things and improve upon it. I appreciate the fact that I feel like I'm always growing. Being the veteran teacher, you just don't sit back on your experiences and your knowledge. You're always growing in the little things and then the little things add up to this big thing you realize wow, I feel like a stronger or more passionate educator because of the professional development that I feel we've received.

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Table 1

AIMS Reading Scores of Three Cohorts of Students at Central

	Spring 2010	%	Spring 2011	%	Spring 2012	%
Cohort 1	Exceeds	.39	Exceeds	.25	Exceeds	.40
Grade 3 to	Meets	.57	Meets	.65	Meets	.60
Grade 5	Approaches	.04	Approaches	.10	Approaches	.00
	Falls Far Below	.00	Falls Far Below	.00	Falls Far Below	.00
Cohort 2	Exceeds	.28	Exceeds	.15	No Sixth	
Grade 4 to	Meets	.64	Meets	.81	Grade	
Grade 5	Approaches	.08	Approaches	.02		
	Falls Far Below	.00	Falls Far Below	.02		
Cohort 3	Exceeds	.22	Exceeds	.07	N/A	
Grade 5 to	Meets	.76	Meets	.93		
Grade 6	Approaches	.02	Approaches	.00		
	Falls Far Below	.00	Falls Far Below	.00		

Note: Arizona Department of Education

Table 2

Quantitative and Qualitative Data Sources Description & Contents

Source	Type	Description	Contents
Pre and Post Survey	QUAN	This survey was designed to assess teachers' attitudes and beliefs about and preferences for professional development. The survey was administered in August at the beginning of the study and in December at the end of the study.	22 question survey to measure four constructs and demographic information 9 pre surveys and 9 post surveys
Vignette	QUAL	A vignette presenting a problematic professional development session was presented at the beginning of the study. Teachers responded in a whole group setting to the challenges faced by the teacher in the vignette.	2 pages of single spaced typed text
Artifacts	QUAL	All participants in the study completed research briefs detailing their personal or collaborative inquiry projects and student growth data to support their inquiry	41 pages of typed text including data tables & graphs
Observations	QUAL	Each participant was observed teaching a lesson that tied to their personal or collaborative inquiry projects.	18 pages of single spaced typed text
Semi-Structured Interviews	QUAL	Each participant was individually interviewed at the conclusion of the study.	24 pages of single spaced typed text
Researcher's Journal	QUAL	A detailed journal of methodology and reflection was kept from the beginning of the study.	50+ single spaced hand written pages

Table 3

Pre/Post Survey Constructs, Items, and Results

N=9

	Pre-Survey		Post-Survey	
Construct	Mean	Standard Deviation	Mean	Standard Deviation
Beliefs About Professional Development	3.58	1.21	4.11	.49
Attitudes Toward Professional Development	3.86	.67	3.98	.34
Professional Development Context Preferences	3.60	.65	3.56	.36
Professional Development Content Preferences	3.72	.40	4.06	.56

Table 4

Mean Difference and Statistical Significance by Construct

N=9

Construct	Mean Difference	Statistical Significance
Beliefs About Professional Development	.53	p=.18 Not significant t(8)=-1.46, p.18
Attitudes Toward Professional Development	.12	p=.64 Not significant t(8)=-.49, p.64
Professional Development Context Preferences	-.04	p=.81 Not significant t(8)=-.25, p.81
Professional Development Content Preferences	.34	p=.07 Not significant t(8)=-2.14, p.07

Table 5

Final List of Open Codes (Additional, Collapsed, or Reassigned)

Code	Code Meaning
AC	Accountability
AS	Administrative Support
APD	Application of Professional Development
CPD	Challenges with Professional Development
CG	Change
CH	Choice of Professional Development
CB	Collaboration
CNS	Connection to Standards
CS	Culture of School
DF	Differentiated
FB	Feedback for Professional Development
FA	Focus on Assessment
FSN	Focus on Student Needs
FIP	Focus on Instructional Practice
FPD	Focus of Professional Development
IPD	Impact of Professional Development
IS	Instructional Shift
IN	Interaction
MF	Meaningfulness of Professional Development
MO	Measured Outcomes
MD	Modeling by Professionals
OE	Outside Experts
OW	Overwhelming Feelings
PO	Perceived Outcomes
PC	Professional Community
PR	Professional Reading
RPD	Reactive Professional Development
RFC	Reinforcement of School wide Culture
PPD	Purpose for Professional Development
RF	Reflection
RIP	Relationship of Inquiry to Practice
SGC	Small Group Conversation
SOI	Student Outcomes Related to Inquiry
TL	Teacher as Learner
TMPD	Time for Professional Development
WG	Whole Group Meetings
WSE	Within School Expertise

Table 6

Holistic Rating Scale of Classroom Observation

Holistic Rating	Criteria for Rating
0	The classroom observation had nothing to do with the inquiry proposed in the research brief.
1	The classroom observation and the inquiry proposed on the research brief were somewhat related.
2	The classroom observation was linked to the actions proposed in the research brief, and may have somewhat impacted instructional practice, though not necessarily linked to research question.
3	The classroom observation was directly linked to the actions proposed in the research brief, linked to the research question, and impacted instructional practice, though evidence of impact is not documented in other sources.
4	The classroom observation was directly linked to the actions proposed in the research brief, directly linked to the research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).

Table 7

Summary of Holistic Teacher Ratings: Impact of Instructional Practice as a Result of Inquiry

Teacher	Rating	Explanation of Rating
Teacher A	4	The classroom observation was directly linked to the actions proposed in the research brief, linked to the research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).
Teacher B	N/A	N/A
Teacher C	2	The classroom observation and the inquiry proposed on the research brief were related. A shift in practice was not observed or evidenced in other sources.
Teacher D	4	The classroom observation was directly linked to the actions proposed in the research brief, linked to the research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).
Teacher E	3	The classroom observation was directly linked to the actions proposed in the research brief, linked to the research question, and impacted instructional practice, though evidence of impact is not documented in other sources.
Teacher F	4	The classroom observation was directly linked to the actions proposed in the research brief, directly linked to the research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).
Teacher G	4	The classroom observation was directly linked to the actions proposed in the research brief, directly linked to the research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).
Teacher H	4	The classroom observation was directly linked to the actions proposed in the research brief, directly linked to the

		research question, and demonstrated a shift in practice as a result of the inquiry. The impact was evidenced in additional sources (i.e. reflections, interviews, etc).
Teacher I	2	The classroom observation was linked to the actions proposed in the research brief, and may have somewhat impacted instructional practice, though not necessarily linked to research question.

Table 8

Post Survey Questions with Percentage of Strongest Agreement Among Participants

N=9

Question	Strongly Agree	Agree	Neutral
1.1 Professional development focused on inquiry improved my teaching practice.	.33	.67	.00
1.2 Professional development focused on inquiry impacted student growth in my classroom.	.22	.78	.00
1.3 Professional development focused on inquiry aligns with my school's goals.	.44	.44	.11
1.4 Professional development focused on inquiry utilizes research as the basis for learning.	.22	.67	.11
2.1 Professional development focused on inquiry helped me develop new teaching strategies.	.11	.89	.00
3.2 I prefer to learn about elements of inquiry with my colleagues.	.44	.56	.00
4.1 I prefer that my inquiry topics or content was sustained over time.	.11	.78	.11
4.2 I prefer that my content for inquiry was based on my needs.	.67	.33	.00

APPENDIX A

REQUEST TO CONDUCT RESEARCH AT SCHOOL SITE

June 15, 2012

Dear Mrs. [redacted]:

I am seeking permission from you as the Executive Director of [redacted] and Head of School of [redacted] to formally conduct an action research study at the [redacted] site to fulfill the requirements for my educational doctorate degree through Arizona State University. The purpose of my proposed study is to purposefully move our teaching staff toward an inquiry model of professional learning, where teachers have the opportunity to identify their own needs for professional learning, seek professional literature to better understand their problems, work alongside each other to deepen practice, and measure student growth that may result from their inquiry. Four research questions that I am hoping to gain a deeper understanding through this study include:

1. Do teachers' attitudes, beliefs and preferences for professional development change as a result of using teacher research as a primary vehicle for professional development?
2. Does a systematic, on-going, inquiry oriented professional development model with a focus on teacher research impact teachers' literacy practices?
3. What impact does an inquiry oriented professional development model with a focus on inquiry have on student growth?
4. What characteristics of this newly designed professional learning model do classroom teachers deem most important for impacting their practices and student learning?

I will be seeking consent from eleven general education teachers who have previous teaching experience at [redacted] to participate in the study at their will. Participants will sign a consent form, which will clearly explain the intent of the study and their role within the study. Confidentiality will be assured and pseudonyms will be used throughout the study.

Data collection will begin in August, 2012 and commence in December, 2012. Participation will occur during regularly scheduled professional development meetings and through classroom observations, responses on surveys, collected artifacts, and semi-structured interviews. I am requesting a copy of the text *Living the Questions* for each teacher participant to serve as the anchor text for the innovation I am proposing. Participant data will be kept confidential and shredded three years after the study is complete.

The findings of this study will be shared with you, your staff, and with my dissertation committee. In addition, I may publish the results in a professional journal and/or present at a professional conference. Thank you for your consideration.

Sincerely,

Michele Hudak, M.Ed.
Doctoral Candidate, Arizona State University

APPENDIX B

LETTER GRANTING PERMISSION TO CONDUCT RESEARCH

CANDEO SCHOOLS
Growing Brilliance

9965 W. Cactus Lane
Peoria, AZ 85383
office 623.979.6500
fax 623.979.6510

June 26, 2012

Dear Mrs. Hudak,

Thank you for your request to conduct act on research on site at Candeo Peoria. I am pleased to grant you permission to conduct your study in accordance with our adopted school policy and upon approval by the Institutional Review Board. Please provide documentation of such approval prior to beginning your intervention.

I look forward to learning the results of your study. Please let me know how I may be of further assistance to you in your goals.

Sincerely,

Stephanie Musser, MA.Ed.
Executive Director/Head of School

APPENDIX C

INVITATION TO PARTICIPATE IN RESEARCH STUDY

PROFESSIONAL DEVELOPMENT PLUS

Cover Letter to All Participants

August 29, 2012

Dear Teacher,

I am a doctoral student under the direction of Professor Mary F. Roe in the Mary Lou Fulton Teachers College at Arizona State University.

I am conducting an action research study to examine the impact of an inquiry model of professional development in which teachers identify their own needs for professional learning, seek professional literature to better understand their problems, work alongside each other to deepen practice, and measure student growth that may result from the inquiry.

I am inviting you to participate in this study through December, 2012. Your participation would include filling out a pre and post survey that will take 5-10 minutes, an observation in your classroom that will last 30-45 minutes, the sharing of study artifacts, and participation in a semi-structured interview in December that will take 30 minutes. I would like to digitally audio record the individual interviews and all professional development meetings. You will not be recorded without your permission. Please let me know if you wish to be part of the individual interviews. Please let me know if you do not want the interview to be taped; you can also change your mind after the interview starts, just let me know. The recordings will be kept in a locked cabinet in my home for three years, after which time they will be deleted. The return of the survey will be considered your consent to participate for the survey piece. The classroom observations and attendance at the professional development meetings are required as part of your normal job functions. However, by signing below, you are agreeing to allow data from the classroom observations and professional development meetings to be used as data for this research study.

Your participation in this research study is voluntary. All participants must be 18 years or older. You may opt out of questions on the survey or requests for information at any time. If you choose not to participate or to withdraw from the study at any point, there will be no penalty. Your participation will also have no effect on your employment. In addition, you should feel under no obligation to participate because of the administrative role I hold in the building. Your participation is completely confidential. You will be given a pseudonym by which you will be identified.

Although there is no direct benefit to you, possible benefits from your participation include a deeper understanding of how an inquiry model of professional development impacts teachers and students. The results of this study may be used in reports, presentations, and/or publications.

I thank you in advance for your consideration in taking part in this study. I hope that you will be able to participate as this research may help us better understand the impact of innovative professional development models on teacher practice and student learning.

If you have any questions concerning the research study, please contact the research team of Mary F. Roe, mary.roe@asu.edu or Michele Hudak, michele.hudak@asu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you may contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity, at 480.965.6788.

Sincerely,

Michele Hudak

By signing below, I agree to allow my classroom observation and artifact sharing to be a part of this research study:

Signature_____ Date_____

By signing below, I agree to allow audio recordings of me in professional development meetings to be used in this research:

Signature_____ Date_____

APPENDIX D

MEMO OF UNDERSTANDING OF POTENTIAL CONFLICT

Memo of Understanding of Potential Conflict

August, 2012

Dear Teachers,

As you know, I will be conducting research on an innovative professional development model this fall. It is my responsibility, as a researcher, to identify potential conflict that may arise from my study. One of the potential issues with regard to my study lies within my dual role as both researcher and as Dean of Academics. Specifically, it is my duty to inform you that coercion to participate in the study is of concern.

I am writing this letter under the direction of the Office of Research Integrity and Assurance at Arizona State University to inform you of this potential problem and to direct you to their office if you feel you have been pressured to participate in this study or if you have been treated differently because you did not volunteer for the study. You can contact the Chair of Human Subjects Institutional Review Board, through the Arizona State University of Research Integrity and Assurance, at (480) 965-6788. Be assured that ASU will not identify you, but would immediately contact me, the researcher, to intervene as necessary.

Thank you for your attention to this matter.

Sincerely,

Michele Hudak

APPENDIX E

PROFESSIONAL DEVELOPMENT PRE SURVEY

Professional Development Pre-Survey

My name is Michele Hudak and I am a doctoral student at Arizona State University. I am studying the impact of an enhanced professional development model on teacher practice and student growth. The purpose of this survey is to better understand teachers' beliefs, attitudes, and preferences regarding professional learning experiences. The survey poses 18 statements and/or questions in three domains: beliefs/attitudes, context preferences, and content preferences. Demographic information will also be requested at the end of the survey. Most statements will require you to select a single response: strongly agree, agree, neutral, disagree, or strongly disagree. The survey should take about 5 minutes. All responses are confidential. If you have any questions, please email me at Michele.Hudak@asu.edu. Thank you!

1. Beliefs about Professional Development

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1.1 Professional development improves teaching practice.	o	o	o	o	o
1.2 Professional development increases student achievement.	o	o	o	o	o
1.3 Professional development aligns with school goals.	o	o	o	o	o
1.4 Professional development utilizes research as a basis for learning.	o	o	o	o	o

2. Attitudes toward Professional Development

2.1 Professional development often helps teachers develop new teaching strategies.	o	o	o	o	o
2.2 If I did not have to attend professional development sessions, I would not attend.	o	o	o	o	o
2.3 Professional development is worth the time it takes.	o	o	o	o	o

2.4 I have been enriched by the professional development events I have attended.	o	o	o	o	o
2.5 Staff development initiatives have **not** had much impact on my teaching.	o	o	o	o	o

3. Professional Development Context Preferences

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
3.1 I prefer to listen to presentations by educational experts within my school.	o	o	o	o	o
3.2 I prefer to learn with my colleagues.	o	o	o	o	o
3.3 I prefer to read professional books and journals.	o	o	o	o	o
3.4 I prefer to attend conferences/workshops outside of my school.	o	o	o	o	o
3.5 I prefer to learn professionally by myself.	o	o	o	o	o

4. Professional Development Content Preferences

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
4.1 I prefer professional development experiences that are focused on one topic or content area.	o	o	o	o	o
4.2 I prefer professional development topics or content to be sustained over time.	o	o	o	o	o

4.3 I prefer professional development content to be based on individual teacher needs.	o	o	o	o	o
4.4 I prefer professional development content to be aligned with school goals.	o	o	o	o	o

5. Demographic Information

5.1 What is your gender?

- o Male
- o Female

5.2 Please indicate your age range?

- o 21-30
- o 31-40
- o 41-50
- o 51-60
- o 60+

5.3 How many total years have you taught prior to this school year?

- o 0-5 years
- o 6-10 years
- o 11-15 years
- o 16-20 years
- o 21-25 years
- o 26-30 years
- o 30 + years

5.4 In which grade level or subject area do you teach?

- o Kindergarten-Second Grade
- o Third Grade-Sixth Grade
- o Special Education
- o Gifted Education
- o Instructional Coach
- o Special Area (Art, Music, PE)
- o Other _____

APPENDIX F

PROFESSIONAL DEVELOPMENT IMPLEMENTATION TIMELINE

PROFESSIONAL DEVELOPMENT IMPLEMENTATION TIMELINE	
August	• Distribute invitation to participate in research study. • Distribute pre-survey questions to teachers. Return of signature page and survey indicate willingness to participate. • Pass out copies of *Living the Questions* to teachers. • Read Chapter 1 of *Living the Questions* prior to next Wednesday and prepare to discuss.
September	• Respond to the professional development vignette. • Share Power Point with direction for professional learning. • Discuss Chapter 1 of *Living the Questions.* • Work collaboratively/individually during the following two Wednesdays to make observations, examine data, develop an initial research question, and read Chapters 2, 3, and 6.
October	• Share student observations, relevant data, and research question developed in September with group. • Offer questions and suggestions to each other during whole group sharing session. • Use Power Point to facilitate discussion of Chapters 3 and 6. • Work collaboratively/individually during the following Wednesday to begin developing research briefs which include relevant literature to support direction and baseline data collection. • Submit initial research briefs to Michele by the end of October. • Read Chapter 5 in preparation for November's facilitated session.
November	• Use Power Point to facilitate discussion of Chapter 5 • Small groups of teachers share research briefs that includes research questions, supporting scholarship, data collection methods, and baseline student data. • Work collaboratively/individually on individual projects the following

	Wednesday and incorporate a reflection into research brief. • Read Chapter 8 in preparation for December • Research participants schedule classroom observations sometime during the weeks of November 26-December 7
December	• Use Power Point to facilitate discussion of Chapter 8. • Discuss direction for next semester. • Submit updated research briefs and timeline for second semester. • Research participants schedule time with Michele to complete semi-structured interviews between December 10-December 19. • Complete post-survey by December 20th.

APPENDIX G

PROFESSIONAL DEVELOPMENT VIGNETTE

Professional Development Vignette

Annie recently joined Central School, an independent charter school, after having spent her first three years as a second grade teacher in a large suburban district school in north Phoenix. Annie opted to apply to Central for two reasons. First, her twins were entering kindergarten, and she was looking for a school that offered a full day kindergarten option. Second, she heard from numerous parents in the community that Central was a great place to work because teachers did not have to put up with "big district bureaucracy." She was told that the administrators at the school did not mandate *how* you taught the curriculum as long as you ensured that everything was *covered* by the end of the year.

Currently, students at Central are released one hour early each week so that teachers may participate in professional development. The administrators at Annie's school call this "job-embedded professional development," which was explained to Annie as professional development focused on the needs of the school. As Annie walked into the host classroom for the week's professional development session, she noticed that she was the first teacher to arrive (as was often the case). She took a seat in the back corner of the classroom. The professional development coordinator walked in next and gave Annie a warm hello and asked how her day was. Other staff members began arriving and conversing with each other. Annie's teammates arrived and sat near her. Veteran members of the staff were often the last to arrive. The session began 10 minutes late, as was often the case.

A community building ice-breaker was modeled by the professional development coordinator. Annie made note of the strategy in her reflection notebook so she could try it with her students the following week. Next, the professional development coordinator began asking for opinions about how to best operationalize the school's lock down procedures. Many opinions were offered, and a lively conversation among 5-7 staff members ensued for 40 minutes. As Annie looked around the classroom, she noticed that most staff members, like her, sat silently listening to the discussion among the 5-7 participating staff members. Some staff members were grading papers, using their smart phones, or writing in their reflection notebooks. After the 40 minute conversation, the professional development coordinator thanked everyone for their input and said that she would get back to the staff with a final copy of lock down procedures and protocol.

With only 30 minutes remaining, the professional development coordinator explained that the focus of today's professional development is comprehension strategies. The reason for this focus is because the third grade team recently attended a conference and determined that everyone (including special area teachers) needs to know and teach these strategies so that students in grades 3-6 will be ready for the state tests in April. To accomplish this, teachers were placed in groups, asked to read about a particular comprehension strategy, summarize the strategy on chart paper, and be prepared to share out the strategy with the group.

Having recently graduated from a progressive university, Annie already knew the strategies being presented and taught many of these comprehension strategies during her literacy block at the beginning of the school year. In fact, the text from which the readings were copied was one of Annie's college texts. Annie's group completed the

task as assigned. However, not all groups were able to present because it was 4:00 and professional development was over for the day. The professional development coordinator collected the remaining charts, informed the teachers that she would type everything in a document and email the strategy document to everyone so that they could begin teaching the strategies as soon as possible.

Annie left the session somewhat frustrated; however, she did not share her frustration with anyone because she did not want any of the teachers or the administration to think that she is not a team player or that she has a bad attitude toward professional development.

APPENDIX H

RESEARCH BRIEF FORMAT

Research Brief

Research Purpose	In this section, provide background information for what you are choosing to investigate. Use data, observations, literature to support your purpose.
Research Question	In this section, state your research question/s. Ask real questions rather than researching to confirm a teaching practice about which you already may believe you have an answer.
Literature Review	What supporting scholarship have you accessed to support your direction? List your resources and summarize what you learned from each source.
Data Collection	How do you plan to collect information to answer your question? What collection instruments will you use that supports student growth? Consider using both quantitative and qualitative sources.
Data Analysis	Once you begin collecting data, what is your plan for analysis? How do you plan to converge or triangulate your data sources?
Quarterly Timeline	What is your plan for each quarter? Generalize your timeline, and as you collect data, adjust your timeline to reflect necessary changes.
Reflection	Reflect on your journey monthly. Discuss what you are learning as a professional, what you are doing differently, and how your students are responding to what you have proposed.

Adapted from *Living the Questions* (Shagoury and Power, 2012)

APPENDIX I

SEMI-STRUCTURED INTERVIEW SCRIPT

Semi-Structured Interview Script

Thank you for taking the time to sit down with me to have a conversation about your experiences with professional development. I will be using your answers to help answer my research questions regarding the effect of a new professional development model on teacher practice and student achievement. Please feel free to speak openly, as I am not trying to convince you of anything. My purpose is to gain a deeper understanding of teacher perceptions regarding professional development. I am going to ask you a series of prescribed questions. I may ask follow-up questions if I need clarity. With your permission, I will record the interview so that I may transcribe it for analysis. Do I have your permission? I will also provide you with a copy of the interview so that you may check it for accuracy. Your identity will remain confidential. Do you have any questions before we begin?

1. Discuss your beliefs about the purpose for teacher professional development?
2. How do you feel about the professional development you received in the past year?
3. If you could create a professional development program, what might you include?
4. In which types of professional development have you participated that has impacted your teaching practice? How? Why?
5. To what extent has your professional development impacted your students' academic outcomes? How do you know that this might be a result of professional development?
6. Think of a successful professional development experience in which you've participated. What characteristics of that experience stand out?
7. What additional professional development opportunities have you sought out between August and December? Talk about your experiences.

APPENDIX J

PROFESSIONAL DEVELOPMENT POST SURVEY

Professional Development Post-Survey

My name is Michele Hudak and I am a doctoral student at Arizona State University. I am studying the effects of an enhanced professional development model on teacher practice and student achievement. The purpose of this survey is to better understand teachers' beliefs, attitudes, and preferences regarding professional learning experiences. The survey poses 18 statements and/or questions in three domains: beliefs/attitudes, context preferences, and content preferences. Demographic information will also be requested at the end of the survey. Most statements will require you to select a single response: strongly agree, agree, neutral, disagree, or strongly disagree. The survey should take about 5 minutes. All responses are confidential. If you have any questions, please email me at Michele.Hudak@asu.edu. Thank you!

1. Beliefs about Professional Development

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
1.1 Professional development focused on inquiry improved my teaching practice.	o	o	o	o	o
1.2 Professional development focused on inquiry impacted student growth in my classroom.	o	o	o	o	o
1.3 Professional development focused on inquiry aligns with my school's goals.	o	o	o	o	o
1.4 Professional development focused on inquiry utilizes research as the basis for learning.	o	o	o	o	o

2. Attitudes toward Professional Development

2.1 Professional development focused on inquiry helped me develop new teaching strategies.	o	o	o	o	o
2.2 If I did not have to attend professional development sessions focused on inquiry, I would not attend.	o	o	o	o	o

2.3 Professional development focused on inquiry was worth the time it took.	o	o	o	o	o
2.4 I have been enriched by professional development that focuses on inquiry.	o	o	o	o	o
2.5 Using an inquiry based model for professional development has impacted my teaching.	o	o	o	o	o

3. Professional Development Context Preferences

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
3.1 I prefer to listen to presentations about inquiry by educational experts within my school.	o	o	o	o	o
3.2 I prefer to learn about the elements of inquiry with my colleagues.	o	o	o	o	o
3.3 I prefer to read professional books and journals with an inquiry stance.	o	o	o	o	o
3.4 I prefer to attend conferences/workshops outside of my school.	o	o	o	o	o
3.5 I prefer to learn professionally by myself.	o	o	o	o	o

4. Professional Development Content Preferences

To what extent do you agree with the following statements:	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
4.1 I prefer that my inquiry experience was focused on one topic or content area.	o	o	o	o	o
4.2 I prefer that my inquiry topics or content was sustained over time.	o	o	o	o	o
4.3 I prefer that my content for inquiry was based on my	o	o	o	o	o

needs.					
4.4 I prefer that inquiry project content be aligned with school goals.	o	o	o	o	o

5. Demographic Information

5.1 What is your gender?

- o Male
- o Female

5.2 Please indicate your age range?

- o 21-30
- o 31-40
- o 41-50
- o 51-60
- o 60+

5.3 How many total years have you taught prior to this school year?

- o 0-5 years
- o 6-10 years
- o 11-15 years
- o 16-20 years
- o 21-25 years
- o 26-30 years
- o 30 + years

5.4 In which grade level or subject area do you teach?

- o Kindergarten-Second Grade
- o Third Grade-Sixth Grade
- o Special Education
- o Gifted Education
- o Instructional Coach
- o Special Area (Art, Music, PE)
- o Other _____

APPENDIX K

COPYRIGHT PERMISSION

January 16, 2012 (via email)

Dear Dr. Torff,
I am a doctoral student at Arizona State University as well as an administrator at a local elementary school. I am studying the effects of an inquiry based professional development model on teacher practices and student achievement. One of my research questions is
Do teachers' attitudes and beliefs about professional development change as a result of using practitioner research as a primary vehicle for professional development?

I came across the article you co-authored in Educational and Psychological Measurement in October 2005, and am intrigued by your Assessment of Teachers' Attitudes about Professional Development (TAP). Is this instrument available for use and/or for adaptation? My hope is to use an instrument that has been developed by experts in the field as a pilot test, and then possibly adapt the instrument specifically for my local context and my intervention with permissions from the authors.
Thank you for your consideration.

Respectfully,
Michele Hudak

January 16, 2012 (via email)

Hello

You are welcome to use the scale as long as you cite the work appropriately and send whatever you might publish that uses the instrument to me.

The scale has a tendency to skew to the positive, since attitudes about PD tend to be socially scripted. You can counter that problem by transforming the data and/or using specialized statistics (e.g., censored regression). If you alter the wording you'll have to re-do the factor analysis and internal consistency reliability analysis.

I have attached a few papers using the scale. Citations are on the attached CV.

Thank you for your interest. I love Arizona, aside from the occasional xenophobic, bigoted governor and sheriff. ASU is a great place.

Best of luck!

Bruce Torff, Ed.D.
Professor, Department of Teaching, Literacy, and Leadership
Director, Doctoral Program in Learning and Teaching
School of Education, Health and Human Services

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APPENDIX L

IRB/HUMAN SUBJECTS APPROVAL

ASU Knowledge Enterprise Development

Office of Research Integrity and Assurance

To:	Mary Roe FAB S301C
From:	Mark Roosa, Chair Soc Beh IRB
Date:	08/14/2012
Committee Action:	**Exemption Granted**
IRB Action Date:	08/14/2012
IRB Protocol #:	1207008022
Study Title:	Professional Development Plus: Rethinking Professional Learning

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.